

## **7.0 TRAFFIC ANALYSIS**

The Bear Mountain Triangle rezoning area (BMT) is located north of Old Crompond Road and bounded by the Taconic State Parkway to the east, the Bear Mountain Parkway to the west and US Route 202/35 to the south, in the Town of Yorktown, New York.

As requested by the Town of Yorktown in association with the potential rezoning of the properties located in BMT including the land herein referred to as Crompond Terraces, an overall assessment of traffic conditions in the area as a result of this potential rezoning has been completed. This evaluation also considers the effect of the potential traffic generation from other parcels located along Old Crompond Road based on information compiled which identified potential levels of development under both existing and proposed zoning scenarios including for the Bauso property and the Antenaros property. In addition, traffic from other developments in the area, which are either proposed and/or potential developments which are likely to take place regardless of the rezoning, were also considered to provide an overall summary of expected future traffic volumes and operating conditions.

Mandalay Builders will be proposing a mixed use development, known as Crompond Terraces, consisting of up to 80 market rate townhouse condominiums plus up to 16 rental apartments, up to 32,000 square feet of small scale retail and up to 45,000 square feet of retail space north of Old Crompond Road. A complete *Traffic Impact Study* which assesses existing and future traffic operating conditions is included in Appendix C.

The area of the proposed rezoning will be accessed from NYS Route 35/U.S. Route 202 as well as from Stony Street and Old Crompond Road. There will be five driveways from Old Crompond Road to provide access to the internal road circulation system for the future Crompond Terraces development. The internal roads will be private roads maintained by a management company. Frontage along Old Crompond Road will be pedestrian oriented with a system of sidewalks, crosswalks and bicycle accommodations. As shown in Figure 1-4, parking will be located behind the retail and commercial buildings, between the commercial and residential project components. The project's mixed use would put residents near, retail uses, office space, medical services, government services, and other uses in within the Crompond hamlet.

A *Traffic Impact Study* for the proposed Bear Mountain Triangle Rezoning and Crompond Terraces project was conducted by Maser Consulting P.A., which assessed the effects associated with the potential rezoning in combination with other identified development projects, including Costco, along the NYS Route 35/U.S. 202 corridor in the Town of Yorktown. This study, most recently updated dated April 7, 2015 is included as Appendix C.

The following intersections were studied, as shown in Figure 7-1;

1. NYS Route 35/U.S. Route 202 and Bear Mountain Parkway Extension
2. Bear Mountain Extension and Stony Street
3. Stony Street and Old Crompond Road
4. NYS Route 35/U.S. Route 202 and Stony Street/BJ&S-Staples Plaza Driveway
5. NYS Route 35/U.S. Route 202 and Old Crompond Road
6. NYS Route 35/U.S. Route 202 and Mohansic Avenue
7. NYS Route 35/U.S. Route 202 and Taconic State Parkway SB On/Off Ramp
8. NYS Route 35/U.S. Route 202 and Taconic State Parkway NB On/Off Ramp

Development from the proposed rezoning is expected to generate 80 new a.m. peak hour trips, 200 new p.m. peak hour trips and 171 new Saturday peak hour trips. New trips include 5% internal trip credit to account for trips between uses internal to the site as well as a 25% pass-by credit applied to the retail use to account for trips that are already occurring in the existing traffic along US Route 202/35.

### **Results of Analysis**

Capacity analyses which take into consideration appropriate truck percentages, pedestrian activity, roadway grades and other factors were performed at the study area intersections to determine traffic operating Levels of Service and average vehicle delays. A summary of existing and future traffic operating Levels of Service as well as any recommended improvements is listed below. Additional detail is contained in the full Traffic Impact Analysis contained in Appendix C, including the data results of the capacity analysis for the Existing, No-Build and Build Conditions.

1. NYS Route 35/U.S. Route 202 and Bear Mountain Parkway Extension

The Bear Mountain Parkway Extension (BMP) intersects NYS Route 35/U.S. Route 202 at an unsignalized, T-shaped intersection.

This intersection is currently operating at a Level of Service E on the southbound approach during each of the peak hours, while a Level of Service B or better is experienced for the eastbound left turn movement. This intersection was reanalyzed using the No-Build and Build Traffic Volumes and existing geometry. The results indicate that similar Levels of Service and operating conditions will be experienced during peak hours under future conditions.

The NYSDOT improvements in this area upgraded this intersection to improve operating conditions. The NYSDOT improvement of the BMP connection to NYS Route 35/U.S. Route 202 eliminated the extensive queues which occurred during peak hours especially during the Weekday PM Peak Hour. This increase in capacity should make the direct movement from the TSP northbound to the BMP to NYS Route 35/U.S. Route 202 westbound more efficient and a more desirable path which has diverted some of the traffic which previously used the TSP northbound off ramp at NYS Route 35/U.S. Route 202.

2. Bear Mountain Parkway Extension and Stony Street

The Bear Mountain Parkway Extension (BMP) and Stony Street intersect at a signalized full movement intersection. As part of improvements recently constructed by New York State Department of Transportation the geometry of the intersection has been modified such that the northbound and southbound approaches now consist of one lane in each direction with separate left turn lanes. The eastbound approach consists of a shared left turn/through lane and a separate right turn lane while the westbound approach remains a single lane approach. The intersection operates at an overall Level of Service C or better during the AM, PM and Saturday Peak Hours under No-Build and Build conditions.

3. Stony Street and Old Crompond Road

This intersection is currently a T+ intersection with all approaches consisting of one lane. It is controlled by Stop signs on the eastbound Stony Street approach and the westbound Old Crompond Road approach.

The intersection currently operates at a Level of Service A+ during peak periods. The analysis indicates that under future No-Build and Build conditions, the intersection can be expected to operate at Levels of Service C+ or better.

In order to accommodate future development along on Old Crompond Road, it is anticipated that the sidewalk system would have to be extended from the CVs site and several portions of the existing roadway would have to be widened to provide increased pavement width and to address existing geometric constraints. Other improvements would include provision of turning lanes at individual access driveways along Old Crompond Road.

4. NYS Route 35/U.S. Route 202 and Stony Street/BJ - Staples Plaza

Stony Street intersects with NYS Route 35/U.S. Route 202 opposite the driveway to BJ/Staples Plaza to form a full movement, signalized intersection.

As part of the New York State Department of Transportation Improvements, this intersection was upgraded with geometric improvements to eliminate the capacity constraint at the Pine Grove Court intersection, which currently impacts this intersection. An additional right turn lane was added to the eastbound approach. Also the westbound approach now has one through lane and a shared through/right turn lane.

Capacity analysis conducted utilizing the Existing and No-Build and Volumes indicates an overall Level of Service %B+ will continue to be experienced during the AM Peak Hour, while an overall Level of Service %D+ will be experienced during the PM and an overall Level of Service %E+ will be experienced during the Saturday Peak Hour without any improvements.

Associated with the Staples Plaza/BJC application, they will be improving the operation by restriping and modifying the traffic signal phasing. However, as other development continues to occur it appears that a widening of the Stony Street approach will also be needed to provide three lanes southbound. In addition, the preliminary site plans for the CVS indicate the inclusion of sidewalks along Stony Street and extending along their frontage on Old Crompond Road, however, Old Crompond Road should also be widened to provide an additional lane.

5. NYS Route 35/U.S. Route 202 and Old Crompond Road

Old Crompond Road and NYS Route 35/U.S. Route 202 intersect at an unsignalized %T+ shaped intersection. The eastbound approach consists of two through lanes while the westbound approach is a single lane approach. The southbound Old Crompond Road approach consists of a single lane and is controlled by a %Stop+sign.

Capacity analysis indicates that the left turn exiting Old Crompond Road at this intersection currently operates at a Level of Service %E+ during the AM Peak Hour, while a Level of Service %E+ is experienced during the PM and Saturday Peak Hours. It is expected that the left turn exiting Old Crompond Road at this intersection will experience a Level of Service %E+ during each of the Peak Hours under future conditions both with and without the proposed project. It should be noted that these Levels of Service are only experienced for the southbound left turn movement, which also has the ability to be more easily completed via the signalized intersection of Stony Street and NYS Route 35/US Route 202.

As part of the improvements associated with the proposed Costco project an additional westbound through lane will be provided at this intersection. This lane will match with the westbound through lane extension from the BJs/Stony Street intersection which was constructed as part of the NYSDOT improvement project. With these improvements the left turn exiting Old Crompond Road at this intersection is expected to operate at a Level of Service %D+ during the AM Peak Hour while it is expected to experience a Level of Service %E+ during the PM and Saturday Peak Hours. The entering and exiting radius to/from NYS Route 35/US Route 202 should be improved. The potential signalization of the westerly leg of Old Crompond Road and Route 202/35 to accommodate left turns exiting from Old Crompond Road was also considered. This improvement would allow traffic from the Old Crompond Road corridor, which is destined to the east on Route 202/35 to be handled as a left turn exiting movement directly onto Route 202/35 so they would not have to traverse through the Stony Street and Old Crompond Road intersection onto Route 202/35. This improvement would require approval from NYSDOT, but would function as a simple two-phase traffic signal operation and would be co-ordinated with the other traffic signals along Route 202/35. No left turns would be allowed from Route 202/35 onto Old Crompond Road because of the lack of a separate left turn lane. The eastbound left turn movements from Route 202/35 destined to the Old Crompond Road corridor would continue to be accommodated at the Stony Street intersection. In addition to this new signal, the geometry at Route 202/35 and Old Crompond Road would also have to be upgraded to provide an improved radius for the entering and exiting right turn movements as well as a potential separate right turn lane on Route 202 onto Old Crompond Road.

6. NYS Route 35/U.S. Route 202 and Mohansic Avenue

Mohansic Avenue intersects with NYS Route 35/U.S. Route 202 at a signalized, T-shaped intersection. The NYS Route 35/U.S. Route 202 eastbound approach consists of one through lane and a separate right turn lane. This right turn lane also accommodates vehicles travelling through the intersection and continuing as a right turn lane onto the Taconic State Parkway Southbound entry ramp. The NYS Route 35/U.S. Route 202 westbound approach consists of two lanes in the form of a separate left turn lane and a separate through lane. The Mohansic Avenue northbound approach consists of a single lane for left and right turn movements.

Capacity analysis conducted utilizing the Existing Traffic Volumes indicates that the intersection should be operating at an overall Level of Service A during the Weekday Peak AM Hour, however traffic is typically impeded during this time period due to the queuing at the adjacent southbound Taconic State Parkway ramp intersection. An overall Level of Service D is currently experienced during the Weekday Peak PM and an overall Level of Service C is currently experienced during the Saturday Peak Hour, but the operation is occasionally impacted by queuing from the adjacent southbound Taconic State Parkway Ramp intersection.

The intersection was reanalyzed utilizing the No-Build Traffic Volumes. The results of these capacity analyses indicate delays will increase and the impact of queuing from the southbound Taconic State Parkway ramp intersection will worsen until the improvements proposed by the Applicant for Costco are completed.

The Applicant for Costco has proposed that a separate eastbound left turn lane for traffic entering the site will be constructed and the driveway approach (southbound approach) will be constructed to consist of two lanes in the form of a

separate left turn lane and a shared left/through/right turn lane. In addition, the Mohansic Avenue northbound approach will be widened to two lanes in the form of a shared through/left turn lane and a separate right turn lane. The westbound approach

would also be widened to provide an additional through/right turn lane and the eastbound approach would be widened to be co-ordinated with improvements at the Taconic State Parkway Interchange as described below. Corresponding signal improvements will be made to accommodate the new intersection geometrics and interconnected with the adjacent Taconic State Parkway Ramp intersections. New pedestrian signals and crosswalks will be provided on all approaches as required by NYSDOT.

Capacity analysis conducted utilizing the No-Build and Build Traffic Volumes, assuming completion of the Costco funded improvements, indicates an overall Level of Service **A+** will be experienced during the Weekday Peak AM Hour, an overall Level of Service **B+** will be experienced during the Weekday Peak PM Hour and an overall Level of Service **D+** will be maintained during the Saturday Peak Hour under the Build Conditions with or without the rezoning.

7. NYS Route 35/U.S. Route 202 and Taconic State Parkway Southbound Ramps

The Taconic State Parkway southbound off ramp intersects with NYS Route 35/U.S. Route 202 at a signalized intersection. The NYS Route 35/U.S. Route 202 eastbound approach consists of two lanes in the form of a separate through lane and a separate channelized right turn lane and the NYS Route 35/U.S. Route 202 westbound approach consists of two lanes in the form of a separate left turn lane and a separate through lane. The Taconic State Parkway southbound ramp consists of two lanes in the form of a separate left turn lane and a separate right turn lane.



Capacity analysis conducted utilizing the Existing Traffic Volumes indicates that an overall Level of Service %G+ is currently experienced during the Weekday Peak AM and Saturday Peak Hours while overall Level of Service %E+ is experienced during the Weekday Peak PM Hour. It should be noted however that under existing conditions during peak hours, this intersection is affected by vehicle queues in the eastbound direction at the Northbound Ramp intersection.

The intersection was reanalyzed utilizing the No-Build Traffic Volumes. The results of these capacity analyses indicate that the construction, of the added westbound lane by the applicant for Costco as described above, which will also continue through this intersection and through the Mohansic Avenue intersection, will improve this condition. In addition, the Costco proposed improvements will provide a new eastbound left turn storage lane for left turn movements at the northbound ramp. This lane will begin prior to the southbound ramp intersection resulting in a total storage area in excess of 360 ft. which is a significant increase over the existing approximately 100 ft. eastbound left turn storage lane. This new lane will allow for vehicles destined to the Taconic State Parkway northbound to queue without impeding the eastbound traffic continuing past the interchange area. This will also result in the length of the westbound left turn lane increasing from approximately 100 ft. to 330 ft. A pedestrian crosswalk will also be provided on the north side of NYS Route 35/U.S. Route 202 across the exit ramp approach.

Capacity Analyses conducted utilizing the No-Build and Build Traffic Volumes with/or without the proposed rezoning with the addition of the above improvements as proposed by Costco indicate that the intersection will operate at an overall Level of Service %B+ or better during each of the peak hours.

8. NYS Route 35/U.S. Route 202 and Taconic Parkway Northbound Ramps

The Taconic Parkway northbound ramps intersect with NYS Route 35/U.S. Route 202 at a signalized intersection. The NYS Route 35/U.S. Route 202 eastbound approach consists of two lanes in the form of a separate left turn lane and separate through lane and the NYS Route 35/U.S. Route 202 westbound approach consists of one lane in the form of a shared through/right turn lane. The Taconic State Parkway northbound ramp consists of two lanes in the form of a separate left turn lane and a separate right turn lane.

Capacity analysis conducted utilizing the Existing Traffic Volumes indicates that an overall Level of Service %D+ is currently experienced during the Weekday Peak AM Hour, an overall Level of Service %F+ is currently experienced during the Weekday Peak PM and Saturday Peak Hours. During the PM Peak Hour, westbound traffic on NYS Route 35/U.S. Route 202 sometimes extends past the NYS Route 132 intersection.

The Applicant for Costco identified certain improvements which would be funded and constructed in association with that proposed store. These include the reconstruction of the area between Strang Boulevard and Old Crompond Road to provide an additional westbound through lane. A new eastbound left turn storage lane will be constructed to provide additional storage area for vehicles entering the Taconic State Parkway northbound, increasing the existing storage lane length from approximately 100q to 360q which will reduce delays to through vehicles in the eastbound direction. Note that these improvements will also result in the lengthening of the westbound left turn lane at the southbound ramp as described above. Also, a pedestrian crosswalk will be provided on the north side of NYS Route 35/U.S. Route 202 crossing the entry ramp approach. The existing traffic signal will have to be upgraded to reflect the improved geometry. These improvements will also allow a reallocation of the signal green time to help alleviate existing queuing problems at this intersection. With these improvements

and included signal co-ordination, improved Levels of Service will be experienced along this section of NYS Route 35/U.S. Route 202 during the peak hours under No-Build and Build Conditions.

With respect to implementation of the recommended roadway and pedestrian improvements summarized in this report for the area as shown on Figure 7-3 entitled "Conceptual Traffic and Pedestrian Improvement Plan" including those along Old Crompond Road and Stony Street, the Town could require individual projects to undertake or contribute financially towards these improvements to ensure that they are implemented as needed and are not the sole responsibility of one particular project.

#### *Mass Transit*

Bus Service in the area is provided by the Westchester County Bee-Line Bus System operated by the Westchester County Department of Transportation. The locations of existing bus stops within the study area are shown on Figure 7-2. Local service is provided along NYS Route 35/U.S. Route 202 via the Route 15 Bus with the nearest bus stop to the project located at the intersection of NYS Route 35/U.S. Route 202 and Stony Street. The bus stops at this location are positioned on both sides of NYS Route 35/U.S. Route 202 and service is included for both directions of travel.

The Route 15 Bus provides service from Downtown Peekskill continuing along Route 6 to Lexington Avenue and then continuing south to NYS Route 35/U.S. Route 202. The bus service continues to the east through the Town of Yorktown and continues south along Route 118 to Route 100 in Somers. It then connects with Route 9A further south. It terminates at the White Plains station (Metro-North Harlem Line). The Route 15 Bus Service is provided regularly during the AM and PM Hours and limited service is provided on Saturday. The Route 15 Bus Schedule and Map are included in Appendix F of this report.

Two other Westchester County Bee-Line busses provide service in the study area. These include the Route 10 Bus and the Route 77 Express Bus, however these busses do not serve the immediate area of the site. The Route 10 Bus provides commuter service between the Cortlandt Town Center and the Croton Harmon Train Station. Within the study area it has scheduled stops at the intersection of NYS Route 132 and NYS Route 35/U.S. Route 202 as well as along Commerce Street near the intersection with Downing Drive in Yorktown Heights. The Route 77 Express Bus is also a commuter bus, which runs between Carmel in Putnam County and White Plains. In the Town of Yorktown the bus stops at several locations including FDR State Park and at the intersection of NYS Route 132 and U.S. Route 6 in Shrub Oak.

#### *Pedestrian Amenities*

Figure 1-4 illustrates how internal pathways, sidewalks along Old Crompond Road and crosswalks provide internal pedestrian circulation. Figure 7-2 illustrates the external sidewalk system, and demonstrates the connections to the existing businesses and recreational facilities in the area. Bicycle parking locations shall be included in the future design of the Crompond Terraces project.

#### *Shared Parking*

As part of the rezoning, the Town may wish to consider allowing Planning Board discretion which permits up to 20 percent shared parking among uses. The reduction in parking reduces stormwater runoff by reducing impermeable surfaces, encourages alternative transportation, and reduces costs.

*Summary*

Based on the analysis contained herein, in addition to the traffic and roadway improvements that are already planned to be completed by the proposed Costco development, certain other improvements will be required to accommodate other planned or potential developments in the area even without the implementation of the proposed rezoning referenced herein. Based upon the information as presented in the *Traffic Impact Analysis*, no significant impact to Transportation operations is anticipated as a result of the BMT rezoning.