



# CONNECT MID-HUDSON

## Transit Study

Capital Improvement Analysis | June 2020



Prepared by:





## CONTENTS

4. Congestion Mitigation and Park-and-Ride Capacity Assessment .....	1
4.1 Background .....	1
4.2 Methodology.....	2
4.3 Definitions and Assumptions .....	3
4.3.1 Active Transit Signal Prioritization.....	3
4.3.2 Capital Cost Estimates.....	3
4.4 Congestion Mitigation Assessment.....	4
4.4.1 Dutchess County .....	4
4.4.2 Orange County.....	5
4.4.3 Ulster County .....	10
4.4.4 Capital Cost Summary .....	11
4.5 Assessment of Park-and-Ride Capacity Constraint Mitigation .....	12
4.5.1 Dutchess County .....	12
4.5.2 Orange County.....	13
4.5.3 Ulster County .....	16
4.5.4 Park-and-Ride Capital Cost Summary .....	18



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## 4. CONGESTION MITIGATION AND PARK-AND-RIDE CAPACITY ASSESSMENT

### 4.1 Background

For many Mid-Hudson Valley commuters, transit service is preferable to driving alone because it allows them to rest, relax, and/or be productive during their journey rather than focusing primarily on operating their own vehicle. Commuting by transit also allows residents of the three-county region to avoid the stresses associated with parking, particularly in New York City. While these pain-points drive commuters to try transit, other pain-points can drive them away. For example, poor on-time performance or limited parking availability at popular park-and-ride locations can frustrate commuters (as evidenced by public survey responses presented in previous technical memos for this study).

As part of the Mid-Hudson Valley Transportation Management Area's (TMA) Congestion Management Process (CMP), the three Metropolitan Planning Organizations of the TMA produced two key reports in 2020 documenting roadway congestion and park-and-ride capacity constraints.<sup>1</sup> The TMA-Wide Macro-Level Analysis report was a screening of the Mid-Hudson region to identify congestion hot-spots, including those that may impact regional transit operations. The Multi-Modal Accessibility Analysis report was an evaluation of existing multi-modal conditions in the TMA area, including park-and-ride capacity and availability.

This document examines the locations identified in the TMA's CMP reports as having an impact on regional transit service. The purpose of this assessment is to evaluate conditions that impact the efficient operation of regional transit and develop solutions to improve operations. Congestion mitigation assessment segments include the following corridors:

#### Dutchess County:

- A. Route 9D at the I-84 Interchange
- B. US Route 9 and NY Route 52 Intersection

#### Orange County:

- C. NY Route 17K (Broadway) near Route 9W (Robinson Ave)
- D. County Road 15, US Route 6 at the I-84 Interchange
- E. Route 9W at the I-84 Interchange
- F. NY Route 17K at the I-84 Interchange
- G. NY Route 17K and Route 300 at the I-84 and I-87 Interchanges
- H. NY Route 208 at the I-84 Interchange

#### Ulster County:

- I. NY Routes 32 at the I-587 Terminus Interchange
- J. NY Route 299 at the I-87 Interchange

The park-and-ride lots examined for opportunities to mitigate capacity constraints include the following:

#### Dutchess County:

- I. Beacon Metro-North Station

<sup>1</sup> Reports can be accessed here: <https://www.dutchessny.gov/Departments/Transportation-Council/Regional-Transportation-Planning.htm>

## II. Route 52 and Taconic State Parkway

### Orange County:

- III. Monroe Park-and-Ride, Lots A and B
- IV. Chester Park-and-Ride
- V. Tuxedo Park-and-Ride, NY Route 17A & County Road 106
- VI. Central Valley Park-and-Ride, Lot 1
- VII. Central Valley Park-and-Ride, Lots 2 and 3
- VIII. Kiryas Joel Park-and-Ride

### Ulster County:

- IX. Rosendale Park-and-Ride, NY Route 32
- X. NYS Thruway Park-and-Ride New-Paltz, I-87
- XI. Trailways Bus Station Park-and-Ride, Washington Avenue

Congestion mitigation and park-and-ride locations that were included in this assessment are illustrated in Appendix A, Figure A-1.

## 4.2 Methodology

The congestion mitigation assessment is a high-level evaluation of locations that are experiencing traffic congestion that have a negative impact on regional bus transit operations. Congestion mitigation locations include individual intersections and groups of intersections within a highway corridor. A number of these locations are at interchanges on I-84 and I-87. The congestion mitigation assessment included the following steps:

- Development of a georeferenced map of the intersection or corridor experiencing congestion, including overlaid regional transit information, using GIS resources.
- Documentation of web-based traffic information to identify specific locations of background traffic congestion that may impact regional bus transit operations.
- Identification of conditions that contribute to congestion within these corridors including roadway and intersection geometry, as well as traffic signals.
- Development of potential solutions (high level), such as bus-on-shoulder operations, queue jumps, dedicated bus lanes, and transit signal priority treatments, to improve transit operations within the identified intersections and corridors.
- Summarization of recommendations for improvements along with concept level costs.

The assessment of park-and-ride capacity constraint mitigation focused on lots that, according to the TMA's Multi-Modal Accessibility Analysis, experience demand approaching or exceeding the capacity of each lot. As a result, at many lots, illegal parking occurs on adjacent vacant property or within the highway right-of-way. The assessment of park-and-ride capacity constraint mitigation included the following steps:

- Development of a georeferenced map of the capacity-constrained park-and-ride lots using GIS resources.
- Development of mitigation options such as horizontal expansion on adjacent property, vertical structure on an existing surface lot, or improved pedestrian connections to reduce parking demand.
- Summarization of recommendations for improvement along with concept level costs.



## 4.3 Definitions and Assumptions

### 4.3.1 Active Transit Signal Prioritization

One of the concepts referred to frequently in the recommendations that follow is “active transit signal prioritization.” Transit signal prioritization, or TSP, is the practice of providing transit vehicles with priority at signalized intersections or corridors in order to reduce travel time and increase schedule reliability.

Transit signal prioritization techniques can generally be classified as “active” or “passive”. Passive TSP techniques typically involve optimizing signal timing or coordinating successive signals and rely on simply improving traffic for all vehicles along the transit vehicle’s route. On the other hand, active TSP techniques rely on detecting transit vehicles as they approach an intersection and adjusting the signal timing and phasing dynamically to improve service for the transit vehicle. Research and development are ongoing to allow for the visual recognition of transit vehicles in the context of TSP. However, this technology is not yet commercially available. Currently, active TSP requires both onboard and roadside hardware including the following:

- Onboard automatic vehicle location (AVL) technology to assess the current location of a vehicle relative to its scheduled location, determine whether to request signal priority, and communicate the request to the appropriate signal system.
- A communication and detection system consisting of a transmitter on the transit vehicle, and one or more receivers or detectors at a signal or elsewhere along the roadway.
- Central or roadside processors to receive priority request communications and determine whether and when to grant the request, as well as signal software to process the request and store the data.
- TSP-capable signal controller to perform the required timing and phasing adjustments.

A number of transit operators utilize active TSP as part of their overall system management. The New York City Department of Transportation (NYCDOT) and the Metropolitan Transportation Authority (MTA) have been working to implement active TSP in New York City. As of June 2017, active TSP had been provided at 260 intersections along five bus routes. The implementation program continues with plans to expand the network by an additional 550 intersections by the end of 2020. The Capitol District Transit Authority in Albany is implementing active TSP at 45 signalized intersections along the NY Route 5 corridor. Buses will use GPS and odometer distance calculations to automatically request TSP as they travel along the corridor.

Active TSP requires a high degree of coordination between the agencies responsible for signals and transit operators. Coordination needs may require long-term agreements and planning of vehicle and signal equipment purchases based on goals, since not all equipment can perform all functions. NYSDOT owns or has jurisdiction over many of the signalized intersections that are identified for active TSP in this document. Accordingly, NYSDOT must be a partner in the implementation of active TSP.

### 4.3.2 Capital Cost Estimates

Capital costs vary greatly based on site conditions which can only be determined through detailed pre-construction site analyses. For the purpose of this document, capital cost recommendations include the estimated construction cost, along with a 30 percent contingency for unknown conditions. In addition, recommendations related to park-and-ride capacity expansion include an allowance for property acquisition of \$30,000 per acre. This allowance includes the purchase of property for expansion, as well as FTA right-of-way incidentals.

## 4.4 Congestion Mitigation Assessment

Results of the congestion mitigation assessment for the intersections and corridor segments identified in the TMA's CMP reports as having an impact on regional transit service are presented below.

### 4.4.1 Dutchess County

#### A. Route 9D at the I-84 Interchange

This congestion assessment segment is illustrated in Figure A-2 of Appendix A. This segment includes two signalized intersections on Route 9D at the I-84 interchange ramps. Coach USA service operates along the mainline of I-84 at this location with five daily trips in each direction, for a total of ten weekday trips, but does not enter or exit onto Route 9D. The Newburgh-Beacon-Stewart Shuttle uses I-84 and Route 9D to travel between Orange County and Beacon. Dutchess County Public Transit routes use Route 9D at this location.

According to NYSDOT traffic count data, congestion at this location is heaviest between 3:00 PM and 4:00 PM on weekdays. As illustrated in Figure 1, the PM peak-period congestion mostly impacts Route 9D, as well as the interchange exit ramps.

Recommendations for congestion mitigation at this location include upgrading the existing exit ramp signal equipment to provide real-time adjustments to signal cycle lengths to manage the queue on the I-84 exit ramps and minimize impacts to mainline traffic flow.



Figure 1: Route 9D at the I-84 Interchange between 3:00 and 4:00 PM on weekdays

Source: Google Earth

Traffic signal improvements at this location would benefit the Newburgh-Beacon-Stewart Shuttle and Dutchess County Public Transit routes operating along Route 9D.

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Passive TSP	\$ 90,000	I-84 - New York State 9D - New York State	Town of Fishkill



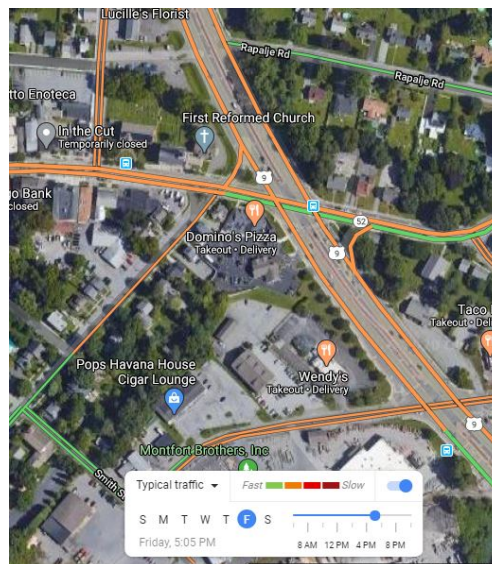
### B. US Route 9 and NY Route 52 Intersection

This congestion assessment segment is illustrated in Figure A-3 of Appendix A. This segment includes the signalized intersection of US Route 9 at NY Route 52 in Fishkill. Coach USA and Leprechaun Lines together operate 12 northbound and 11 southbound trips through this intersection each weekday. Coach USA buses traveling north on Route 9, make a left-turn movement onto Route 52 at this intersection. Dutchess County Public Transit routes also operate on both Route 9 and Route 52 in this location.

According to NYSDOT traffic count data, congestion at this location is heaviest between 5:00 PM and 6:00 PM on weekdays. While the traffic data shown in Figure 2 illustrates typical Friday afternoon conditions, every approach to the US Route 9 at NY Route 52 intersection experiences congestion at some point during a typical weekday.

Recommendations for congestion mitigation at this location include the implementation of active transit signal prioritization to permit signal preemption for transit buses. This would include upgrading the existing signal equipment to provide transit real-time adjustments to signal cycle lengths to manage the through and left-turn movement queues on Route 9. In addition, the existing right-turn-only lanes could be converted to shared right-turn and bus queue jump lanes. The existing islands would be modified to incorporate a bus-only queue jump lane and signal display (see Appendix for an illustration). Signal phasing would be modified along with adding an advanced protected bus-only phase so that buses would move northbound and southbound in advance of other traffic.

Accordingly, the estimated capital costs for these improvements are as follows:



*Figure 2: US Route 9 and NY Route 52 Intersection between 5:00-6:00 PM on weekdays*

Source: Google Earth

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP	\$ 91,000	New York State	Town of Fishkill
Queue Bypass Lanes	\$ 159,000		
<b>Total</b>	<b>\$ 250,000</b>		

## 4.4.2 Orange County

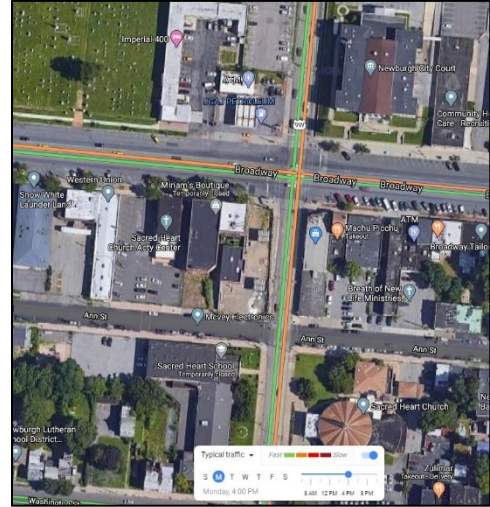
### C. NY Route 17K (Broadway) near Route 9W (Robinson Avenue)

This congestion assessment segment is illustrated in Figure A-4 of Appendix A. This segment includes the signalized intersection of Route 17K (Broadway) at Route 9W (Robinson Avenue) in Newburgh. Coach USA operates 15 northbound trips and 14 southbound daily trips through this intersection, for a total of 29 trips per weekday, with northbound buses turning left from Route 9W onto Route 17K. Newburgh Local Transit and the Newburgh-Beacon-Stewart Shuttle also use Broadway at this location and would benefit from congestion mitigation treatments. The existing intersection is essentially landlocked precluding further widening.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 4:00 PM and 5:00 PM on weekdays. As shown in Figure 3, the PM peak-period congestion mostly impacts northbound Route 9W and westbound Route 17K, although the opposite directions are impacted during other time periods.

Recommendations for congestion mitigation at this location include the implementation of active transit signal prioritization to permit signal preemption for buses. This would include upgrading the existing signal equipment to provide real-time adjustments to signal cycle lengths to manage the left-turn-movement queues on Route 9W for transit vehicles.

Accordingly, the capital cost for these improvements are as follows:



**Figure 3: Route 17K (Broadway) near Route 9W (Robinson Ave) between 4:00 PM and 5:00 PM on weekdays**  
Source: Google Earth

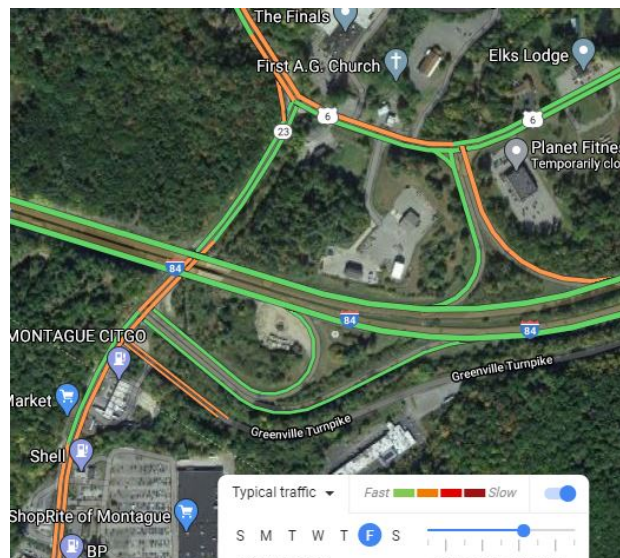
Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP	\$ 55,000	City of Newburgh	City of Newburgh

#### **D. County Road 15, US Route 6 at the I-84 Interchange**

This congestion assessment segment is illustrated in Figure A-5 of Appendix A. This segment includes the signalized intersections on CR 15 at the eastbound I-84 interchange ramps and CR 15 at US Route 6. In addition, there is a stop-sign-controlled intersection at US Route 6 at the westbound I-84 interchange ramps. Coach USA serves a park-and-ride just north of Route 6 with eight northbound trips and four southbound trips, for a total of twelve trips per weekday. Buses access the park-and-ride via I-84, CR 15 and US Route 6.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 4:00 PM and 5:00 PM on weekdays. As shown in Figure 4, PM peak-period congestion mostly impacts Route 6, the westbound I-84 exit ramp, and the CR 15 intersection with the east bound I-84 ramps. The I-84 mainline operates without significant delay.

Based on the location of current traffic congestion, recommendations for congestion mitigation at this location include the implementation of active transit signal prioritization to permit signal preemption for transit buses at the Route 6 and I-84 eastbound ramp intersections with CR 15. This would include upgrading the existing signal equipment at four



**Figure 4: County Road 15, US Route 6 at the I-84 Interchange between 4:00 PM and 5:00 PM on weekdays**  
Source: Google Earth

intersections to provide real-time adjustments to signal cycle lengths to manage the left-turn movement queues at these intersections for transit vehicles. In addition, a new signal with active transit signal prioritization to permit signal preemption for transit buses should be installed at the Route 6 and I-84 westbound ramp intersection.

Accordingly, the capital cost for these improvements are as follows:

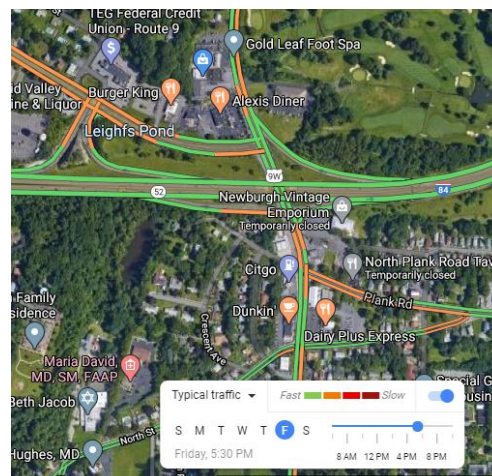
Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP Upgrades on CR 15	\$ 165,000	Orange County	Town of Deerpark
New Transit Priority Signal on US 6 at I-84	\$ 195,000	New York State	
<b>Total</b>	<b>\$ 360,000</b>		

### E. Route 9W at the I-84 Interchange

This congestion assessment segment is illustrated in Figure A-6 of Appendix A. This segment includes two signalized intersections on Route 9W at the I-84 interchange ramps as well as the Route 9W and Plank Road intersection. Coach USA buses operate along the mainline of I-84 at this location with five trips in each direction, for a total of ten weekday trips, but do not enter or exit onto Route 9W. The Newburgh-Beacon-Stewart Shuttle operates along both I-84 and Route 9W at this location and would benefit from congestion mitigation treatments. Presently, NYSDOT is implementing operational improvements for the signalized intersections at North Plank Road and Plank Road.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 5:00 PM and 6:00 PM on weekdays. As shown in Figure 5, PM peak-period congestion mostly impacts Route 9W and the I-84 exit ramps, while the I-84 mainline operates without significant delay.

Based on the location of current traffic congestion, recommendations for congestion mitigation at this location include coordinating with the current NYSDOT project to incorporate active transit signal prioritization to permit signal preemption for transit buses at the Route 9W and I-84 ramp intersections. Signal equipment would provide real-time adjustments to signal cycle lengths to manage the through and left-turn movement queues at these intersections for transit vehicles as well as manage the queue on the I-84 exit ramps and minimize impacts to mainline traffic flow.



**Figure 5: Route 9W at the I-84 Interchange between 5:00 PM and 6:00 PM weekdays**  
Source: Google Earth

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP Upgrades at NYSDOT Improvement Locations	\$ 65,000	New York State	Town of Newburgh
Active TSP Upgrades on Route 9W at I-84 Ramps	\$ 55,000		
<b>Total</b>	<b>\$ 120,000</b>		



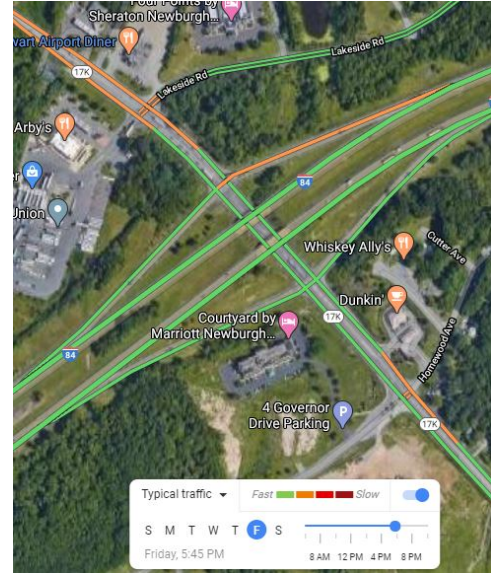
### F. NY Route 17K at the I-84 Interchange

This congestion assessment segment is illustrated in Figure A-7 of Appendix A. This segment includes two signalized intersections on Route 17K at the I-84 interchange ramps, as well as the signalized intersection at Governor Drive and Lakeside Road. Coach USA operates five weekday roundtrips between Newburgh and Middletown along Route 17K, and depending on Stewart Airport activity, two additional trips along I-84 in this location.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 5:00 PM and 6:00 PM on weekdays. As shown in Figure 6, PM peak-period congestion mostly impacts Route 17K at the Governor Drive and Lakeside Road intersections, as well as the westbound I-84 exit ramp. However, the mainline continues to operate without significant delay.

Based on the location of current traffic congestion, recommendations for congestion mitigation include the implementation of active transit signal prioritization to permit signal preemption for transit buses along Route 17K at the Governor Drive, Lakeside Road, and I-84 Ramp intersections with Route 17K. Improvements at these four intersections would include upgrading the existing signal equipment to provide real-time adjustments to signal cycle lengths to manage the through and left-turn movement queues at these intersections for transit.

Accordingly, the capital cost for these improvements are as follows:



*Figure 6: NY Route 17K at the I-84 Interchange between 5:00 PM and 6:00 PM on weekdays*  
Source: Google Earth

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP Upgrades on Route 17K	\$ 210,000	New York State	Town of Newburgh

### G. NY Route 17K and Route 300 at the I-84 and I-87 Interchanges

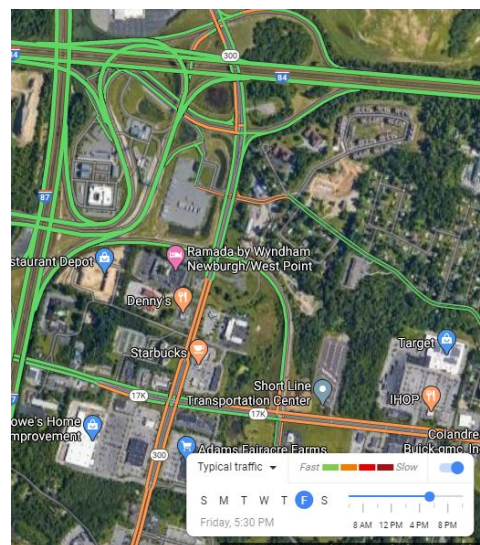
This congestion assessment segment is illustrated in Figure A-8 of Appendix A. This segment includes numerous intersections on Route 17K and the Route 300 connector to the I-84 and I-87 interchange ramps. Coach USA and Trailways both serve a park-and-ride north of Route 17K, near Auto Park Place. With the exception of northbound buses on I-87, buses traveling between the park and ride and both interstates travel via the Route 300 connector. Coach USA service includes 22 northbound and 22 southbound trips, for a total of 44 weekday trips. Trailways has two trips in each direction at this location for a total of four trips per weekday. In addition, the Newburgh-Beacon-Stewart Shuttle uses I-84, Route 300, and Route 17K at this location, and both UCAT (Route X) and Newburgh Local Transit operate along Route 300 and Route 17K.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 5:00 PM and 6:00 PM on weekdays. As shown in Figure 7, PM peak-period congestion mostly impacts Route 17K at the Auto Park Place Road intersection, as well as intersections of the Route 300 connector and interchange exit ramps. The mainlines of I-84 and I-87 operate without significant delay.

Based on the location of current traffic congestion, recommendations for congestion mitigation include the implementation of active transit signal prioritization to permit signal preemption for transit buses at the Route 300 and Auto Park Place Road intersections with Route 17K. In addition, active transit signal prioritization should be incorporated into existing signals on Route 300 at the I-84 and I-87 interchange ramps. This would include upgrading the existing signal equipment to provide real-time adjustments to signal cycle lengths to manage the through and left turn movement queues at these intersections for transit.

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP Upgrades on Route 17K and Route 300	\$ 210,000	New York State	Town of Newburgh



*Figure 7: NY Route 17K and Route 300 at the I-84 and I-87 Interchanges between 5:00 PM and 6:00 PM on weekdays*

Source: Google Earth



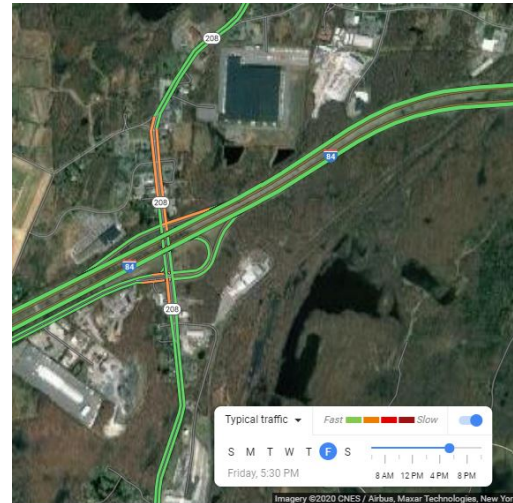
#### H. NY Route 208 at the I-84 Interchange

This congestion assessment segment is illustrated in Figure A-9 of Appendix A. This segment includes two signalized intersections on Route 208 at the I-84 interchange ramps, as well as Route 208 at Hawkins Drive. Coach USA operates five northbound trips and four southbound trips, for a total of nine weekday trips, along Route 208 but do not enter or exit onto I-84 at this location.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 5:00 PM and 6:00 PM on weekdays. As shown in Figure 8, PM peak-period congestion mostly impacts Route 208 between Hawkins Drive and I-84, as well as the exit ramps of I-84.

Based on the location of current traffic congestion, recommendations for congestion mitigation at this location include the implementation of active transit signal prioritization to permit signal preemption for transit buses at the Route 208 intersections with Hawkins Drive and the two I-84 Ramps.

Accordingly, the capital cost for these improvements are as follows:



*Figure 8: NY Route 208 at the I-84 Interchange between 5:00 PM and 6:00 PM on weekdays*  
Source: Google Earth

Improvement	Amount	Roadway Jurisdiction	Location (Municipality)
Active TSP	\$ 160,000	New York State	Town of Montgomery

### 4.4.3 Ulster County

#### I. NY Route 32 at the I-587 Terminus Interchange

This congestion assessment segment is illustrated in Figure A-10 of Appendix A. NYSDOT is progressing a multi-lane roundabout project at this location. The multi-lane roundabout will consolidate and replace the existing signalized intersections. No further action is recommended for this location.

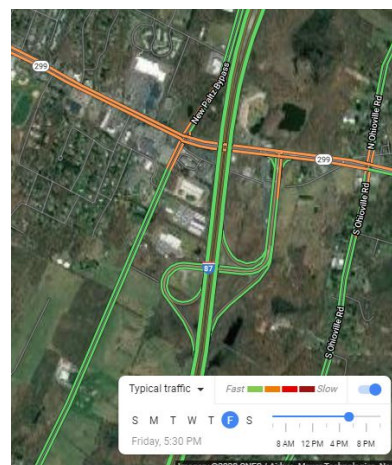
#### J. NY Route 299 at the I-87 Interchange

This congestion assessment segment is illustrated in Figure A-11 of Appendix A. This segment includes the signalized intersection of Route 299 at the I-87 interchange ramp, as well as several intersections on Route 299 at Manheim Boulevard, Cherry Hill Road and Putt Corners Road. Trailways buses serve a park-and-ride on Route 299, east of I-87 with 27 northbound trips and 26 southbound trips, for a total of 53 weekday trips. The area is also served by UCAT's NPL Route.

According to NYSDOT traffic count data, congestion at this intersection is heaviest between 5:00 PM and 6:00 PM on weekdays. As shown in Figure 9, PM peak-period congestion mostly impacts Route 299 at the Manheim Boulevard, Cherry Hill Road, and Putt Corners Road intersections, as well as the I-87 interchange ramp intersection. The I-87 mainline operates without significant delay at this location.

NYSDOT is implementing a signal optimization project including the four intersections at Chestnut Street, Manheim Boulevard, Cherry Hill Road, and Putt Corners Road with Route 299.

Based on the location of current traffic congestion, recommendations for congestion mitigation at this location include coordinating with the current NYSDOT project to incorporate active transit signal prioritization to permit signal preemption for transit buses along Route 299 at the Chestnut Street, Manheim Boulevard, Cherry Hill Road, and Putt Corners Road intersections. In addition, the implementation of active transit signal prioritization at the Route 299 and I-87 interchange signal would permit signal preemption for transit buses at this intersection. This would include upgrading the existing signal equipment to provide real-time adjustments to signal cycle lengths to manage the through and left-turn movement queues at these intersections for transit vehicles.



*Figure 9: NY Route 299 and 32 at the I-87 Interchange between 5:00 PM and 6:00 PM on weekdays*

Source: Google Earth

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Roadway Jurisdiction	Location(Municipality)
Active TSP Upgrades at NYSDOT Improvement Locations	\$133,000	New York State	Town of New Paltz
Active TSP Upgrades at Route 299 and I-87 Intersection	\$ 52,000		
<b>Total</b>	<b>\$185,000</b>		

#### 4.4.4 Capital Cost Summary

LOCATION	TOTAL
Route 9D at the I-84 Interchange	\$90,000
US Route 9 and NY Route 52 Intersection	\$250,000
Route 17K (Broadway) near Route 9W (Robinson Ave)	\$55,000
County Road 15, US Route 6 at the I-84 Interchange	\$360,000
Route 9W at the I-84 Interchange	\$120,000
NY Route 17K at the I-84 Interchange	\$210,000
NY Route 17K and Route 300 at the I-84 and I-87 Interchanges	\$210,000
NY Route 208 at the I-84 Interchange	\$160,000
NY Route 299 and 32 at the I-87 Interchange	\$185,000
<b>TOTAL</b>	<b>\$1,640,000</b>

## 4.5 Assessment of Park-and-Ride Capacity Constraint Mitigation

Mitigation of capacity constraints for the park-and-ride lots identified in the TMA's CMP reports as having an impact on regional transit service are presented below.

### 4.5.1 Dutchess County

#### ***I. Beacon Metro-North Station***

This park-and-ride capacity mitigation assessment location is illustrated in Figure A-12 of Appendix A. This park-and-ride lot primarily serves the Metro-North rail station in the City of Beacon. Based on recent observations of the study team, parking in the existing lot has reached capacity.

According to the City of Beacon's 2017 Comprehensive Plan, no additional commuter parking should be located at this station. Thus, none are being recommended as part of this study. However, the 2017 Comprehensive Plan recommends replacement of the existing commuter parking lot with transit-oriented development (TOD). The suggested mixed-use development would feature residential, commercial, and retail uses. Commuter parking would be accommodated in a parking structure. The TOD would encourage other travel modes as part of a comprehensive transportation-demand management strategy.

#### ***II. Route 52 and Taconic Parkway Park-and-Ride***

The Route 52 and Taconic Parkway Park-and-Ride location is illustrated in Figure A-13 of Appendix A. NYSDOT is currently in the process of constructing a second park-and-ride lot at this location on the west side of the Taconic State Parkway. This new lot includes 95 spaces with four ADA Accessible spaces. Therefore, no additional expansion of park-and-ride capacity is recommended at this time.

## 4.5.2 Orange County

### III. Monroe Park-and-Ride, Lots A and B

The Monroe Park-and-Ride Lots are illustrated in Figure A-18 of Appendix A. The Monroe lots are adjacent to NY Route 17M, Orange and Rockland Road, and the Orange Heritage Trail. The lots are serviced by Coach USA. Lot A offers 410 spaces with 8 ADA accessible spaces. Lot B offers 279 spaces with 8 ADA accessible spaces. Both lots operate near capacity on a regular basis. This is evidenced by data collected by data collected by county planners in fall 2018.

Vacant property exists adjacent to the existing lot that could support expansion. Figure 10 shows an option for expanding parking capacity that does not impact environmentally sensitive areas or the Orange County Heritage Trail. This expansion would provide space for an additional 323 spaces, providing a total capacity of 1,012 vehicles for the Monroe Lots. A new park-and-ride lot would require property acquisition of approximately 2.9 acres from one adjoining property.

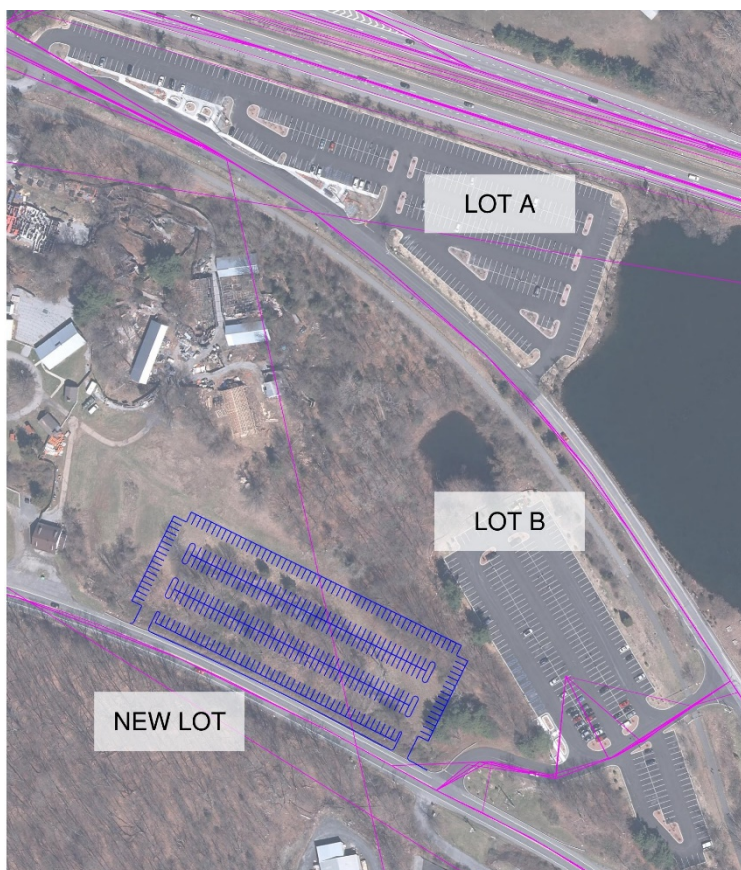


Figure 10: Monroe Park-and-Ride, Lots A and B, and potential new lot

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Lot Owner	Location (Municipality)
New Park-and-Ride Lot	\$ 3,585,000	Existing lots are owned by NYS DOT and maintained by Coach USA. The land for the new lot is privately owned.	Town of Monroe



#### IV. Chester Park-and-Ride

The Chester Park-and-Ride Lot is illustrated in Figure A-19 of Appendix A. The Chester Lot is adjacent to NY Route 94 and NY Route 17. The lot is serviced by Coach USA, and offers 93 spaces including 8 that are ADA accessible. According to the TMA's Multi-Modal Accessibility Analysis, the lot operates near capacity on a regular basis with additional parallel parking on Chester Boulevard and satellite parking in the Lowe's Parking lot located across NY Route 94.

Vacant property exists adjacent to the existing lot that could support expansion. As shown in Figure 11, there are two feasible options for the expansion of parking capacity at the site.

Option A would include a new lot opposite of the existing lot on the south side of Chester Boulevard. This new lot would provide an additional 179 spaces providing a total capacity of 272 vehicles at this location with 8 ADA accessible spaces. Option A would require the acquisition of approximately 1.7 acres from one property owner.

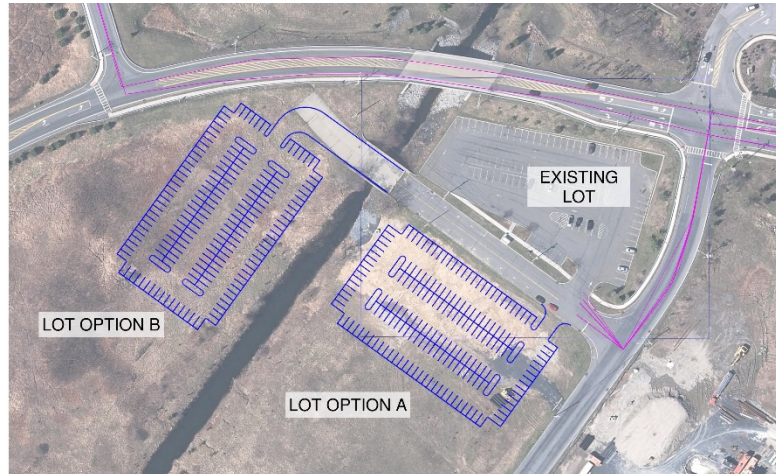


Figure 11: Chester Park-and-Ride and potential new lots

Option B would include construction of a new lot west of the existing lot. Option B would require rehabilitation or replacement of the existing bridge on Chester Boulevard. This new lot would provide an additional 180 spaces providing a total capacity of 273 vehicles with 8 ADA accessible spaces at this location. Option B would require acquisition of approximately 2.1 acres from one property owner.

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Lot Owner	Location (Municipality)
Option A	\$ 1,765,000	The existing lot is owned by NYS DOT and maintained by Coach USA. The land for proposed new lots are currently privately owned.	Village of Chester
Option B	\$ 1,915,000		



### V. Tuxedo Park-and-Ride Lot

The Tuxedo Park-and-Ride Lot is illustrated in Figure A-20 of Appendix A. This lot is adjacent to NY Route 17 and NY Route 17A. Access is provided via a parallel service road adjacent to NY Route 17. The intersections of the service road with NY Route 17 are signalized. The intersection of the service road with NY Route 17A is stop sign controlled. The existing lot offers 73 spaces and is serviced by Coach USA. According to the TMA's Multi-Modal Accessibility Analysis, the lot operates near capacity on a regular basis with illegal parking along the service road.

Vacant property exists adjacent to the existing lot on the opposite side of NY Route 17A that could support park-and-ride expansion. Figure 12 shows an option for expanding parking capacity along the existing service road to the south of Route 17A. This expansion would provide space for an additional 97 spaces providing a total capacity of 170 vehicles for the Tuxedo lots. The additional lot will require acquisition of approximately 1.5 acres from one property owner.

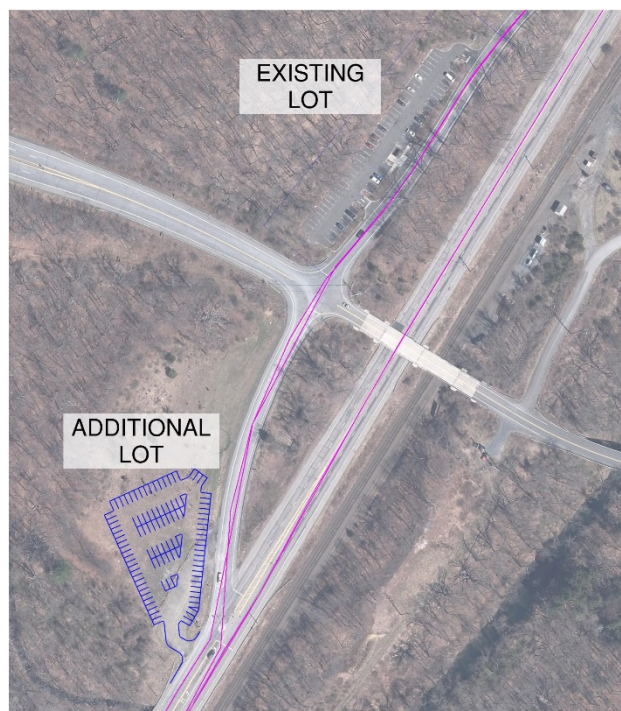


Figure 12: Tuxedo Park-and-Ride Lot and potential new lot

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Lot Owner	Location (Municipality)
New Park-and-Ride Lot	\$ 1,195,000	The existing lot is privately owned and maintained by Coach USA. The land for the additional lot is privately owned.	Town of Tuxedo

### VI and VII. Central Valley Park-and-Ride Lots 1, 2 and 3

The Central Valley Park-and-Ride Lots 1, 2, and 3 are illustrated in Figures A-21 and A-22 of Appendix A. NYSDOT has recently expanded these park-and-ride lots. With the NYSDOT expansion, the parking capacity of these lots is 96 spaces in Lot 1, 80 spaces in Lot 2, and 201 spaces in Lot 3, for a total of 377 spaces, including 12 ADA accessible spaces. Therefore, no additional expansion of park-and-ride capacity is recommended at this time.

### VIII. Kiryas Joel Park-and-Ride Lot

The Kiryas Joel Park-and-Ride Lot is illustrated in Figure A-23 of Appendix A. This lot is privately owned and is serviced by a private bus line. Therefore, no additional expansion of park-and-ride capacity is recommended at this time.

### 4.5.3 Ulster County

#### IX. Rosendale Park-and-Ride, NY Route 32

The Rosendale Park-and-Ride is illustrated in Figure A-14 of Appendix A. The Rosendale lot is serviced by Trailways. The lot is privately owned and leased by the Town. The lot offers 59 spaces and, according to the TMA's Multi-Modal Accessibility Analysis, operates near capacity on a regular basis. Several unsuccessful attempts have been made to purchase and expand the lot.

Vacant property exists adjacent to the existing lot that could support expansion. Figure 13 shows two options for expanding parking capacity. Option A would include expansion of the existing lot. This expansion would provide an additional 67 spaces providing a total capacity of 126 vehicles. Option A would require property acquisition of approximately 0.5 acres from one adjoining property.

Option B would include construction of a new lot north of the existing lot on NY Route 32. The new lot would provide a total capacity of 132 spaces. Option B would require property acquisition of approximately 1.5 acres from two adjoining properties.

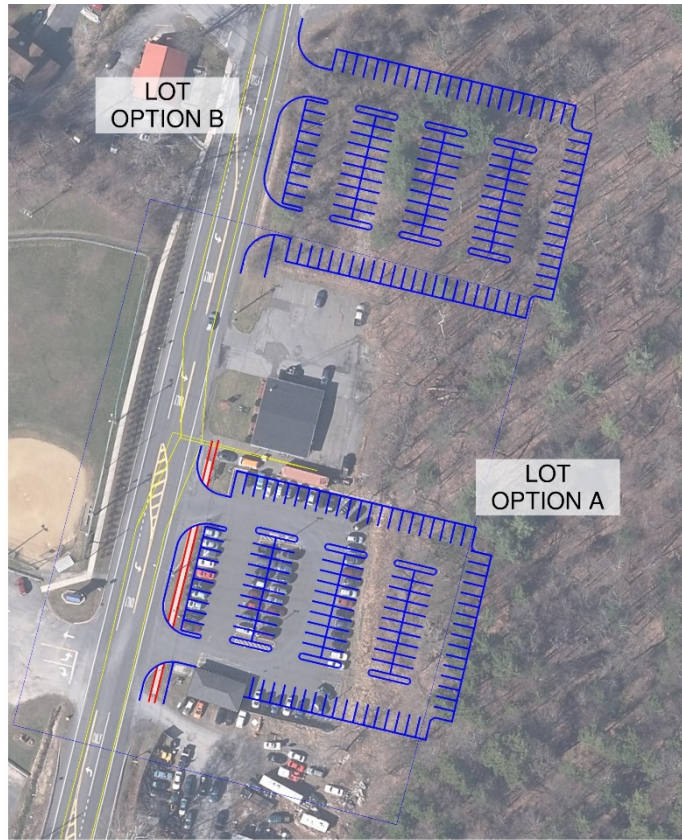


Figure 13: Rosendale Park-and-Ride and potential expansion

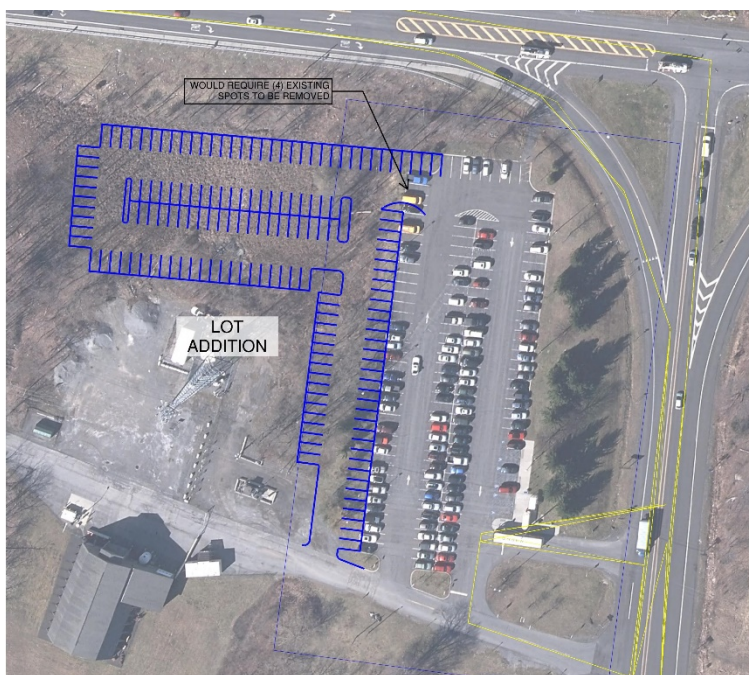
Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Lot Owner	Location (Municipality)
Option A	\$1,390,000	The existing lot is located on privately owned land. The land for the new lot is also privately owned.	Town of Rosendale
Option B	\$1,720,000		

### X. NYS Thruway Park-and-Ride, New Paltz

The NYS Thruway Park-and-Ride is located on NY 299 adjacent to I-87 and illustrated in Figure A-16 of Appendix A. The lot is served by Regional Transit service providers including Trailways and is a popular alternative to the New Paltz Village Station. The present lot offers a total of 149 spaces (including six ADA accessible spaces) and operates near capacity on a regular basis.

As illustrated in Figure 15, the lot immediately to the west is available to support expansion. Expansion of the existing lot would provide space for an additional 155 spaces providing a total capacity of 298 vehicles. No modifications would need to be made to the existing access drive or bus pull-off lanes. However, development of the lot expansion would impact potential wetland areas. The existing lot as well as the 1.5 acres that would be used for expansion is part of the I-87 interchange and is under the jurisdiction of the New York State Thruway Authority. Use of this property for expansion of the park-and-ride lot most likely would be accommodated under an Occupancy Permit from the New York State Thruway Authority.



*Figure 14: NYS Thruway Park-and-Ride, New Paltz and potential expansion*

Accordingly, the capital cost for these improvements are as follows:

Improvement	Amount	Lot Owner	Location (Municipality)
Expansion of the Present Park-and-Ride Lot	\$1,745,000	NYS Thruway Authority	Town of New Paltz

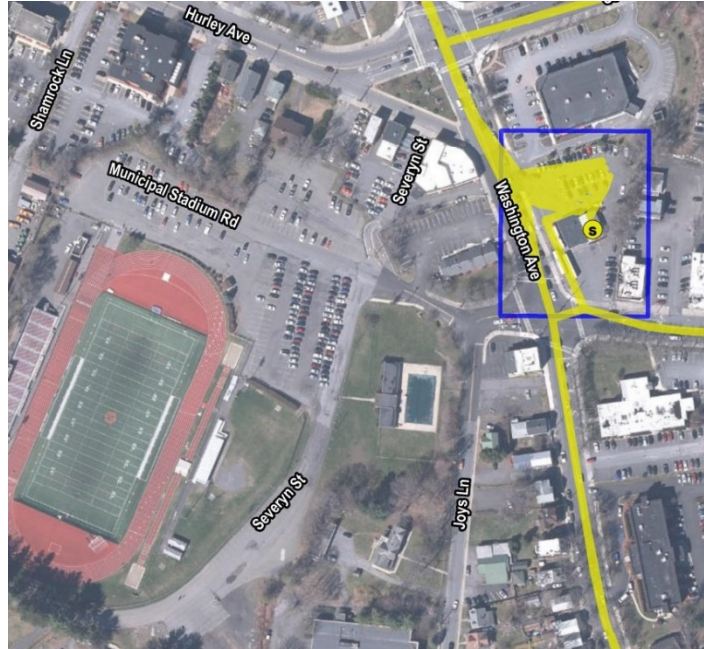


### ***X1. Trailways Bus Station Park-and-Ride, Kingston***

This park-and-ride lot is located at the existing Trailways Bus Terminal on Washington Avenue in Kingston. Due to capacity limitations at the terminal lot, 60 additional parking spaces are provided within the existing Dietz Stadium Parking Lot. The Trailways Terminal and Municipal Stadium Lots are illustrated in Figure A-17 of Appendix A.

In the past, the State has encouraged Trailways to move the terminal to a better location that would serve Saugerties, Kingston, and New Paltz commuters. In 2019, the terminal was renovated and the parking lot was reconfigured for improved access at the cost of a few spaces.

Parking lot expansion is not recommended for this park-and-ride location. Instead, pedestrian improvements are currently under design to provide a safe and continuous route for pedestrians between the bus terminal and remote lot. No additional changes are recommended at this location.



*Figure 15: Trailways Bus Station Park-and-Ride, Kingston*

## **4.5.4 Park-and-Ride Capital Cost Summary**

LOCATION		TOTAL
Monroe Park-and-Ride		\$3,585,000
Chester Park-and-Ride Lot Option A		\$1,765,000
Chester Park-and-Ride Lot Option B		\$1,915,000
Tuxedo Park-and-Ride		\$1,195,000
Rosendale Park-and-Ride		\$1,390,000
Rosendale Park-and-Ride		\$1,720,000
NYSTA New Paltz Park-and-Ride		\$1,745,000
<b>TOTAL</b>		<b>\$13,315,000</b>