## Ulster County

Road Safety Assessment Report (UC2016-091)


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## Prepared By:

## The Ulster County

Transportation Council

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## 1. Introduction

### 1.1. Objectives of Study

The objective of this study was to perform a safety assessment that included a review of existing conditions and traffic and crash data on three selected segments of roadway in Ulster County that have experienced elevated levels of traffic congestion and crash frequency. At the beginning of the project a Safety Assessment Team (SAT) was formed to participate in the study. Existing information was collected and reviewed by the SAT, and Road Safety Audits (RSA's) were scheduled and conducted for each location. The roadway segments selected to be studied under this project were as follows:

- Town of Woodstock: NYS Route 212 (Mill Hill Road/Tinker Street) from Deming Street to Library Lane
- Town of Saugerties: NYS Route 32/NYS Route 212 from Southbound NYS Thruway Exit 20 to the At-Grade Railroad Crossing
- Town of New Paltz: NYS Route 299 from the New Paltz/Gardiner Town Line to Libertyville Road

After reviewing and assessing the existing conditions and data, any issues and problems relating to safety or traffic congestion were identified along with corresponding solutions to help mitigate them. The recommended solutions were categorized as either short or long term for implementation and be assigned a lead agency for being responsible for following up and advancing them to being acted upon or incorporated.

### 1.2. Study Location Selection Process

This project was initiated at the request of the NYSDOT Region 8 program manager based on Priority Investigation Locations (PILs). Preliminary RSA locations based on PILs were determined by the Ulster County Transportation Council (UCTC) prior to the commencement of this project. The preliminary locations were then narrowed down based on levels of traffic congestion and crash frequency according to NYSDOT and historical records. Locations were eliminated if they had recently been studied or were scheduled to be studied under another project, and crash rates for the remaining locations were examined to help determine the final locations to be studied. These crash rates can be found in Appendix B.

### 1.3. Safety Assessment

To gain a better understanding of each study location that was selected, a preliminary field investigation was conducted to document existing conditions and traffic control features and observe general traffic conditions. New York State Department of Motor Vehicles accident reports were also obtained and analyzed using Highway Safety Analysis (HSA) Software Version 3.0. Pertinent information from each accident report was used to build an accident database for each study location. These databases were used to produce accident summaries that include detailed information such as the occurrences by date, day of the week, time of day, collision type, number of vehicles involved, vehicle type, severity, weather, lighting, roadway surface condition and apparent contributing factors. Condition and collision diagrams depicting the existing traffic signs and
accident occurrences overlaid on aerial imagery for each location were then created, and served as base templates while conducting the RSA (see Appendix B).

The safety assessments and review of existing traffic and crash data was performed by the SAT and the RSA's were conducted by a team represented by members with great familiarity of each study area and expertise in planning, design, operations, and safety. The RSA team consisted of the following members:

| Name | Organization | Position/Title |
| :--- | :--- | :--- |
| David Corrigan | NYSDOT | Region 8 Resident Engineer |
| Terrence Donoghue | NYSDOT | Region 8 Safety Engineer |
| Robert Gaffney | NYSDOT | Region 8 Safety Engineer |
| Joseph Hurley | NYSDOT | Region 8 Safety Engineer |
| Neil Bettez | Town of New Paltz | Town Supervisor |
| Harry Ellis | Town of New Paltz | Transportation Implementation Committee |
| Robert Lucchesi | Town of New Paltz | Police Lieutenant. |
| Dave Weeks | Town of New Paltz | Fire Chief |
| Cory Wirthman | Town of New Paltz | 1st Assistant. Fire Chief |
| Vernon Benjamin | Town of Saugerties | Special Operations Coordinator |
| Jimmy Bruno | Town of Saugerties | Councilman and Deputy Supervisor |
| Fred Costello Jr. | Town of Saugerties | Councilman and Supervisor-Elect |
| Greg Helsmoortel | Town of Saugerties | Town Supervisor |
| Chris Helsmoortel | Town of Saugerties | Sergeant - Town Safety Officer |
| Doug Myer | Town of Saugerties | Town Highway Superintendent |
| Randy Ricks | Town of Saugerties | Centerville/Cedar Grove Fire Department |
| Joe Sinagra | Town of Saugerties | Police Chief |
| Jim Hanson | Town of Woodstock | Fire Police |
| Clayton Keefe | Town of Woodstock | Police Chief |
| Bill McKenna | Town of Woodstock | Town Supervisor |
| Kerry Muldoon | Town of Woodstock | Confidential Secretary to Supervisor |
| Mike Reynolds | Town of Woodstock | Highway Superintendent |
| Laura Ricci | Town of Woodstock | Councilperson |
| Diann Beitl | Ulster County | Traffic Safety Board |
| Andrew Emrich | Ulster County DPW | Engineer |
| Brendan Masterson | Ulster County DPW | Ulster County DPWW |
| Dennis Doyle | UCTC | Director |
| Brian Slack | UCTC | Principal Transportation Planner |
| David Staas | UCTC | Lead, Senior Transportation Planner |
| Chris Liberti | VHB - Consultant Team | Senior Transportation Engineer |
| Scott Spittal | VHB - Consultant Team | Transportation Safety \& Design Engineer |
| Warren Michelsen | SIMCO - Consultant Team | Professional Traffic Operations Engineer |
|  |  |  |

## 2. Existing Conditions

### 2.1. NYS Route 212 - Town of Woodstock

### 2.1.1. Existing Conditions

This study roadway segment, located in the Town of Woodstock, NYS Route 212 traverses in an east-west direction and is named Tinker Street (west of Rock City Road) and Mill Hill Road (east of Rock City Road). It is a two-lane undivided highway with a posted speed limit of 30 miles per hour (mph) with on-street parking permitted along the south side of the roadway, except where signage restricts otherwise. The entire segment is undivided, and the pavement surface is asphalt concrete. See Figure 1 for a map of this study area.

The roadway cross section is approximately 32 feet wide, consisting of one travel lane in each direction. The double yellow line is positioned such that the westbound travel lane measures approximately 12 -feet, while the eastbound travel lane and unmarked on-street parking utilize the remaining 20 -feet of pavement. The roadway narrows slightly at two culverts - one located just east of Library Lane and one located just west of Tannery Brook Road. Sidewalks are present along both sides of the roadway throughout the study area. Traffic along each of the cross streets approaching NYS Route 212 within the study area is stop controlled.

There is a reverse curve located between Tannery Brook Road and Maple Lane, with Rock City Road being located approximately at the vertex of the curve. There is also a vertical incline on the westbound NYS Route 212 approach to Rock City Road. The rest of the study area is relatively straight.

Additional features and conditions including signs, pavement markings and land uses can be found on the Condition \& Collision Diagrams in Appendix B

### 2.1.2. Traffic Conditions

According to the NYSDOT Traffic Data Viewer, the 2015 Annual Average Daily Traffic (AADT) of Route 212 is 5,515 Vehicles Per Day (VPD) west of Rock City Road and 10,476 VPD east of Rock City Road. Rock City Road has a 2015 AADT of 2,201 VPD. The $85^{\text {th }}$ percentile speed on Route 212 west of Rock City Road is approximately 45 mph in each direction, and the $85^{\text {th }}$ percentile speed on Route 212 east of Rock City Road is approximately 30 mph in each direction. Trucks and buses account for approximately $20 \%$ of the traffic in the area. Figure 1 on the next page presents an image of the interactive traffic volume map for this study location that can be seen on the NYSDOT Traffic Data Viewer website (https://www.dot.ny.gov/tdv)

Figure 1: Woodstock Study Location \& AADT Map


### 2.1.3. Crash Analysis

Crash data for this study location were analyzed for the 5-year period from January 1, 2012 through December 31, 2016. Collision diagrams along with statistical summary sheets and details of accident history for the crash data can be found in Appendix B.

A total of 69 crashes occurred throughout the study area during the 5 -year study period. Of these, 36 were classified as non-reportable, 18 resulted in property damage, and 15 resulted in injuries. Most of the crashes occurred during clear or cloudy weather conditions ( 57 crashes, $82.6 \%$ ), on a dry roadway surface ( 54 crashes, $78.3 \%$ ) and during daylight hours ( 61 crashes, $88.4 \%$ ).

Of the 69 crashes that were analyzed, there were 30 parked vehicle crashes ( $43.5 \%$ ), 11 rear end crashes ( $15.9 \%$ ), 6 right angle crashes ( $8.7 \%$ ), 4 pedestrian crashes ( $5.8 \%$ ); 3 sideswipes ( $4.3 \%$ ), 3 backing crashes ( $4.3 \%$ ), 2 overtaking ( $2.9 \%$ ), 2 left-turn crashes ( $2.9 \%$ ), 1 fixed object crash ( $1.4 \%$ ), and 1 bicycle crash ( $1.4 \%$ ). Six crashes could not be categorized and were classified as 'other'.

Most of the parked vehicle crashes occurred during the daylight hours (26 crashes, 86.6\%), and ten of them occurred on a Saturday ( $33.3 \%$ ). The parked vehicle accidents appear to have occurred throughout the study limits along the south curb-line with a noticeable pattern of collisions near cross streets and driveways. Although many of these collisions involved motorists striking sideview mirrors of parked vehicles or striking parked vehicles while maneuvering into an on-street parking space, a significant number of them involved parked vehicles being struck by motorists turning onto and from cross streets and driveways. It was also observed that vehicles were parking too close to existing side streets and driveways which may also contribute to this crash pattern.

### 2.2. NYS Route $32 /$ NYS Route 212 - Town of Saugerties

### 2.2.1. Existing Conditions

This study roadway segment of NYS Route 32 and NYS Route 212, located in the Town of Saugerties, begins at the intersection of NYS Route 32 and the southbound I-87 on/off ramp/Augusta Savage Road and runs south along NYS Route 32 to where it intersects NYS Route 212. It then runs east along an overlap section of NYS Route 32/NYS Route 212 for approximately 0.6 miles over and beyond I-87, ending at a point east of an at-grade railroad crossing. The entire segment is undivided, and the pavement surface is asphalt concrete. The posted speed limit is 35 mph throughout most of the study area. Southbound NYS Route 32 approaching the I-87 southbound ramps has a speed limit of 55 mph . See Figure 2 for a map of this study area.

From north to south and then west to east, traffic along this segment is controlled by a flashing signal at the NYS Route 32 and southbound I-87 on/off ramp intersection with flashing yellow signal indications for traffic on NYS Route 32 and flashing red signal indications for traffic exiting the southbound I-87 ramp and along the Augusta Savage Road approach. There are traffic signals with red/yellow/green operation at the intersections of NY Route 212/NY Route 32 and the northbound NY Route 32 split/Speedway Gas Station driveway; NY Route 32/NY Route 212 and northbound I-87 on/off ramps; Kings Highway; and the Big Lots Shopping Center driveway. There is a flashing railroad gate warning signal at the at-grade-crossing to stop traffic along NYS Route $32 /$ NY Route 212 when there is a train present. Traffic along all the remaining side street approaches to the study segment is controlled by a stop sign.

At the four-legged intersection of NYS Route 32 and southbound I-87 ramp/ Augusta Savage Road the southbound NYS Route 32 approach consist of a left-turn lane and an unmarked lane for both through and right-turning traffic, the northbound NYS Route 32 approach consist of a left-turn lane, a through lane and a right turn lane with traffic making right-turns controlled by a yield sign, the eastbound Augusta Savage Road approach consists of a single lane, and the westbound approach from the I-87 southbound ramp consists of a shared through/left-turn lane and a right-turn lane.

At the four-legged intersection of NYS Route 32 and NYS Route 212 the southbound NYS Route 32 approach to the intersection consists of a right-turn lane and an unmarked lane for both through and left-turn traffic, the northbound approach is a driveway servicing a Speedway Gas Station which is unmarked but provides pavement width for one entering and one exiting lane, the eastbound NYS Route 212 approach consists of a left-turn lane and an unmarked lane for both through and right-turn traffic and the westbound NYS Route 32/212 approach consists of an unmarked lane for both through and left-turn traffic and a rightturn lane. This westbound right turn lane is not controlled by the traffic signal as there is a receiving lane to take the right-turning traffic north along NYS Route 32 where it must merge left to continue north or stay right to get onto the ramp to head southbound on I-87.

At the four-legged intersection of NYS Route 32/212 and the I-87 northbound on/off ramps the southbound approach from a driveway servicing a McDonald's Restaurant consists of a left-turn lane and a through from which right turns are also made. The northbound approach to/from the I-87 northbound on/off ramps consists of a left-turn lane and a shared left-turn, a through, and right-turn lane. The eastbound NYS Route 32/212 approach consists of a left-turn lane, a through lane, and a right-turn lane. The westbound NYS Route

32/212 approach consists of a left-turn lane, a through lane, and an unmarked lane for both through and right-turn traffic.

At the four-legged intersection of NYS Route 32/212 and Kings Highway the southbound approach from the driveway consists of one entering and one exiting lane. The northbound Kings Highway approach consists of unmarked two-lane approach with one serving as a shared through and left-turn lane and the other a rightturn lane. The eastbound NYS Route 32/212 approach consists of a left-turn lane, a through lane, and a rightturn lane. The westbound NYS Route 32/212 approach consists of a shared through and left-turn lane and an unmarked lane for both through and right-turn traffic.

At the three-legged intersection of NYS Route 32/212 and the Big Lots driveway is signalized the southbound approach from the Big Lots driveway consists of a left-turn lane and a right-turn lane, the eastbound NYS Route $32 / 212$ approach consists of a left-turn lane and a through lane and the eastbound NYS Route 32/212 approach consists of a two through lanes and a right-turn lane.

East of the at-grade railroad crossing, NYS Route $32 / 212$ is known as Ulster Avenue and consists of one travel lane in each direction. There is a vertical curve along the eastbound NY Route 32/NY Route 212 approach to the at-grade railroad crossing that impacts sight distance.

Additional features and conditions including signs, pavement markings and land uses can be found on the Condition \& Collision Diagrams in Appendix B

### 2.2.2. Traffic Conditions

According to the NYSDOT Traffic Data Viewer, the 2015 AADT of Route 32 is 9,374 VPD north of the I87 southbound ramps and 11,331 VPD south of the ramps. The 2015 AADT for the Route 32/212 overlap is 19,672 VPD west of I-87 and 12,325 VPD east of I-87. Kings Highway has a 2015 AADT of 5,263 VPD. Trucks and buses account for about $20 \%$ of the traffic in the area. Speed data is unavailable for this location. Figure 2 on the next page presents an image of the interactive traffic volume map for this study location that can be seen on the NYSDOT Traffic Data Viewer website (https://www.dot.ny.gov/tdv).

Figure 2: Saugerties Study Location \& AADT Map


### 2.2.3. Crash Analysis

Crash data for this study location were initially analyzed for the 5 -year period from January 1, 2012 through December 31, 2016. Since it was discovered that improvements were made at the NYS Route 32 and southbound I-87 on/off ramp intersection at the end of 2015 , an additional six months of available crash data (through June 30, 2017) was also analyzed. These improvements included the addition of a northbound left turn lane into the new Park \& Ride and the installation of a flashing traffic signal. Collision diagrams along with statistical summary sheets and details of accident history can be found in Appendix B. Crashes that were reported to have occurred between January 1, 2016 and June 30, 2017 are shown in blue on the collision diagrams.

A total of 126 crashes occurred throughout the study area during the 5.5 -year study period. Of these, 30 were classified as non-reportable, 67 resulted in property damage, and 29 resulted in injuries. Most of the crashes occurred during clear or cloudy weather conditions (114 crashes, $90.5 \%$ ), on a dry roadway surface ( 105 crashes, $83.3 \%$ ) and during daylight hours ( 103 crashes, $81.7 \%$ ).
Of the 126 crashes that were analyzed, there were 64 rear end crashes ( $50.8 \%$ ), 22 right angle crashes ( $17.5 \%$ ), 7 overtaking ( $5.6 \%$ ), 7 left-turn crashes ( $5.6 \%$ ); 4 fixed object crashes ( $3.2 \%$ ), 3 right-turn crashes ( $2.4 \%$ ), 2 bicycle crashes ( $1.6 \%$ ), 1 head on crash ( $0.8 \%$ ), 1 pedestrian crash ( $0.8 \%$ ), 1 parked vehicle crash ( $0.8 \%$ ), and 1 animal crash $(0.8 \%)$. Thirteen crashes could not be categorized and were classified as 'other'.
The majority of the 64 rear end crashes involved motorists traveling in the eastbound direction ( $67.2 \%$ versus $17.5 \%$ westbound), and most of these accidents occurred during daylight hours ( 57 accidents, $97.8 \%$ ). Twenty-
two of them occurred on a Friday, and ten of them occurred on a Saturday. Only four of these rear end accidents occurred on a wet road surface ( $6.3 \%$ ).

Fifteen rear end accidents occurred on the eastbound NYS Route 32/212 approach to the at-grade railroad crossing. All of these accidents occurred during daylight hours, with thirteen of them occurring on a dry roadway surface ( $86.7 \%$ ). Conversely, on the westbound NYS Route $32 / 212$ approach to the at-grade railroad crossing, there were three rear end accidents.

### 2.3. NYS Route 299 - Town of New Paltz

### 2.3.1. Existing Conditions

This study roadway segment, located in the Town of New Paltz, NYS Route 299 (New Paltz-Minnewaska Road) is a two-lane roadway with narrow shoulders and is somewhat winding with numerous horizontal and vertical curves. The road traverses a mostly undeveloped rural setting with many scenic vistas throughout the study area. This segment of NYS Route 299 is bounded by the town line between the Town of New Paltz and Town of Gardiner to the west and its intersection with Red Barn Road to the east. There is no posted speed limit and therefore the statuary 55 mph limit prevails. The entire segment consists of a twolane undivided roadway with a pavement surface that is asphalt concrete, and there are no existing traffic signals within the study limits. See Figure 3 for a map of this study area.

The segment of NYS Route 299 west of Butterville Road/Albany Post Road has shoulder widths that are typically 3-feet or less, and there is an ongoing improvement project to increase the shoulder widths to 4feet throughout the study area for safer bicyclist/pedestrian travel. It should be noted that NYS Route 299 is under the jurisdiction of Ulster County DPW.

Along this segment, from west to east, Jenkins Road intersects NYS Route 299 to form a three-legged intersection, where traffic along the southbound Jenkins Road approach is stop controlled. Jenkins Road is a two-lane roadway that services a few private homes and dead ends north of NYS Route 299.

At the four-legged intersection of NYS Route 299 and Butterville Road/Albany Post Road traffic is controlled by an all-way stop condition. Albany Post Road and Butterville Road are each service two-way traffic with a single lane approach at NY Route 299. This intersection was upgraded from two-way stop control to all-way stop control during the fall of 2016 due to its history of right angle accidents.

Gate House Road intersects NYS Route 299 at a skewed and approximate $45^{\circ}$ angle to form a three-legged intersection, where traffic along the Gate House Road approach is stop controlled. Gate House Road services two-way traffic with a single approach lane at NY Route 299. Just east of Gate House Road, NYS Route 299 intersects Jacobs Lane on the south side and then intersects Rosemary Court on the north side immediately after.

Red Barn Road intersects NYS Route 299 at two locations. At its western terminus, it intersects NYS Route 299 from the north at a skewed and approximate $45^{\circ}$ angle to form a four-legged intersection with
Libertyville Road intersecting from the south and opposite. Red Barn Road also intersects NYS Route 299 from the north and also at a skewed angle approximately 850 feet further east. Traffic along both Red Barn Road approaches and the Libertyville Road approach NYS Route 299 is controlled by a stop sign and all three roadways service two-way traffic with a single approach lane at NYS Route 299.

Additional features and conditions including signs, pavement markings and land uses can be found on the Condition \& Collision Diagrams in Appendix B

### 2.3.2. Traffic Conditions

According to the NYSDOT Traffic Data Viewer, the 2015 AADT of Route 299 is 4,225 VPD west of Libertyville Road and 6,971 VPD east of Libertyville Road. Libertyville Road has a 2015 AADT of 1,953

VPD. Figure 3 on the next page presents an image of the interactive traffic volume map for this study location that can be seen on the NYSDOT Traffic Data Viewer website (https://www.dot.ny.gov/tdv).

Figure 3: New Paltz Study Location \& AADT Map


### 2.3.3. Crash Analysis

Crash data for this study location were initially analyzed for the 5 -year period from January 1, 2012 through December 31, 2016. Collision diagrams along with statistical summary sheets and details of accident history can be found in Appendix B.

A total of 86 crashes occurred throughout the study area during the 5 -year study period. Of these, 29 were classified as non-reportable, 41 resulted in property damage, and 16 resulted in injuries. Most of the crashes occurred during clear or cloudy weather conditions ( 69 crashes, $80.2 \%$ ) and on a dry roadway surface ( 67 crashes, $77.9 \%$ ). A significant number of crashes occurred at night ( 29 crashes, $33.7 \%$ ).

Of the 86 crashes that were analyzed, there were 37 animal crashes ( $43.0 \%$ ), 11 rear end crashes ( $12.8 \%$ ), 11 run off the road crashes ( $12.8 \%$ ), 9 right angle crashes ( $10.5 \%$ ); 7 fixed object crashes ( $8.1 \%$ ), 2 overtaking $(2.3 \%), 2$ right-turn crashes $(2.3 \%), 2$ bicycle crashes $(2.3 \%), 1$ left-turn crash $(1.2 \%), 1$ head on crash $(1.2 \%)$, and 1 sideswipe ( $1.2 \%$ ). Two crashes could not be categorized and were classified as 'other'. Twenty of the animal crashes ( $54.1 \%$ ) occurred at night.

It should be noted that none of the 37 animal crashes resulted in injuries, and twenty of them ( $54.1 \%$ ) occurred at night. It is also likely that a certain number of run off the road and fixed object accidents were the result of motorists performing evasive maneuvers and losing control while avoiding animals in the roadway.

At the intersection of NYS Route 299 and Albany Post Road/Butterville Road, a total of 25 accidents occurred (29.1\%). Nine of these accidents were right angle (36.0\%), five were rear end (20.0\%), and two were right turn $(8.0 \%)$. It should be noted that these accidents occurred prior to the introduction of the all-way stop condition.

## 3. Road Safety Audits

### 3.1. Road Safety Audit (RSA) Framework

The eight-step RSA process detailed in the Federal Highway Administration's (FHWA's) Roadway Safety Audit Guidelines (FHWA, 2006) was utilized for conducting the RSA's. This included a kickoff meeting with the RSA team to review existing information and identify concerns, followed by a field review to verify concerns and identify any traffic congestion and/or safety issues. Members of the RSA team performed field reviews during the periods associated with morning and evening peak traffic conditions. Items assessed during the field reviews included roadway pavement, pavement markings, signage, user behavior, roadway and roadside characteristics, and traffic congestion. In addition, a third review was performed during the evening period to evaluate conditions associated with nighttime light conditions and sign retro-reflectivity. Based on the field reviews and crash analysis, the team has suggested improvements to address the identified safety issues and traffic congestion. The suggestions have been categorized as near-term, intermediate and long-term improvements. Near-term improvements can typically be implemented through maintenance forces, while intermediate and long-term improvements often require additional planning, funding and design.

### 3.2. NYS Route 212 - Town of Woodstock

### 3.2.1. Identified Issues

In order to obtain an understanding of potential issues, existing conditions were first reviewed during an initial field visit in October of 2017 and then again with the RSA teams on November 28 and 29, 2017. The following is a summary of the issues identified as they relate to roadway pavement and pavement markings; signage; user behavior; and traffic, roadway and/or roadside characteristics.

## Roadway Pavement/Pavement Markings:

- The pavement surface was found to be in fair condition, except in the areas where trench drains were present and offset and along the north and south curb-lines east of Rock City Road.
- In general, the roadway pavement markings (including double yellow, stop lines, \& crosswalk markings) were found to be in poor to fair condition.
- Delineation for on-street parking was non-existent. Motorists were found to be parked very close to intersections and driveways and were often found to not maximize use of available parking space. This condition makes turning movements to and from intersections and driveways more difficult, obstructs sight lines for turning motorists and results in an inefficient use of on-street parking.
- Crosswalk markings were faded and in poor condition. None of the crosswalk markings appeared to be stripped using high-visibility and durable materials.
- The skewed alignments of some crosswalks are not ideal. Skewed crosswalks were found at Rock City Road, Maple Lane, and Deming Street. Crosswalks that are striped perpendicular to the roadway are ideal due to the minimized crossing distance.


Photo 1: View of faded pavement markings and diagonal crosswalks at Rock City Road.


Photo 2: View of unmarked on-street parking along NYS Route 212. In addition, vehicle shown is parked within 20 -feet of a driveway.


Photo 3: Poor pavement condition in area were trench drain is present.

## Signage:

- In general, sign retroreflectivity and physical condition were found to be in fair to good condition except for a few instances.
- There are instances of signs with faded panels that are in need of replacement. For example, the stop signs at Nehrer Street and Maple Lane and the "One Hour Parking" signs near Tannery Brook Road and Maple Lane are badly faded.
- Many of the parking related signs are not oriented properly. According the MUTCD, these signs should be oriented at an angle between $30^{\circ}$ and $45^{\circ}$ facing the affected direction of traffic flow.
- The pedestrian crossing warning signs in accordance with NYSDOT PSAP guidelines and as per NYSDOT Standards. Signing should be installed in accordance with current standards.
- Rock City Road has three marked pedestrian crosswalks without any warning signs.
- The curve warning sign approaching Rock City Road from the east seems too far in advance of the curve. There is no curve warning sign to the approaching the curve from the west. According to the MUTCD, this type of sign should be placed approximately 185-feet in advance of the curve for roadway with a 30 MPH speed limit.
- There is inadequate signage along both directions along NYS Route 212 to inform and direct interested motorists to the municipal parking lot that existing behind the storefronts along the south side of NYS Route 212.


Photo 4: Faded stop sign at Nehrer Street.


Photo 5: View approaching Rock City Road from the east. No pedestrian crosswalk warning signs.

## User Behavior:

- Parking restrictions are often disregarded, and cars will often encroach into "No Parking" areas and areas too close to adjacent pedestrian crosswalks, side streets and/or driveways.
- Southbound motorists on Rock City Road ignore the "Do Not Block Side Road" sign and grid lock pavement markings at Old Forge Road.


Photo 6: Parked vehicle in no parking area near Rock City Road.

## Traffic/Roadway/Roadside Characteristics:

- Clear sight lines are often obstructed by parked vehicles, shrubs, banners, etc.
- This creates poor conditions for motorists turning from side roads onto and off of NYS Route 212.
- Parking at the west end of the corridor is signed to be restricted for shorter time periods to provide for higher turnover use, but people remain parked longer than the 30 minutes permitted.
- Some drainage structures were found to be full of debris.
- Roadway lighting is present along the south side of NYS Route 212.
- Lighting levels are moderate, but fixtures are not LED.
- The north side of the intersection with Rock City Road is noticeably darker than the south side.


Photo 7: Shrubs obstructing sight lines at Nehrer Street.


Photo 8: Drainage structure full of debris near Maple Lane.

### 3.2.2. Suggested Improvements

See Figure C-1: Woodstock Conceptual Improvement Plan in Appendix C for a graphical presentation of proposed improvements discussed below.

## Roadway Pavement/Pavement Markings:

- An upcoming NYSDOT project will eliminate the trench drains and resurface and restripe NYS Route 212 east of Rock City Road.
- This would serve as a good opportunity to realign/upgrade skewed pedestrian crossings and add accessible curb ramps, where appropriate.
- Utilizing durable, high visibility pavement marking materials and a yearly maintenance program would improve existing conditions and ensure that pavement markings are kept in good condition.
- Incorporate a new mid-block pedestrian crosswalk in vicinity of Town Hall. This improvement would involve constructing new accessible curb ramps.
- Locations for loading zones within the limits of on-street parking areas with time restrictions should be identified and implemented to ensure that traffic and pedestrian activities are unobstructed by loading and unloading actions.
- Use pavement markings to delineate on-street parking spaces.
- In general, parking should not be permitted within 20 -feet of a pedestrian crosswalk, intersection or driveway to allow for clear sight lines and turning space.
- As shown on the enclosed conceptual improvement plan, parking spaces are proposed to be 7 -feet wide by 18 -feet long with 4 -feet of buffer space between them.
- On-street parking should be restricted along NYS Route 212 adjacent to the two culverts near Library Lane and Tannery Brook Road due to narrow pavement width.


## Signage:

- Replace worn out, faded and/or damaged signs.
- Re-orient parking related signage to the proper angle (between $30^{\circ}$ and $45^{\circ}$ facing the affected direction of traffic flow).
- Upgrade pedestrian crossing warning signs in accordance with NYSDOT PSAP guidelines and NYSDOT Standards. Enhanced treatments including yield markings and "Yield Here To Pedestrians" signs should be considered for the pedestrian crosswalk at the NYS Route 212 approached to Rock City Road due to the high level of pedestrian activity at this location.
- Relocate the existing curve warning sign east of Rock City Road to a more appropriate distance from the curve based on the MUTCD, and install a new curve warning sign west of Rock City Road for eastbound traffic.
- Install new signs in place of the existing ineffective municipal parking signs, and place additional signage along the corridor to better inform motorists of all municipal parking areas.
- Remove redundant "No Parking" signs along the north side of NYS Route 212.
- Continue to upgrade street name signs.


## User Behavior:

- In addition to marking on-street parking spaces, "No Parking" areas can be better delineated through the use of pavement markings.
- Install "No Stopping" signs in place of existing "No Parking" signs.
- Relocate the "Do Not Block Side Road" sign on Rock City Road closer to Old Forge Road and restripe the gridlock box with more durable high visibility pavement marking material.


## Traffic/Roadway/Roadside Characteristics:

- Restrict parking within 20 -feet of pedestrian crosswalks, intersections and driveways.
- Reduce the parking duration along the west end of the corridor from 30 minutes to 10 or 15 minutes to encourage higher parking turnover.
- Explore metered parking alternatives.
- Clean out drainage structures as necessary.
- Upgrade the lighting in the area to LED, and provide additional lighting near crosswalks, especially at Rock City Road and other areas with high pedestrian activity and intersections.


### 3.3. NYS Route 32/NYS Route 212 - Town of Saugerties

### 3.3.1. Identified Safety Issues

In order to obtain an understanding of potential issues, existing conditions were first reviewed during an initial field visit in October of 2017 and then again with the RSA teams on November 28 and 29, 2017. The following is a summary of the issues identified as they relate to roadway pavement and pavement markings; signage; user behavior; and traffic, roadway and/or roadside characteristics.

## Roadway Pavement/Pavement Markings:

- In general, the roadway pavement and markings are in fair to good condition.
- Arrow symbol lane use markings are not present at the Kings Highway approach to NYS Route 32/212.
- The arrow symbol lane markings on the westbound I-87 southbound ramp approach to NYS Route 32 do not reflect the new geometry created by the addition of the Park and Ride.
- Double yellow and stop line markings are not present at the signalized Speedway Gas Station access driveway.


## Signage:

- In general, sign retroreflectivity and physical condition are in fair to good condition except for a few instances.
- Some of the attraction signs were in poor condition.
- It does not appear that the business district directory signs are providing current and pertinent information.
- Sign clutter appears to be an issue along the NYS Route 32/212.
- Are the Adopt-A-Highway signs all current and/or necessary?
- The throughway/I-87 route sign and trailblazer assemblies appear to have redundant messaging as they have a thruway symbol plus I-87 route and trailblazer sign assemblies, both with a set of supplemental arrow and directional signs.
- The route sign and trailblazer assemblies approaching junction points may be creating some confusion relating to the location of the assembly.
- There appears to be inconsistent sign sizes for route sign and trailblazer assemblies.
- There are no posted speed limit signs along northbound NYS Route 32 approaching the I-87 southbound ramps.


## User Behavior:

- Many drivers appeared to be traveling in excess of the posted speed along northbound NYS Route 32 approaching the I-87 southbound on/off ramps.
- Drivers exiting the southbound I-87 ramp appear to have difficulties looking for a gap in northbound and southbound NYS Route 32 traffic.


## Traffic/Roadway/Roadside Characteristics:

- During the RSA, a number of team members mentioned that this study area experiences an elevated level of traffic congestion associated with seasonal summer fair events and winter recreational (skiing, etc) activities. Although this study considered any crash data that would have coincided with these periods, due to when the field and RSA work took place, the team did not have the opportunity to observe traffic conditions associated with these conditions.
- During the RSA field work, a traffic queueing condition was observed along the eastbound NY Route $32 /$ NY Route 212 approach to the at-grade railroad crossing when a train was present and the gates were down. This queue extended to a point near to the Big Lots Driveway intersection, approximately a distance of 750 feet. This condition was compounded by the presence of a vertical curve and associated limited sight distance condition for motorists traveling along this approach and their ability to see the crossing gates and warning signs. The vertical curve in the roadway alignment and queueing of traffic when the railroad gate is down result in an unexpected stop condition.
- A sight distance issue was identified involving motorists turning on and off of the I-87 southbound ramps at NYS Route 32.
- Concerns regarding how southbound NYS Route 32 queues in the left turn lane and northbound NYS Route 32 right turn vehicles limit sight lines for motorists turning on and off of the I-87 southbound ramps at NYS Route 32.
- A sun glare issue was identified for westbound NYS Route 32/212 motorists in vicinity of Kings Highway.
- Roadway lighting is non-existent, except for at I-87 southbound ramps and at Saugerties Manor Road.
- There seems to be an overabundance of access points servicing the Speedway Gas Station.


### 3.3.2. Suggestions for Improvements

See Figure C-2: Saugerties Conceptual Improvement Plan in Appendix C for a graphical presentation of proposed improvements discussed below.

## Roadway Pavement/Pavement Markings:

- Stripe arrow symbol lane use markings at the Kings Hwy approach to NYS Route 32/212.
- Change the arrow symbol lane use markings on the westbound I-87 southbound ramp approach to NYS Route 32 to reflect the current intersection geometry.
- Stripe double yellow and stop line markings at the signalized Speedway Gas Station access driveway.


## Signage:

- Assess replacing/updating attraction and business district directory sign assemblies.
- Notify the business chamber of commerce that they should review and update current signs, as appropriate.
- Assess the existing Adopt-A-Highway signs, as many appear outdated.
- Consolidating redundant messaging of Throughway/I-87 route sign assemblies.
- Upgrade the I-87 route sign and trailblazer assemblies approaching junction points so that they all are the appropriate size and have consistent messaging.


## User Behavior:

- Restripe the westbound NYS Route 32/212 approach to the signalized Speedway Gas Station access driveway to include a dedicated left-turn lane.
- Perform a speed study along northbound NYS Route 32 approaching the I-87 southbound ramps to determine the appropriate speed limit.


## Traffic/Roadway/Roadside Characteristics:

- Regarding improvements to address the sight distance issue involving motorists turning onto and off of the I-87 Southbound ramps at NYS Route 32:
- Upon review the Holiday Inn Express traffic study (completed in 2014), a potential mitigation measure of converting the existing striped median on the northbound approach of the intersection to a two-way left turn lane was identified. This was meant to provide a refuge area for westbound motorists making left turns so that they could observe traffic in
each direction independently. Since the Park \& Ride has been constructed and the median has been restriped as a left turn lane, this mitigation measure is no longer valid.
- Rebuild the traffic signal at the NYS Route 32 and Southbound I-87 on/off ramp intersection to have a red/yellow/green operation. Although this would appear to be an improvement that could be implemented quickly, it would require careful planning, design, and coordination with the NYS Thruway Authority to ensure that any queues generated would not impede traffic flow on I-87.
- Reconstruct the NYS Route 32 and Southbound I-87 on/off ramp intersection to incorporate a roundabout. This improvement would also require careful planning, design, and coordination with the NYS Thruway Authority to ensure that any queues generated would not impede traffic flow on I-87.
- Regarding improvements to address sight distance for eastbound NYS Route 32/212 motorists approaching the at-grade railroad crossing:
- Supplement the railroad crossing signs with flashing beacons that are coordinated to work in conjunction with the railroad crossing gates.
- Add advanced grade crossing warning signs.
- Install backplates on the existing traffic signal displays to improve their target value and help address existing sun glare conditions.
- Installing roadway lighting.
- Consolidate and/or restrict movements at the unsignalized driveways at the Speedway Gas Station.
- Incorporate on-site signage to restrict certain movements at the unsignalized driveways and encourage motorists to use the signalized driveway to make left turns to go west on NYS Route 212 or go straight to head north on NYS Route 32.


### 3.4. NYS Route 299 - Town of New Paltz

### 3.4.1. Identified Safety Issues

In order to obtain an understanding of potential issues, existing conditions were first reviewed during an initial field visit in October of 2017 and then again with the RSA teams on November 28 and 29, 2017. The following is a summary of the issues identified as they relate to roadway pavement and pavement markings; signage; user behavior; and traffic, roadway and/or roadside characteristics.

## Roadway Pavement/Pavement Markings:

- In general, the roadway pavement is in good condition with the following areas having some minor degradation:
- Just east of Jenkins Road.
- Approximately 1000-feet west of Butterville Road/Albany Post Road.
- Approximately 1000 -feet west of Gate House Road.
- Generally, the pavement markings are in good condition throughout the study area.
- Four-foot wide shoulders have recently been added on each side of NYS Route 299 from Butterville Road/Albany Post Road to the eastern terminus of study limits. Four-foot wide shoulders are planned to be added along NYS Route 299 throughout the rest of the study limits. This will provide a safer condition for bicyclists traveling through the area.
- The channelized crosshatch markings at southeast corner of the NYS Route 299 and Butterville Road/Albany Post Road intersection are yellow (they should be white) and slightly faded.


Photo 9: Faded yellow channelized crosshatch markings on NYS Route 299 at Butterville Road.

- Pavement and striping improvements at the Gate House Road approach to NYS Route 299 were recently incorporated, but the radii at the northeast corner of the intersection makes westbound right turn maneuvers difficult, especially for larger vehicles. It was observed that many vehicles cross over the yellow center line on Gate House Road while performing this maneuver.


Photo 10: Tight right turn radius at Gate House Road (in vicinity of traffic cone).

## Signage:

- In general, sign retroreflectivity and physical conditions are good with the exception of the following signs:
- The thruway sign in the eastbound direction just east of Butterville Road/Albany Post Road is in poor condition
- The NYS Route 299 sign in the westbound direction just west of Butterville Road/Albany Post Road is in poor condition
- The "Red Barn Rd" street sign is bent and misaligned, making it difficult to be seen.
- The "Gate House Rd" street sign is bent and misaligned, making it difficult to be seen.
- The "All Way" stop plaques below the 48 " $\times 48$ " stop signs on NYS Route 299 at the Butterville Road/Albany Post Road intersection are only 18 " $\times 6$ ".
- The stop sign at Gate House Road is located too far from the stop line.
- The advance intersection warning sign for Gate House Road/Jacobs Lane in the westbound direction only shows a street to the left (MUTCD W2-2L).
- Many of the curve warning signs do not appear to be properly located based on Table NY2C-4: Guidelines for Advance Placement of Warning Signs in the NYS Supplement of the MUTCD.
- The signage at Springtown Road blocks the sight distance for vehicles attempting to turn onto NYS Route 299


## User Behavior:

- At the Butterville Road/Albany Post Road intersection, additional stop signs along NYS Route 299 have been recently installed (August 2017). Some drivers appear to be surprised by the stop condition on NYS Route 299 despite the Variable Message Sign (VMS) informing drivers of the new condition, the "Stop Ahead" sign, and the 48 " $\times 48$ " stop signs.
- At Butterville Road/Albany Post Road, drivers in the westbound direction do not stop at the stop line, but stop closer to the intersection.
- Drivers appear to be traveling above the speed limit on the roadway, particularly at night.
- Although it was not observed during the field visits, members of the RSA team have recalled instances where motorists would park at various locations along the NYS Route 299 roadside to go sightseeing and hiking, which creates an unsafe condition.


## Traffic/Roadway/Roadside Characteristics:

- All guide rail appears to be in good condition.
- Roadway lighting is provided at the curve just west of Libertyville Road by the presence of one street light.
- Roadway lighting is provided at the Springtown Road intersection by the presence of one street light.
- An overhanging tree blocks the westbound curve warning sign just east of Jenkins Road.
- The intersection of NYS Route 299 and Butterville Road/Albany Post Road should be investigated again after a significant snow event when there are large snow banks present to access a reported condition involving drifting snow that may cause sight distance issues. Sight distance is similarly affected when the grass in the roadside area is high, especially along the northwest and southwest corners of the intersection.


### 3.4.2. Suggestions for Improvements

See Figure C-3: New Paltz Conceptual Improvement Plan in Appendix C for a graphical presentation of proposed improvements discussed below.

## Roadway Pavement/Pavement Markings:

- Restripe the channelized crosshatch markings at southeast corner of the NYS Route 299 and Butterville Road/Albany Post Road intersection with 24 " wide white pavement marking material, and increase the radius of the edge line to better guide vehicles that are making a right turn.
- Consider improving the radius at the northeast corner of the intersection of NYS Route 299 and Gate House Road by adding pavement and striping to improve driver maneuverability.
- Consider installing edge line rumble strips along NYS Route 299 between the Carmen Liberta Bridge and the Town of New Paltz/Town of Gardiner border.


## Signage:

- Replace the badly worn thruway sign and NYS Route 299 sign near Butterville Road/Albany Post Road.
- Replace the badly worn "Red Barn Rd" and "Gate House Rd" street signs.
- The "All Way" stop plaques below the 48 " $\times 48$ " stop signs on NYS Route 299 at the Butterville Road/Albany Post Road intersection should be replaced with the standard size for that sign size ( 30 " $\times 12$ ").
- Install an additional "Deer Crossing" sign for eastbound traffic just to the east of the Butterville Road/ Albany Post Road intersection.
- Move the stop sign at Gate House Road so that it is in line with the stop line.
- The advance intersection warning sign for Gate House Road/Jacobs Lane in the westbound direction should show a road to the left and right (MUTCD W2-7L) sign panel instead of only a street to the left (MUTCD W2-2L) sign panel.
- The "Driveway" plaque below the intersection warning sign on westbound NYS Route 299 just west of Libertyville Road could be changed to include "Blind Driveways" (MUTCD W16-8aP) sign panel.
- Relocate the curve warning signs that are not at the recommended advance warning distances.
- Relocate the "Mohonk Mountain House" sign on the southeast corner of the Springtown Road intersection approximately 5 -feet further north and away from the roadway edge. Relocate the guide sign on the northeast corner of the intersection approximately 30 -feet to the west.


## User Behavior:

- Consider installing flashing signal beacon indications to supplement the "Stop Ahead" signs that are present in advance of the intersection.
- Consider installing "Stop Ahead" pavement markings in the travel lane along both NYS Route 299 approaches to Butterville Road/ Albany Post Road if, after a review of crash data in the future, it is found that this additional warning treatment is warranted.
- Move the stop sign and stop line on the westbound NYS Route 299 approach to Butterville Road/ Albany Post Road closer to the intersection (approximately 20 -feet) to a location where drivers seem to naturally stop and which would provide adequate traffic control.
- Continue dialog with NYSDOT on possibly reducing the speed limit due to other factors besides the 85-percentile traveling speed. Consider a temporary reduction of the speed limit and a corresponding study to determine if animal-vehicle crashes are reduced by the reduced speed limit.
- Consider extending the $30-\mathrm{mph}$ village speed limit, which exists along NYS Route 299 to the east of the study limits, further west and include the intersection of Springtown Road. Based on FHWA guidelines, it is recommended that a transitional speed zones be utilized in the eastbound direction since speed limit differential is greater than 10 mph .
- Consider using Variable Message Signs (VMS) to warn drivers of the potential for deer in the area during the times of the year when deer migration is active.
- Add solar powered yellow flashing beacon signal indications to supplement the "Deer Crossing" signs where crashes are most prevalent.
- Consider a public announcement campaign to notify the public of how many deer-vehicle crashes there have been in the area and/or alert the public of the potential for deer in the area during the times of the year when deer migration is active.
- Install "No Parking" signs at areas where undesired parking along the NYS Route 299 roadside has been observed.


## Traffic/Roadway/Roadside Characteristics:

- Trim the tree that blocks the westbound curve warning sign just east of Jenkins Road.
- Maintain the vegetation along the roadside so that sight distances are not obstructed, especially at the intersection of NYS Route 299 and Butterville Road/ Albany Post Road. This is also important so that bicyclists have full use of any available shoulders.


# Appendix A: Existing Traffic Data 

Speed Calculations for
Location 1: NYS Route 299 approximately $1 / 4$ mile west of Butterville Road (New Paltz)
Eastbound

| Class Limits (mph) | Class Midvalues (mph) | Class Frequencies | Relative Frequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}-\mathrm{x}$ | $f_{1}\left(u_{1}-x\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathrm{u}_{1}$ | $\mathrm{f}_{1}$ |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -42 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -40 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -38 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -36 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -34 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -32 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -30 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -28 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -26 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -24 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -22 | 0 |
| 30-31.9 | 31 | 0 | 0.000 | 0 | 0.000 | 0 | -20 | 0 |
| 32-33.9 | 33 | 0 | 0.000 | 0 | 0.000 | 0 | -18 | 0 |
| 34-35.9 | 35 | 0 | 0.000 | 0 | 0.000 | 0 | -16 | 0 |
| 36-37.9 | 37 | 0 | 0.000 | 0 | 0.000 | 0 | -14 | 0 |
| 38-39.9 | 39 | 2 | 0.040 | 2 | 0.040 | 78 | -12 | 275 |
| 40-41.9 | 41 | 0 | 0.000 | 2 | 0.040 | 0 | -10 | 0 |
| 42-43.9 | 43 | 3 | 0.060 | 5 | 0.100 | 129 | -8 | 179 |
| 44-45.9 | 45 | 2 | 0.040 | 7 | 0.140 | 90 | -6 | 65 |
| 46-47.9 | 47 | 3 | 0.060 | 10 | 0.200 | 141 | -4 | 42 |
| 48-49.9 | 49 | 6 | 0.120 | 16 | 0.320 | 294 | -2 | 18 |
| 50-51.9 | 51 | 11 | 0.220 | 27 | 0.540 | 561 | 0 | 1 |
| 52-53.9 | 53 | 14 | 0.280 | 41 | 0.820 | 742 | 2 | 73 |
| 54-55.9 | 55 | 6 | 0.120 | 47 | 0.940 | 330 | 4 | 110 |
| 56-57.9 | 57 | 3 | 0.060 | 50 | 1.000 | 171 | 6 | 118 |
| 58-59.9 | 59 | 0 | 0.000 | 50 | 1.000 | 0 | 8 | 0 |
| 60-61.9 | 61 | 0 | 0.000 | 50 | 1.000 | 0 | 10 | 0 |
| 62-63.9 | 63 | 0 | 0.000 | 50 | 1.000 | 0 | 12 | 0 |
| 64-65.9 | 65 | 0 | 0.000 | 50 | 1.000 | 0 | 14 | 0 |
| 66-67.9 | 67 | 0 | 0.000 | 50 | 1.000 | 0 | 16 | 0 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 18 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 20 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 22 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 24 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 26 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 28 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 29 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,536 |  | 880 |


| Posted Speed Limit (mph).................... Not Posted |  |
| :--- | :--- |
| $\mathbf{x}$ - Arithmetic Mean (mph)................... 50.7 | $x=\sum f_{i} u_{i} / \sum f_{i}$ |
| $\mathbf{s}$ - Standard deviation (mph)................. 4.2 |  |$\quad s=\sqrt{\sum f_{i}\left(u_{i}-x\right)^{2} /\left(\left(\sum f_{i}\right)-1\right)}$.

Frequency Distribution for Spot Speed Study Location 1: NYS Route 299 approximately $1 / 4$ mile west of Butterville Road (New Paltz) Eastbound


Cumulative Speed Distribution


Speed Calculations for
Location 1: NYS Route 299 approximately $1 / 4$ mile west of Butterville Road (New Paltz)
Westbound

| Class Limits (mph) | $\begin{gathered} \hline \text { Class Midvalues } \\ (\mathrm{mph}) \\ \mathrm{u}_{1} \\ \hline \end{gathered}$ | Class Frequencies $\mathrm{f}_{1}$ | Relative Frequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}-\mathrm{x}$ | $\mathrm{f}_{1}\left(\mathrm{u}_{1}-\mathrm{x}\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -40 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -38 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -36 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -34 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -32 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -30 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -28 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -26 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -24 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -22 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -20 | 0 |
| 30-31.9 | 31 | 1 | 0.020 | 1 | 0.020 | 31 | -18 | 315 |
| 32-33.9 | 33 | 0 | 0.000 | 1 | 0.020 | 0 | -16 | 0 |
| 34-35.9 | 35 | 0 | 0.000 | 1 | 0.020 | 0 | -14 | 0 |
| 36-37.9 | 37 | 0 | 0.000 | 1 | 0.020 | 0 | -12 | 0 |
| 38-39.9 | 39 | 2 | 0.040 | 3 | 0.060 | 78 | -10 | 191 |
| 40-41.9 | 41 | 3 | 0.060 | 6 | 0.120 | 123 | -8 | 181 |
| 42-43.9 | 43 | 1 | 0.020 | 7 | 0.140 | 43 | -6 | 33 |
| 44-45.9 | 45 | 6 | 0.120 | 13 | 0.260 | 270 | -4 | 85 |
| 46-47.9 | 47 | 6 | 0.120 | 19 | 0.380 | 282 | -2 | 19 |
| 48-49.9 | 49 | 7 | 0.140 | 26 | 0.520 | 343 | 0 | 0 |
| 50-51.9 | 51 | 12 | 0.240 | 38 | 0.760 | 612 | 2 | 60 |
| 52-53.9 | 53 | 6 | 0.120 | 44 | 0.880 | 318 | 4 | 108 |
| 54-55.9 | 55 | 3 | 0.060 | 47 | 0.940 | 165 | 6 | 117 |
| 56-57.9 | 57 | 2 | 0.040 | 49 | 0.980 | 114 | 8 | 136 |
| 58-59.9 | 59 | 1 | 0.020 | 50 | 1.000 | 59 | 10 | 105 |
| 60-61.9 | 61 | 0 | 0.000 | 50 | 1.000 | 0 | 12 | 0 |
| 62-63.9 | 63 | 0 | 0.000 | 50 | 1.000 | 0 | 14 | 0 |
| 64-65.9 | 65 | 0 | 0.000 | 50 | 1.000 | 0 | 16 | 0 |
| 66-67.9 | 67 | 0 | 0.000 | 50 | 1.000 | 0 | 18 | 0 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 20 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 22 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 24 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 26 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 28 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 30 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 31 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,438 |  | 1,349 |


| Posted Speed Limit (mph).................... Not Posted |  |
| :---: | :---: |
| x - Arithmetic Mean (mph)..................... 48.8 | $x=\sum f_{i} u_{i} / \sum f_{i}$ |
| s - Standard deviation (mph)................. 5.2 |  |
| Mode Speed (mph)............................ 49 | $s=\sqrt{\sum} f_{i}\left(u_{i}-x\right)^{2} /\left(\left(\sum f_{i}\right)-1\right)$ |
| 85th Percentile (mph).......................... 53 | Pace (mph)...................................... $44-53$ |
| Median Speed (mph)........................... 49 | Pace Speed (mph)............................. 53 |
| 15th Percentile (mph)........................... 44 | Range (mph)...................................... 30-59 |
| Vehicles Exceeding 10 mph (\%)............. 100\% | Vehicles Exceeding 50 mph (\%)............. 48\% |
| Vehicles Exceeding 20 mph (\%)............. 100\% | Vehicles Exceeding 60 mph (\%)............. 0\% |
| Vehicles Exceeding 30 mph (\%)............. 100\% | Vehicles Exceeding 70 mph (\%)............. 0\% |
| Vehicles Exceeding 40 mph (\%)............. 94\% | Vehicles Exceeding 80 mph (\%)............. 0\% |

Frequency Distribution for Spot Speed Study Location 1: NYS Route 299 approximately $1 / 4$ mile west of Butterville Road (New Paltz) Westbound


Cumulative Speed Distribution


Speed Calculations for
Location 2: NYS Route 299 approximately $1 / 4$ mile east of Butterville Road (New Paltz)
Eastbound

| Class Limits (mph) | $\begin{gathered} \hline \text { Class Midvalues } \\ (\mathrm{mph}) \\ \mathrm{u}_{1} \\ \hline \end{gathered}$ | Class Frequencies $\mathrm{f}_{1}$ | Relative Frequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}-\mathrm{x}$ | $\mathrm{f}_{1}\left(\mathrm{u}_{1}-\mathrm{x}\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -45 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -43 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -41 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -39 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -37 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -35 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -33 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -31 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -29 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -27 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -25 | 0 |
| 30-31.9 | 31 | 0 | 0.000 | 0 | 0.000 | 0 | -23 | 0 |
| 32-33.9 | 33 | 0 | 0.000 | 0 | 0.000 | 0 | -21 | 0 |
| 34-35.9 | 35 | 0 | 0.000 | 0 | 0.000 | 0 | -19 | 0 |
| 36-37.9 | 37 | 0 | 0.000 | 0 | 0.000 | 0 | -17 | 0 |
| 38-39.9 | 39 | 0 | 0.000 | 0 | 0.000 | 0 | -15 | 0 |
| 40-41.9 | 41 | 0 | 0.000 | 0 | 0.000 | 0 | -13 | 0 |
| 42-43.9 | 43 | 1 | 0.020 | 1 | 0.020 | 43 | -11 | 112 |
| 44-45.9 | 45 | 2 | 0.040 | 3 | 0.060 | 90 | -9 | 147 |
| 46-47.9 | 47 | 3 | 0.060 | 6 | 0.120 | 141 | -7 | 129 |
| 48-49.9 | 49 | 5 | 0.100 | 11 | 0.220 | 245 | -5 | 104 |
| 50-51.9 | 51 | 7 | 0.140 | 18 | 0.360 | 357 | -3 | 46 |
| 52-53.9 | 53 | 9 | 0.180 | 27 | 0.540 | 477 | -1 | 3 |
| 54-55.9 | 55 | 8 | 0.160 | 35 | 0.700 | 440 | 1 | 17 |
| 56-57.9 | 57 | 6 | 0.120 | 41 | 0.820 | 342 | 3 | 71 |
| 58-59.9 | 59 | 6 | 0.120 | 47 | 0.940 | 354 | 5 | 178 |
| 60-61.9 | 61 | 2 | 0.040 | 49 | 0.980 | 122 | 7 | 111 |
| 62-63.9 | 63 | 0 | 0.000 | 49 | 0.980 | 0 | 9 | 0 |
| 64-65.9 | 65 | 0 | 0.000 | 49 | 0.980 | 0 | 11 | 0 |
| 66-67.9 | 67 | 1 | 0.020 | 50 | 1.000 | 67 | 13 | 181 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 15 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 17 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 19 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 21 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 23 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 25 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 26 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,678 |  | 1,096 |


| Posted Speed Limit (mph).................... Not Posted |  |
| :---: | :---: |
| x - Arithmetic Mean (mph).................... 53.6 | $x=\sum f_{i} u_{i} / \sum f_{i}$ |
| s - Standard deviation (mph)................. 4.7 |  |
| Mode Speed (mph)............................ 52 | $s=\sqrt{\sum f_{i}\left(u_{i}-x\right)^{2} /\left(\left(\sum f_{i}\right)-1\right)}$ |
| 85th Percentile (mph)......................... 58 | Pace (mph)......................................49-58 |
| Median Speed (mph)........................... 53 | Pace Speed (mph)............................. 58 |
| 15th Percentile (mph)......................... 49 | Range (mph)....................................43-67 |
| Vehicles Exceeding 10 mph (\%)............. 100\% | Vehicles Exceeding 50 mph (\%)............. 78\% |
| Vehicles Exceeding 20 mph (\%)............. 100\% | Vehicles Exceeding 60 mph (\%)............. 6\% |
| Vehicles Exceeding 30 mph (\%)............. 100\% | Vehicles Exceeding 70 mph (\%)............. 0\% |
| Vehicles Exceeding 40 mph (\%)............. 100\% | Vehicles Exceeding 80 mph (\%)............. 0\% |

Frequency Distribution for Spot Speed Study Location 2: NYS Route 299 approximately $1 / 4$ mile east of Butterville Road (New Paltz) Eastbound


Cumulative Speed Distribution


## Speed Calculations for

Location 2: NYS Route 299 approximately $1 / 4$ mile east of Butterville Road
Westbound

| Class Limits (mph) | Class Midvalues (mph) <br> $\mathrm{u}_{1}$ | Class <br> Frequencies <br> $f_{1}$ | Relative Frequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}-\mathrm{x}$ | $\mathrm{f}_{1}\left(\mathrm{u}_{1}-\mathrm{x}\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -45 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -43 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -41 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -39 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -37 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -35 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -33 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -31 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -29 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -27 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -25 | 0 |
| 30-31.9 | 31 | 0 | 0.000 | 0 | 0.000 | 0 | -23 | 0 |
| 32-33.9 | 33 | 0 | 0.000 | 0 | 0.000 | 0 | -21 | 0 |
| 34-35.9 | 35 | 0 | 0.000 | 0 | 0.000 | 0 | -19 | 0 |
| 36-37.9 | 37 | 0 | 0.000 | 0 | 0.000 | 0 | -17 | 0 |
| 38-39.9 | 39 | 0 | 0.000 | 0 | 0.000 | 0 | -15 | 0 |
| 40-41.9 | 41 | 0 | 0.000 | 0 | 0.000 | 0 | -13 | 0 |
| 42-43.9 | 43 | 1 | 0.020 | 1 | 0.020 | 43 | -11 | 130 |
| 44-45.9 | 45 | 3 | 0.060 | 4 | 0.080 | 135 | -9 | 265 |
| 46-47.9 | 47 | 3 | 0.060 | 7 | 0.140 | 141 | -7 | 164 |
| 48-49.9 | 49 | 6 | 0.120 | 13 | 0.260 | 294 | -5 | 175 |
| 50-51.9 | 51 | 4 | 0.080 | 17 | 0.340 | 204 | -3 | 46 |
| 52-53.9 | 53 | 6 | 0.120 | 23 | 0.460 | 318 | -1 | 12 |
| 54-55.9 | 55 | 4 | 0.080 | 27 | 0.540 | 220 | 1 | 1 |
| 56-57.9 | 57 | 11 | 0.220 | 38 | 0.760 | 627 | 3 | 74 |
| 58-59.9 | 59 | 5 | 0.100 | 43 | 0.860 | 295 | 5 | 106 |
| 60-61.9 | 61 | 3 | 0.060 | 46 | 0.920 | 183 | 7 | 131 |
| 62-63.9 | 63 | 1 | 0.020 | 47 | 0.940 | 63 | 9 | 74 |
| 64-65.9 | 65 | 2 | 0.040 | 49 | 0.980 | 130 | 11 | 225 |
| 66-67.9 | 67 | 1 | 0.020 | 50 | 1.000 | 67 | 13 | 159 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 15 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 17 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 19 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 21 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 23 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 25 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 26 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,720 |  | 1,562 |


| Posted Speed Limit (mph)..................... Not Posted |  |
| :--- | :--- |
| x - Arithmetic Mean (mph).................... 54.4 | $x=\sum f_{i} u_{i} / \sum f_{i}$ |
| $\mathbf{s}$ - Standard deviation (mph)...................5.6 |  |
| Mode Speed (mph)......................... 56 |  |$\quad s=\sqrt{\sum f_{i}\left(u_{i}-x\right)^{2} /\left(\left(\sum f_{i}\right)-1\right)}$.

Frequency Distribution for Spot Speed Study
Location 2: NYS Route 299 approximately $1 / 4$ mile east of Butterville Road Westbound


Cumulative Speed Distribution


Location 3: NYS Route 299 approximately 500 feet east of Jacobs Lane
Eastbound

| Class Limits (mph) | $\begin{gathered} \hline \text { Class Midvalues } \\ (\mathrm{mph}) \\ \mathrm{u}_{1} \\ \hline \end{gathered}$ | Class Frequencies $\mathrm{f}_{1}$ | Relative Frequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}-\mathrm{x}$ | $\mathrm{f}_{1}\left(\mathrm{u}_{1}-\mathrm{x}\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -40 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -38 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -36 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -34 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -32 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -30 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -28 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -26 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -24 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -22 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -20 | 0 |
| 30-31.9 | 31 | 0 | 0.000 | 0 | 0.000 | 0 | -18 | 0 |
| 32-33.9 | 33 | 0 | 0.000 | 0 | 0.000 | 0 | -16 | 0 |
| 34-35.9 | 35 | 0 | 0.000 | 0 | 0.000 | 0 | -14 | 0 |
| 36-37.9 | 37 | 1 | 0.020 | 1 | 0.020 | 37 | -12 | 145 |
| 38-39.9 | 39 | 1 | 0.020 | 2 | 0.040 | 39 | -10 | 101 |
| 40-41.9 | 41 | 1 | 0.020 | 3 | 0.060 | 41 | -8 | 65 |
| 42-43.9 | 43 | 1 | 0.020 | 4 | 0.080 | 43 | -6 | 36 |
| 44-45.9 | 45 | 8 | 0.160 | 12 | 0.240 | 360 | -4 | 131 |
| 46-47.9 | 47 | 10 | 0.200 | 22 | 0.440 | 470 | -2 | 42 |
| 48-49.9 | 49 | 9 | 0.180 | 31 | 0.620 | 441 | 0 | 0 |
| 50-51.9 | 51 | 9 | 0.180 | 40 | 0.800 | 459 | 2 | 35 |
| 52-53.9 | 53 | 2 | 0.040 | 42 | 0.840 | 106 | 4 | 31 |
| 54-55.9 | 55 | 5 | 0.100 | 47 | 0.940 | 275 | 6 | 178 |
| 56-57.9 | 57 | 1 | 0.020 | 48 | 0.960 | 57 | 8 | 63 |
| 58-59.9 | 59 | 0 | 0.000 | 48 | 0.960 | 0 | 10 | 0 |
| 60-61.9 | 61 | 1 | 0.020 | 49 | 0.980 | 61 | 12 | 143 |
| 62-63.9 | 63 | 1 | 0.020 | 50 | 1.000 | 63 | 14 | 195 |
| 64-65.9 | 65 | 0 | 0.000 | 50 | 1.000 | 0 | 16 | 0 |
| 66-67.9 | 67 | 0 | 0.000 | 50 | 1.000 | 0 | 18 | 0 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 20 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 22 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 24 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 26 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 28 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 30 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 31 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,452 |  | 1,164 |



Frequency Distribution for Spot Speed Study Location 3: NYS Route 299 approximately 500 feet east of Jacobs Lane Eastbound


Cumulative Speed Distribution


Location 3: NYS Route 299 approximately 500 feet east of Jacobs Lane
Westbound

| Class Limits (mph) | Class Midvalues$(\mathrm{mph})$$\mathrm{u}_{1}$ | ClassFrequencies$\mathrm{f}_{1}$ | RelativeFrequencies | Cumulative Frequencies |  | $\mathrm{f}_{1} \mathrm{u}_{1}$ | $\mathrm{u}_{1}$-x | $f_{1}\left(u_{1}-x\right)^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Number | Relative |  |  |  |
| Under 10 |  | 0 | 0.000 | 0 | 0.000 | 0 | -37 | 0 |
| 10-11.9 | 11 | 0 | 0.000 | 0 | 0.000 | 0 | -35 | 0 |
| 12-13.9 | 13 | 0 | 0.000 | 0 | 0.000 | 0 | -33 | 0 |
| 14-15.9 | 15 | 0 | 0.000 | 0 | 0.000 | 0 | -31 | 0 |
| 16-17.9 | 17 | 0 | 0.000 | 0 | 0.000 | 0 | -29 | 0 |
| 18-19.9 | 19 | 0 | 0.000 | 0 | 0.000 | 0 | -27 | 0 |
| 20-21.9 | 21 | 0 | 0.000 | 0 | 0.000 | 0 | -25 | 0 |
| 22-23.9 | 23 | 0 | 0.000 | 0 | 0.000 | 0 | -23 | 0 |
| 24-25.9 | 25 | 0 | 0.000 | 0 | 0.000 | 0 | -21 | 0 |
| 26-27.9 | 27 | 0 | 0.000 | 0 | 0.000 | 0 | -19 | 0 |
| 28-29.9 | 29 | 0 | 0.000 | 0 | 0.000 | 0 | -17 | 0 |
| 30-31.9 | 31 | 0 | 0.000 | 0 | 0.000 | 0 | -15 | 0 |
| 32-33.9 | 33 | 0 | 0.000 | 0 | 0.000 | 0 | -13 | 0 |
| 34-35.9 | 35 | 1 | 0.020 | 1 | 0.020 | 35 | -11 | 132 |
| 36-37.9 | 37 | 2 | 0.040 | 3 | 0.060 | 74 | -9 | 180 |
| 38-39.9 | 39 | 4 | 0.080 | 7 | 0.140 | 156 | -7 | 224 |
| 40-41.9 | 41 | 4 | 0.080 | 11 | 0.220 | 164 | -5 | 120 |
| 42-43.9 | 43 | 5 | 0.100 | 16 | 0.320 | 215 | -3 | 61 |
| 44-45.9 | 45 | 5 | 0.100 | 21 | 0.420 | 225 | -1 | 11 |
| 46-47.9 | 47 | 9 | 0.180 | 30 | 0.600 | 423 | 1 | 2 |
| 48-49.9 | 49 | 6 | 0.120 | 36 | 0.720 | 294 | 3 | 38 |
| 50-51.9 | 51 | 4 | 0.080 | 40 | 0.800 | 204 | 5 | 82 |
| 52-53.9 | 53 | 8 | 0.160 | 48 | 0.960 | 424 | 7 | 340 |
| 54-55.9 | 55 | 2 | 0.040 | 50 | 1.000 | 110 | 9 | 145 |
| 56-57.9 | 57 | 0 | 0.000 | 50 | 1.000 | 0 | 11 | 0 |
| 58-59.9 | 59 | 0 | 0.000 | 50 | 1.000 | 0 | 13 | 0 |
| 60-61.9 | 61 | 0 | 0.000 | 50 | 1.000 | 0 | 15 | 0 |
| 62-63.9 | 63 | 0 | 0.000 | 50 | 1.000 | 0 | 17 | 0 |
| 64-65.9 | 65 | 0 | 0.000 | 50 | 1.000 | 0 | 19 | 0 |
| 66-67.9 | 67 | 0 | 0.000 | 50 | 1.000 | 0 | 21 | 0 |
| 68-69.9 | 69 | 0 | 0.000 | 50 | 1.000 | 0 | 23 | 0 |
| 70-71.9 | 71 | 0 | 0.000 | 50 | 1.000 | 0 | 25 | 0 |
| 72-73.9 | 73 | 0 | 0.000 | 50 | 1.000 | 0 | 27 | 0 |
| 74-75.9 | 75 | 0 | 0.000 | 50 | 1.000 | 0 | 29 | 0 |
| 76-77.9 | 77 | 0 | 0.000 | 50 | 1.000 | 0 | 31 | 0 |
| 78-79.9 | 79 | 0 | 0.000 | 50 | 1.000 | 0 | 33 | 0 |
| Above 80 |  | 0 | 0.000 | 50 | 1.000 | 0 | 34 | 0 |
| Totals |  | 50 | 1.000 |  |  | 2,324 |  | 1,334 |


| Posted Speed Limit (mph).................... Not Posted |  |
| :---: | :---: |
| x - Arithmetic Mean (mph)..................... 46.5 | $x=\sum f_{i} u_{i} / \sum f_{i}$ |
| s - Standard deviation (mph)................. 5.2 |  |
| Mode Speed (mph)............................ 47 | $s=\sqrt{\sum} f_{i}\left(u_{i}-x\right)^{2} /\left(\left(\sum f_{i}\right)-1\right)$ |
| 85th Percentile (mph).......................... 52 | Pace (mph)...................................... $44-53$ |
| Median Speed (mph)........................... 47 | Pace Speed (mph)............................. 53 |
| 15th Percentile (mph).......................... 40 | Range (mph)...................................... 35-55 |
| Vehicles Exceeding 10 mph (\%)............. 100\% | Vehicles Exceeding 50 mph (\%)............. 28\% |
| Vehicles Exceeding 20 mph (\%)............. 100\% | Vehicles Exceeding 60 mph (\%)............. 0\% |
| Vehicles Exceeding 30 mph (\%)............. 100\% | Vehicles Exceeding 70 mph (\%)............. 0\% |
| Vehicles Exceeding 40 mph (\%)............. 86\% | Vehicles Exceeding 80 mph (\%)............. 0\% |

Frequency Distribution for Spot Speed Study
Location 3: NYS Route 299 approximately 500 feet east of Jacobs Lane
Westbound


Cumulative Speed Distribution


Mr. Khattar Elmassalemah Praetorius and Conrad, PC PO Box 360
Saugerties, NY 12477

## RE: Traffic Evaluation, Saugerties NY Development, LP, Town of Saugerties, Ulster County, NY; CME Project: 114-194

Dear Mr. Elmassalemah:

This letter summarizes the traffic evaluation completed for the proposed Saugerties NY Development, LP located on Old Route 32 in the Town of Saugerties, New York as shown on Figure 1. The purpose of this analysis is to assess the traffic impact of the project and the need for traffic mitigation measures. The results of the analysis are detailed below.

## A. Introduction and Background

The project is located on approximately 10 acres of land west of Old Route 32 with primary access across from the Sunoco Gas Station on NY Route 32, which is approximately 1,200 feet north of the I-87 Exit 20 southbound toll plaza. Old Route 32 intersects NY Route 32 at two unsignalized locations separated by approximately 800 feet. The preliminary site plan (Attachment A) assumes a 100 seat sit-down restaurant, 86 room hotel, and a $\pm 2,800$ square foot (SF) fast food restaurant with drive thru. $A$ fourth building is proposed that will either be a second $\pm 2,800$ square foot (SF) fast food restaurant with drive thru or bank with drive thru. It is estimated that the project will be completed and occupied in 2016, however, an initial phase of just the hotel use may be initiated prior to the remaining uses.

Figure 1 - Site Location

background traffic volumes to establish the 2016 No-Build traffic volumes shown on Figure 2.

## Trip Generation

Trip generation determines the quantity of traffic expected to travel to/from the project site. Trip generation was estimated using trip generation data located in the Institute of Transportation Engineers (ITE) Trip Generation, $9^{\text {th }}$ edition for the proposed land uses. A trip is defined as the entering or exiting of a vehicle, hence one vehicle is equal to two trips; one trip entering, one trip exiting. Some land uses, in this case the restaurants, attract customers that are already driving by the site. They are called pass-by trips and they represent a vehicle trip that is otherwise already driving by on Route 32, but chooses to enter the site (e.g. to pick up dinner), before continuing onto their primary destination. Passy-by trips do not result in additional traffic to the region, but do add traffic locally into the site. A summary of the trip generation for the site is included in Table 1.

Table 1 -Trip Generation Summary

| Land Use | Size | ITE LUC | PM Peak Hour (Trips) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Enter | Exit | Total |
| Hotel | 86 rooms | 310 | 29 | 31 | 60 |
| Sit-Down Restaurant 40\% Pass-by | 5,000 SF | 932 | $\begin{gathered} 29 \\ -10 \end{gathered}$ | $\begin{gathered} 20 \\ -10 \end{gathered}$ | $\begin{gathered} 49 \\ -20 \end{gathered}$ |
| Fast-Food Restaurant 50\% Pass-by | 2,800 SF | 934 | $\begin{gathered} 47 \\ -23 \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 44 \\ -23 \\ \hline \end{array}$ | $\begin{gathered} 91 \\ -46 \\ \hline \end{gathered}$ |
| Total Trips (Hotel, Sit-down rest., $2 x$ fastfood rest.) |  |  | 152 | 139 | 291 |
| -Pass-by |  |  | -56 | -56 | -112 |
| Primary (New) Trips |  |  | 96 | 83 | 179 |

The site plan proposes that one of the $2,800 \mathrm{SF}$ buildings be either a drive-in bank or a second fast-food restaurant. A trip generation comparison shows that a drive in bank would generate 68 peak hour trips ( 34 enter/34 exit) which is much less than a fast-food restaurant. For a conservative approach, the trip generation and future building conditions were calculated based upon the assumption of two fast food restaurants. In total, 179 primary trips are estimated to be generated by the proposed project. If the hotel is progressed initially, the site would generate a total of 60 trips ( 29 trips entering, 31 trips exiting), about $33 \%$ of the total site build-out.

## Trip Distribution, Assignment, and Build Volumes

Traffic generated by the project was distributed to the study area intersections. It is estimated that a majority of the site generated trips will originate south of the project site based upon its proximity to the Village of Saugerties and the Thruway interchange. As such, $75 \%$ of the site traffic was distributed from the south and $25 \%$ from the north. The pass-by trips will follow the existing traffic distribution along NY Route $32 ; 65 \%$ of the pass-by trips will come from the south and $35 \%$ from the north. It is assumed all trips coming from the south will utilize the southern intersection of Old Route 32 and NY Route 32 and all trips from the north will use the northern intersection. The trip

The above results illustrates that the NY Route 32/OId Route 32 North intersection will experience delays of about 23 seconds per vehicle (LOS C). This is generally considered an acceptable operating conditions, therefore no capacity improvements are recommended.

The Old Route 32 South intersection will operate at LOS B exiting turning onto Route 32, while the northbound left turn movement will operate at LOS A. Although the northbound left turn lane will operate at LOS A, the left turn volume will equal approximately $20 \%$ of the northbound approach volume. Based on the A Policy of Geometric Design of Highways and Streets (2011) published by the American Association of State Highway and Transportation Officials (AASHTO), the traffic volumes at the Route $32 /$ Old Route 32 South intersection meet the warrant for a left turn lane. Therefore, it is recommended that a northbound left turn lane be constructed on Route 32 approaching Old Route 32.

The NY Route 32/Exit 20 Toll intersection currently operates at LOS A on Route 32 and LOS B on the exiting right turn movement, while the exiting left turn movement operates at LOS F. Route 32 and the exiting right lane from the toll plaza will continue to operate at LOS A/B through completion of the project. The exiting left turn movement will experience an increase in delays as the additional through traffic on Route 32 make it increasingly difficult to find gaps in traffic to complete a left turn maneuver.

To improve the poor level of service in the westbound left-turn lane, it is recommended that the existing stripped median on the south leg of the intersection be restriped as a two-way left-turn lane (TWLTL) so that westbound left turning vehicles may perform a two-step left turn maneuver. This would allow exiting drivers to find a gap in the northbound traffic first and turn left into the TWLTL where they may wait until an acceptable gap becomes available in the southbound through lane. The westbound left turn movement exiting the toll will improve to LOS E under this Build with Improvement scenario. No other improvements are considered necessary.

The analysis indicates that the NY Route 32/ NY Route 212 intersection currently operates at an overall LOS B with acceptable grades on all four approaches. In the Build condition the intersection is expected to drop to a LOS C with an increased overall delay of less than five seconds. This reduction is primarily due an increase in the southbound left turn volume. The southbound left/through lane will degrade one level of service with an increase of approximately 13 seconds of delay per vehicle. The increase in volume still allows the intersection to maintain an acceptable operating level of service. If the signal parameters allow, the signal controller will adjust automatically to changing traffic conditions and if optimized, will allow the intersection to operate at an overall LOS B with all approaches operating at LOS B or better. This condition is shown in Table 2 under the Build with Improvement column. Therefore, no capacity related mitigation is recommended.

## F. Conclusion

The Saugerties NY Development, LP is a mixed use development proposed to include an 86 -room hotel, a 5,000 SF sit-down restaurant, and up to two fast food restaurants. There is an option available to replace one of the fast food restaurants with a drive-in bank. Under the worst-case condition (two fast food restaurants), the project is estimated to generate 179 new vehicle trips in the PM peak hour with 75 percent of trips coming from the south and 25 percent coming from the north.

To mitigate the impacts of the proposed project, two improvements are recommended. The first is that a two-way left turn lane be striped on the southern leg of the Route 32/Exit 20 interchange intersection. This will reduce the delays that will be experienced exiting the Thruway. Second, construction of a northbound left turn lane on Route 32 at the Old Route 32 South intersection is recommended to maintain the traffic flow on Route 32 by providing a refuge area outside the through travel lane for site generated traffic complete the left turn maneuver. These improvements will mitigate any negative traffic impacts resulting from the proposed project. An initial phase condition of constructing the hotel only was also considered. Under these conditions, the two-way left turn lane striping is the only improvement recommended.

Please feel free to call our office if you have any questions or comments regarding the above analysis.

Respectfully submitted, Creighton Manning Engineering, LLP


Kenneth Wersted, P.E., PTOE
Project Manager
Attachments

C: Rich Praetorius - Praetorius \& Conrad
Giafranco Pellegri

## Attachment B

Project No.:114-194
Counted By:JG
Location:Saugerties, NY
Comments:

File Name : TM114194PM1
Site Code : 14-194-1
Start Date : 9/4/2014
Page No : 2

|  | Rt 212 Eastbound |  |  |  |  | Hess Dwy Northbound |  |  |  |  | Rt 32/212 OLAP <br> Westbound |  |  |  |  | Rt 32 <br> Southbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1 App. toad Lell |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Peak Hour for Entire Intersection Begins at 4:30:00 PM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4:30:00 PM | 22 | 76 | 1 | 0 | 99 | 2 | 9 | 0 | 0 | 11 | 2 | 81 | 142 | 0 | 225 | 67 | 8 | 16 | 5 | 96 | 431 |
| 4:45:00 PM | 25 | 88 | 1 | 2 | 116 | 2 | 10 | 0 | 0 | 12 | 1 | 82 | 122 | 0 | 205 | 87 | 6 | 28 | 3 | 124 | 457 |
| 5:00:00 PM | 14 | 66 | 1 | 1 | 82 | 3 | 14 | 1 | 1 | 19 | 2 | 91 | 152 | 0 | 245 | 75 | 9 | 21 | 10 | 115 | 461 |
| 5:15:00 PM | 21 | 63 | 1 | 1 | 86 | 5 | 9 | 1 | 0 | 15 | 0 | 101 | 140 | 0 | 241 | 81 | 10 | 24 | 3 | 118 | 460 |
| Total Volume | 82 | 293 | 4 | 4 | 383 | 12 | 42 | 2 | 1 | 57 | 5 | 355 | 556 | 0 | 916 | 310 | 33 | 89 | 21 | 453 | 1809 |
| \% App. Total | 21.4 | 76.5 | 1 | 1 |  | 21.1 | 73.7 | 3.5 | 1.8 |  | 0.5 | 38.8 | 60.7 | 0 |  | 68.4 | 7.3 | 19.6 | 4.6 |  |  |
| PHF | . 820 | . 832 | $\begin{array}{r} 1.0 \\ 0 \end{array}$ | . 500 | . 825 | . 600 | . 750 | . 500 | . 250 | . 750 | . 625 | . 879 | . 914 | . 000 | . 935 | . 891 | . 825 | . 795 | . 525 | . 913 | . 981 |
| Passenger Veh | 77 | 286 | 4 | 4 | 371 | 12 | 42 | 1 | 1 | 56 | 5 | 351 | 540 | 0 | 896 | 297 | 33 | 86 | 21 | 437 | 1760 |
| \% Passenger Veh | 93.9 | 97.6 | 100 | 100 | 96.9 | 100 | 100 | 50.0 | 100 | 98.2 | 100 | 98.9 | 97.1 | 0 | 97.8 | 95.8 | 100 | 96.6 | 100 | 96.5 | 97.3 |
| Heavy Veh | 5 | 7 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 16 | 0 | 19 | 13 | 0 | 3 | 0 | 16 | 48 |
| \% Heavy Veh | 6.1 | 2.4 | 0 | 0 | 3.1 | 0 | 0 | 50.0 | 0 | 1.8 | 0 | 0.8 | 2.9 | 0 | 2.1 | 4.2 | 0 | 3.4 | 0 | 3.5 | 2.7 |
| School Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| \% School Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0.1 |



Project No.:114-194
Counted By:DMQ
Location: Saugerties, NY
Comments:
File Name : TM114194PM2
Site Code : 14-194-2
Start Date: 9/4/2014
Page No : 2

|  | Augusta Savage Rd Eastbound |  |  |  |  | Route 32 Northbound |  |  |  |  | I-87 Thruway On/Off Ramp Westbound |  |  |  |  | Route 32 Southbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start <br> Time | Left | $\begin{array}{\|r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{\|r} \mathrm{Rig} \\ \mathrm{ht} \end{array}$ | $\begin{aligned} & \text { RT } \\ & \text { OR } \end{aligned}$ | App Tooal | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | $\begin{aligned} & \mathrm{RT} \\ & \mathrm{OR} \\ & \hline \end{aligned}$ | ${ }^{\text {App. Tolat }}$ | Left | $\begin{array}{\|r} \hline \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | $\begin{aligned} & \mathrm{RT} \\ & \mathrm{OR} \end{aligned}$ | App. Total | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \\ \hline \end{array}$ | $\begin{gathered} \text { Rig } \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \mathrm{RT} \\ \mathrm{OR} \\ \hline \end{array}$ | App Toial | $\begin{aligned} & \text { Int. } \\ & \text { Total } \end{aligned}$ |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4:30:00 PM | 0 | 0 | 0 | 0 | 0 | (30:00 | 158 | 16 | 0 | 174 | 48 |  | 5 |  |  |  |  |  |  |  |  |
| 4:45:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 23 | 0 | 161 | 52 | 0 | 9 | 0 | 61 | 29 | 53 | 0 | 0 | 82 | 309 |
| 5:00:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 38 | 0 | 179 | 50 | 0 | 6 | 0 | 51 | 19 | 2 | 0 | 0 | 99 | 321 |
| 5:15:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 163 | 19 | 0 | 182 | 43 | 0 | 11 | 0 | 54 | 24 | 67 | 0 | 0 | 88 | 323 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 600 | 96 | 0 | 696 | 193 | 0 | 31 | 0 | 224 | 99 | 261 | 0 | 0 | 91 | 327 |
| \% App. Total | 0 | 0 | 0 | 0 |  | 0 | 86.2 | 13.8 | 0 |  | 86.2 | 0 | 13.8 | 0 |  | 27.5 | 72.5 | 0 | 0 | 360 | 1280 |
| PHF | . 000 | . 000 | . 000 | . 000 | . 000 | . 000 | . 920 | . 632 | . 000 | . 956 | . 928 | . 000 | . 705 | . 000 | . 918 | . 853 | . 906 |  |  |  |  |
| Passenger Veh | 0 | 0 | 0 | 0 | 0 | 0 | 592 | 94 | 0 | 686 | 190 | 0 | 31 | 0 | 221 |  | . 256 | . 000 | . 000 | . 909 | 979 |
| \% Passenger ven | 0 | 0 | 0 | 0 | 0 | 0 | 98.7 | 97.9 | 0 | 98.6 | 98.4 | 0 | 100 | 0 | 98.7 | 960 | 256 | O | 0 | 352 978 | 1259 |
| Heavy Veh | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 0 | 10 | 3 | 0 | 0 | 0 | 98.7 3 | 97.0 3 | 98.1 5 | 0 | 0 | 97.8 | 98.4 |
| \% Heavy Veh | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 | 2.1 | 0 | 1.4 | 1.6 | 0 | 0 | 0 | 1.3 | 3.0 | 1.9 | 0 | 0 | 22 | 11 |
| School Busses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.0 0 | 0 | 0 | 0 | 2.2 | 1.6 |
| \% School Busses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | , | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



## LOS Definitions

The following is an excerpt from the 2010 Highway Capacity Manual (HCM).

## Level of Service for Signalized Intersections

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The $\mathrm{v} / \mathrm{c}$ ratio quantifies the degree to which a phase's capacity is utilized by a lane group. The following paragraphs describe each LOS.

LOS A describes operations with a control delay of $10 \mathrm{~s} / \mathrm{veh}$ or less and a v/c ratio no greater than 1.0. This level is typically assigned when the $\mathrm{v} / \mathrm{c}$ ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and $20 \mathrm{~s} / \mathrm{veh}$ and a v/c ratio no greater than 1.0. This level is typically assigned when the $\mathrm{v} / \mathrm{c}$ ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and $35 \mathrm{~s} / \mathrm{veh}$ and a v/c ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and $55 \mathrm{~s} / \mathrm{veh}$ and a v/c ratio no greater than 1.0. This level is typically assigned when the v/c ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and $80 \mathrm{~s} / \mathrm{veh}$ and a v/c ratio no greater than 1.0. This level is typically assigned when the $\mathrm{v} / \mathrm{c}$ ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding $80 \mathrm{~s} / \mathrm{veh}$ or a $\mathrm{v} / \mathrm{c}$ ratio greater than 1.0. This level is typically assigned when the v/c ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

A lane group can incur a delay less than $80 \mathrm{~s} / \mathrm{veh}$ when the $\mathrm{v} / \mathrm{c}$ ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and v/c ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

| TWO-WAY STOP CONTROL SUMMARY |  |  |  |
| :---: | :---: | :---: | :---: |
| General Information |  | Site Information |  |
| Analyst | JG | Intersection | Rt 32/ Augusta Savage Rd/ |
| Agency/Co. | CME, RT32ASRTexpm |  | Saugerties, NY |
| Date Performed | 9/17/2014 |  | Saugerties, NY |
| Analysis Time Period | PM Peak Hour of AST | Analysis Year | 2014 Existing |
| Project Description 114-194 Old Route 32 Mixed Use |  |  |  |
| EastWest Street: Augusta Savage Rd/Exit 20 Toll |  | North/South Street: Route 32 |  |
| Intersection Orientation: North-South |  | Study Period (hrs): 1.00 |  |

Vehicle Volumes and Adjustments

| Major Street | Northbound |  |  | Southbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  | 600 |  | 99 | 261 |  |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 612 | 0 | 101 | 266 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 3 | -- | -- |
| Median Type | Undivided |  |  |  |  |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration |  | $T$ |  | L | $T$ |  |
| Upstream Signal |  | 0 |  |  | 0 |  |
| Minor Street | Eastbound |  |  | Westbound |  |  |
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  |  |  | 193 |  | 31 |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 196 | 0 | 31 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (\%) | 0 |  |  | 0 |  |  |
| Flared Approach |  | N |  |  | $N$ |  |
| Storage |  | 0 |  |  | 0 |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration |  |  |  | L |  | $R$ |

## Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound |  |  | Eastbound |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration |  | $L$ | $L$ |  | $R$ |  |  |  |
| $\mathrm{~V}(\mathrm{veh} / \mathrm{h})$ |  | 101 | 196 |  | 31 |  |  |  |
| $\mathrm{C}(\mathrm{m})($ veh/h) |  | 962 | 216 |  | 497 |  |  |  |
| $\mathrm{~V} / \mathrm{c}$ |  | 0.10 | 0.91 |  | 0.06 |  |  |  |
| $95 \%$ queue length |  | 0.35 | 12.86 |  | 0.20 |  |  |  |
| Control Delay (s/veh) |  | 9.2 | 123.2 |  | 12.7 |  |  |  |
| LOS |  | $A$ | $F$ |  | $B$ |  |  |  |
| Approach Delay (s/veh) | -- | -- | 108.1 |  |  |  |  |  |
| Approach LOS | -- | -- | $F$ |  |  |  |  |  |

Two-Way Stop Control

TWO-WAY STOP CONTROL SUMMARY

| General Information |  |
| :--- | :--- |
| Analyst | JG |
| Agency/Co. | CME, RT32ASRTnbpm |
| Date Performed | $9 / 17 / 2014$ |
| Analysis Time Period | PM Peak Hour of AST | Site Information


| Intersection | Rt 32/ Augusta Savage Rd/ <br> Toll |
| :--- | :--- |
| Jurisdiction | Saugerties, NY |
| Analysis Year | 2016 No-Build |
|  |  |


| Project Description 114-194 Old Route 32 Mixed Use |  |  |
| :--- | :--- | :--- | :--- |
| East/West Street: Augusta Savage Rd/Exit 20 Toll | North/South Street: | Route 32 |
| Intersection Orientation: North-South | Study Period (hrs): 1.00 |  |

Vehicle Volumes and Adjustments

| Major Street | Northbound |  |  | Southbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  | 614 |  | 100 | 275 | R |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 626 | 0 | 102 | 280 | 0.98 |
| Percent Heavy Vehicles | 0 | -- | -- | 3 | -- |  |
| Median Type | Undivided |  |  |  |  |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration |  | $T$ |  | L | T | 0 |
| Upstream Signal |  | 0 |  |  | 0 |  |


| Minor Street | Eastbound |  |  | Westbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 7 | 8 | 9 |  |  |  |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  |  |  | 195 |  | 31 |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 198 | 0 | 0.98 31 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (\%) |  | 0 |  |  | 0 | 0 |
| Flared Approach |  | $N$ |  |  | $N$ |  |
| Storage |  | 0 |  |  | 0 |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 0 |
| Configuration |  |  |  | L |  | $R$ |

Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound |  |  | Eastbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration |  | L | L |  | $R$ |  | 1 | 12 |
| $v$ (veh/h) |  | 102 | 198 |  | 31 |  |  |  |
| C (m) (veh/h) |  | 951 | 207 |  | 488 |  |  |  |
| v/c |  | 0.11 | 0.96 |  | 0.06 |  |  |  |
| 95\% queue length |  | 0.36 | 15.13 |  | 0.20 |  |  |  |
| Control Delay (s/veh) |  | 9.2 | 160.7 |  | 12.9 |  |  |  |
| LOS |  | A | $F$ |  | B |  |  |  |
| Approach Delay (s/veh) | -- | -- | 140.7 |  |  |  |  |  |
| Approach LOS | -- | -- | $F$ |  |  |  |  |  |



TWO-WAY STOP CONTROL SUMMARY
 Site Information

| TWO-WAY STOP CONTROL SUMMARY |  |  |  |
| :--- | :--- | :--- | :--- |
| General Information | SG | Site Information |  |
| Analyst | CME,ORT32NRT32busapm | \|ntersection | Old Route 32 (north)/Rt 32 |
| Jurisdiction | Saugerties, NY |  |  |
| Agency/Co. | 9/17/2014 |  | 2016 Build SA |
| Date Performed | PM Peak Hour of AST |  |  |
| Analysis Time Period |  |  |  |
| Project Description 114-194 Old Route 32 Mixed Use |  |  |  |
| East/West Street: Old Route 32 |  |  |  |
| Intersection Orientation: North-South | North/South Street: Route 32 |  |  |

Vehicle Volumes and Adjustments

| Major Street | Northbound |  |  | Southbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  | 645 | R | L | 1 375 | R 5 |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 5888 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 658 | 0 | 0 | 382 | 0.98 59 |
| Percent Heavy Vehicles | 0 | -- | -- | 3 | -- | -- |
| Median Type | Undivided |  |  |  |  |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 1 | 0 | 0 | 1 | 0 |
| Configuration |  | T |  |  | 1 | TR |
| Upstream Signal |  | 0 |  |  | 0 | TR |


| Minor Street | Eastbound |  |  | Westbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
|  | L | T | R | L | T | R |
| Volume (veh/h) | 8 |  | 0 |  | T | R |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 8 | 0 | 0 | 0 | 0.98 | 0.98 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (\%) |  | 0 |  |  | 0 | 0 |
| Flared Approach |  | N |  |  | $N$ |  |
| Storage |  | 0 |  |  | 0 |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 0 | 0 | 0 | 0 | 0 |
| Configuration |  | LR |  |  | 0 | 0 |

Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound |  |  | Eastbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration |  |  |  |  |  |  | LR | 12 |
| $v$ (veh/h) |  |  |  |  |  |  | LR |  |
| C (m) (veh/h) |  |  |  |  |  |  | 8 |  |
| v/c |  |  |  |  |  |  | 247 |  |
| 95\% queue length |  |  |  |  |  |  | 0.03 |  |
| Control Delay (s/veh) |  |  |  |  |  |  | 0.10 |  |
| LOS |  |  |  |  |  |  | 20.1 |  |
| Approach Delay (s/veh) | -- |  |  |  |  |  | C |  |
| Approach LOS | -- | -- |  |  |  |  | 20.1 |  |
| Approach LOS | -- | -- |  |  |  |  | C |  |


| TWO-WAY STOP CONTROL SUMMARY |  |  |  |
| :---: | :---: | :---: | :---: |
| General Information |  | Site Information |  |
| Analyst | JG | Intersection | Rt 32/ Augusta Savage Rd/ |
| Agency/Co. | CME, RT32ASRTbusapm |  |  |
| Date Performed | 9/17/2014 | Jurisdiction | Saugerties, NY |
| Analysis Time Period | PM Peak Hour of AST | Analysis Year | 2016 Build SA |


| Project Description 114-194 Old Route 32 Mixed Use |  |
| :--- | :--- |
| East/West Street: Augusta Savage Rd/Exit 20 Toll | North/South Street: Route 32 |
| Intersection Orientation: North-South | Study Period (hrs): 1.00 |

Vehicle Volumes and Adjustments

| Major Street | Northbound |  |  | Southbound |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  | 635 |  | 101 | 297 |  |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 647 | 0 | 103 | 303 | 0 |
| Percent Heavy Vehicles | 0 | -- | -- | 3 | -- | -- |
| Median Type | Undivided |  |  |  |  |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 1 | 0 | 1 | 1 | 0 |
| Configuration |  | T |  | L | T |  |
| Upstream Signal |  | 0 |  |  | 0 |  |
| Minor Street | Eastbound |  |  | Westbound |  |  |
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
|  | L | T | R | L | T | R |
| Volume (veh/h) |  |  |  | 195 |  | 32 |
| Peak-Hour Factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly Flow Rate, HFR (veh/h) | 0 | 0 | 0 | 198 | 0 | 32 |
| Percent Heavy Vehicles | 0 | 0 | 0 | 2 | 0 | 0 |
| Percent Grade (\%) | 0 |  |  | 0 |  |  |
| Flared Approach |  | N |  |  | $N$ |  |
| Storage |  | 0 |  |  | 0 |  |
| RT Channelized |  |  | 0 |  |  | 0 |
| Lanes | 0 | 0 | 0 | 1 | 0 | 1 |
| Configuration |  |  |  | L |  | $R$ |

Delay, Queue Length, and Level of Service

| Approach | Northbound | Southbound | Westbound |  |  | Eastbound |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Configuration |  | $L$ | $L$ |  | $R$ |  |  |  |
| v (veh/h) |  | 103 | 198 |  | 32 |  |  |  |
| $\mathrm{C}(\mathrm{m})(\mathrm{veh} / \mathrm{h})$ |  | 934 | 193 |  | 475 |  |  |  |
| v/c |  | 0.11 | 1.03 |  | 0.07 |  |  |  |
| $95 \%$ queue length |  | 0.37 | 18.53 |  | 0.22 |  |  |  |
| Control Delay (s/veh) |  | 9.3 | 234.0 |  | 13.1 |  |  |  |
| LOS |  | $A$ | $F$ |  | $B$ |  |  |  |
| Approach Delay (s/veh) | -- | -- | 203.3 |  |  |  |  |  |
| Approach LOS | -- | -- | F |  |  |  |  |  |

HCS 2010 Signalized Intersection Results Summary


| Timer Results | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Assigned Phase | 3 | 8 |  | 4 |  | 2 |  | 6 |
| Case Number | 1.0 | 4.0 |  | 8.3 |  | 8.0 |  | 7.0 |
| Phase Duration, s | 13.0 | 37.0 |  | 24.0 |  | 23.0 |  | 23.0 |
| Change Period, ( $Y+R_{c}$ ), s | 6.0 | 6.0 |  | 6.0 |  | 6.0 |  | 6.0 |
| Max Allow Headway (MAH), s | 3.1 | 3.0 |  | 3.0 |  | 3.0 |  | 3.0 |
| Queue Clearance Time ( $\mathrm{g}_{\mathrm{s}}$ ), s | 3.7 | 7.5 |  | 12.3 |  | 3.3 |  | 17.5 |
| Green Extension Time ( $\mathrm{ge}_{\mathrm{e}}$, s | 0.0 | 1.0 |  | 0.8 |  | 0.8 |  | 0.0 |
| se Call Probability | 1.00 | 1.00 |  | 1.00 |  | 1.00 |  | 1.00 |
| Max Out Probability | 0.79 | 0.02 |  | 0.26 |  | 0.00 |  | 1.00 |

## Movement Group Results

Approach Movement
Assigned Movement
Adjusted Flow Rate ( $v$ ), veh/h
Adjusted Saturation Flow Rate ( s ), veh/h/ln Queue Service Time ( $g_{s}$ ), s
Cycle Queue Clearance Time ( $g_{c}$ ), s
Green Ratio ( $g / C$ )
Capacity (c), veh/h
Volume-to-Capacity Ratio (X)
Available Capacity ( $c_{a}$ ), veh/h
Back of Queue (Q), veh/ln (50th percentile)
Queue Storage Ratio ( $R Q$ ) (50th percentile)
Uniform Delay ( $d_{1}$ ), s/veh
Incremental Delay ( $d_{2}$ ), s/veh
Initial Queue Delay ( $d_{3}$ ), s/veh
Control Delay (d), s/veh
Level of Service (LOS)
Approach Delay, s/veh / LOS
Intersection Delay, s/veh / LOS
m...timodal Results

Pedestrian LOS Score / LOS
Bicycle LOS Score / LOS

| EB |  |  | WB |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| L | T | R | L | T | R |
| 3 | 8 | 18 | 7 | 4 |  |
| 86 | 300 |  |  | 364 |  |
| 1741 | 1895 |  |  | 1838 |  |
| 1.7 | 5.5 |  |  | 0.0 |  |
| 1.7 | 5.5 |  |  | 10.3 |  |
| 0.45 | 0.52 |  |  | 0.30 |  |
| 451 | 979 |  |  | 612 |  |
| 0.191 | 0.306 |  |  | 0.594 |  |
| 451 | 979 |  |  | 612 |  |
| 0.6 | 1.8 |  |  | 4.1 |  |
| 0.08 | 0.0 |  |  | 0.00 |  |
| 10.9 | 8.3 |  |  | 18.3 |  |
| 0.1 | 0.1 |  |  | 1.1 |  |
| 0.0 | 0.0 |  |  | 0.0 |  |
| 11.0 | 8.4 |  |  | 19.4 |  |
| $B$ | A |  |  | $B$ |  |
| 9.0 |  | A | 19.4 |  |  |

17.4

| NB |  |  |  | SB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| L | T | R | L | T | R |  |  |
| 5 | 2 | 12 | 1 | 6 | 16 |  |  |
|  | 56 |  |  | 376 | 72 |  |  |
|  | 1809 |  |  | 1418 | 1558 |  |  |
|  | 0.0 |  |  | 14.2 | 1.7 |  |  |
|  | 1.3 |  |  | 15.5 | 1.7 |  |  |
|  | 0.28 |  |  | 0.28 | 0.40 |  |  |
|  | 585 |  |  | 516 | 624 |  |  |
|  | 0.096 |  |  | 0.728 | 0.115 |  |  |
|  | 585 |  |  | 516 | 624 |  |  |
|  | 0.5 |  |  | 4.7 | 0.5 |  |  |
|  | 0.00 |  |  | 0.00 | 0.11 |  |  |
|  | 15.9 |  |  | 21.0 | 11.3 |  |  |
|  | 0.0 |  |  | 4.6 | 0.0 |  |  |
|  | 0.0 |  |  | 0.0 | 0.0 |  |  |
|  | 15.9 |  |  | 25.6 | 11.4 |  |  |
|  | B |  |  | $C$ | $B$ |  |  |
| 15.9 |  | $B$ | 23.3 | C |  |  |  |

## Appendix B: Crash Analyses

Intersections

| Municipality | Major | Minor | AADT Major |  | Major Station | Major AADT Year | AADT Minor | Minor Station |  | Minor AADT Year | Number of Crashes | Years | Crash Rate Per MEV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Village of Ellenville | 209 | Center Street |  | 15182 | 860537 | 2011 | 4100 |  | 860293 | 2010 | 21 | 5 | 0.596766379 |
| Municipality | Major | Minor | AADT Major |  | Major Station | Major AADT Year | AADT Minor | Minor Station |  | Minor AADT Year | Number of Crashes | Years | Crash Rate Per MEV |
| New Paltz | 299 | Albany Post/Butterville |  | 4225 | 860009 | 2015 | 1753 |  | 868291 | 2012 | 27 | 5 | 2.474827793 |
| New Paltz | 299 | Libertyville Rd |  | 7094 | 860008 | 2009 | 2190 |  | 868157 | 2014 | 7 | 5 | 0.413142658 |
| New Paltz | 299 | Springtown Rd |  | 7094 | 860008 | 2009 | 4427 |  | 868155 | 2015 | 18 | 5 | 0.85609007 |
| Municipality | Major | Minor | AADT Major |  | Major Station | Major AADT Year | AADT Minor | Minor Station |  | Minor AADT Year | Number of Crashes | Years | Crash Rate Per MEV |
| V/New Paltz | 299 Main St | Manheim Blvd |  | 15304 | 860245 | 2013 | 5065 |  | 860244 | 2013 | 28 | 5 | 0.753226263 |
| V/New Paltz | 299 Main St | Plattekill Ave |  | 15304 | 860245 | 2013 | 4281 |  | 861219 | 2009 | 16 | 5 | 0.447644794 |
| V/New Paltz | 299 Main St | SR 32 |  | 15304 | 860245 | 2013 | 7463 |  | 860025 | 2015 | 39 | 5 | 0.938633242 |


| Segments |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Municipality | Roadway | From | To | AADT | Station | Year |  | Segment Length (Mi) | Number of Crashes | Years |  | Crash Rate | Per MVMT |
| New Paltz | Rt 299 | Springtown Rd | Libertyville Rd |  | 7094 | 860008 | 2009 | 0.790 | 56 |  | 5 |  | 5.474670818 |
| New Paltz | Rt 299 | Libertyville | Albany Post Butterville |  | 4225 | 860009 | 2015 | 1.233 | 73 |  | 5 |  | 7.676166671 |
| New Paltz | Rt 299 | Albany Post Butterville | Gardiner Town Line |  | 4225 | 860009 | 2015 | 1.127 | 43 |  | 5 |  | 4.948457531 |
| Municipality | Roadway | From | To | AADT | Station | Year |  | Segment Length (Mi) | Number of Crashes | Years |  | Crash Rate | Per MVMT |
| Saugerties | Rt 32 | Railraod Ave | Kings Highway |  | 12170 | 860055 | 2014 | 0.136 | 33 |  | 5 |  | 10.95711754 |
| Saugerties | Rt 32 | Churchland Ln | SR 32 and 212 |  | 20684 | 860054 | 2011 | 0.085 | 18 |  | 5 |  | 5.605600158 |
| Saugerties | Rt 32 | Thruway NB | Churchland Ln |  | 20684 | 860054 | 2011 | 0.185 | 31 |  | 5 |  | 4.440840665 |
| Saugerties | Rt 32 | Kings Highway | Thruway NB |  | 12170 | 860055 | 2014 | 0.073 | 15 |  | 5 |  | 9.271135358 |
| Municipality | Roadway | From | To | AADT | Station | Year |  | Segment Length (Mi) | Number of Crashes | Years |  | Crash Rate | Per MVMT |
| Woodstock | SR 375 | Riseley Lane | 212 Mill Hill Rd |  | 7762 | 860609 | 2015 | 0.196 | 11 |  | 5 |  | 3.957430523 |
| Woodstock | SR 212 | Elwyn Ln | Rock City Rd |  | 10621 | 860551 | 2013 | 0.231 | 63 |  | 5 |  | 14.06206791 |
| Woodstock | SR 212 | SR 375 | Playhouse Ln |  | 10621 | 860551 | 2013 | 0.094 | 6 |  | 5 |  | 3.295447881 |
| Woodstock | SR 212 | Playhouse Ln | Elwyn Ln |  | 10621 | 860551 | 2013 | 0.149 | 22 |  | 5 |  | 7.62797892 |
| Woodstock | SR 375 | Liberty Ln | Schoonmaker Ln |  | 5834 | 860056 | 2014 | 0.487 | 22 |  | 5 |  | 4.242358202 |
| Woodstock | SR 375 | Rock City Rd | Liberty Ln |  | 5834 | 860056 | 2014 | 0.216 | 55 |  | 5 |  | 23.92701854 |
| Woodstock | SR 375 | Ricks Rd | Striebel Rd |  | 5834 | 860056 | 2014 | 0.727 | 26 |  | 5 |  | 3.361234092 |
| Woodstock | SR 375 | Schoonmaker Lane | Ricks Rd |  | 5834 | 860056 | 2014 | 0.461 | 13 |  | 5 |  | 2.648350447 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: All Accidents DATE: 11/1/2017


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents
Non-Reportable Accidents
Total Accidents

| 2012 | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| ---: | ---: | ---: | ---: | ---: |
| 0 | 0 | 0 | 0 | 0 |
| 2 | 1 | 9 | 1 | 2 |
| 4 | 6 | 3 | 5 | 0 |
| 4 | 6 | 12 | 7 | 7 |
| 10 | 13 | 24 | 13 | 9 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster

TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: Rear End Accidents


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 3 | 0 | 1 |
| 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 1 | 1 | 2 |
| 3 | 0 | 4 | 1 | 3 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: Parked Vehicle Accidents
DATE: 11/1/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 2 | 0 | 1 |
| 2 | 4 | 1 | 4 | 0 |
| 1 | 3 | 5 | 3 | 4 |
| 3 | 7 | 8 | 7 | 5 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster

TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: Night Accidents


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| 2012 | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 |
| 3 | 0 | 1 | 1 | 0 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster

TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: Wet Pavement Accidents


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| 2012 | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 3 | 0 | 0 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 1 | 4 | 2 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 212 LOCATION: From Library Lane to Deming Street
MUNICIPALITY: Town of Woodstock COUNTY: Ulster

TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 21286011115 - 21286011117
REMARKS: NYS Route 212 at Maple Lane


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| 2012 | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 3 | 1 |
| 3 | 0 | 2 | 3 | 1 |

DETAILS OF ACCIDENT HISTORY


DETAILS OF ACCIDENT HISTORY


DETAILS OF ACCIDENT HISTORY


DETAILS OF ACCIDENT HISTORY
Page 4 of 4

| PERIOD STUDIED: |  |  | \#VEHICLES | $\begin{aligned} & S \\ & E \\ & \mathbf{V} \\ & E \\ & R \\ & \mathbf{I} \\ & \mathbf{T} \\ & \mathbf{Y} \end{aligned}$ | $\begin{aligned} & \mathrm{L} \\ & \mathrm{I} \\ & \mathrm{G} \\ & \mathrm{H} \\ & \mathrm{~T} \\ & \mathrm{C} \\ & \mathrm{O} \\ & \mathrm{~N} \\ & \mathrm{D} \end{aligned}$ | ROADCCHAR | $\begin{aligned} & S \\ & U \\ & R \\ & F \\ & A \\ & C \\ & E \end{aligned}$ | $\begin{aligned} & \text { W } \\ & \text { E } \\ & \text { A } \\ & \text { T } \\ & \mathbf{H} \\ & \text { E } \end{aligned}$ | ROUTE NUMBER/STREET NAME: NYS Route 212 <br> LOCATION: From Library Lane to Deming Street <br> MUNICIPALITY: $\qquad$ COUNTY: Ulster <br> REFERENCE MARKERS / NODES: 21286011115 - 21286011117 |  |  |  |  | CASE No. 26229.00 <br> FILE: Woodstock <br> BY: JR <br> DATE: $11 / 1 / 2017$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  |  | KEY \# |
| 64 | 8/20/2016 | 9:24 | 2 | N/R | 1 | 1 | 1 | 1 | 4 | Park | E2 was making RT into dwy and c/w parked E1 at Old Forge Rd |  |  |  |  | 9 |
| 65 | 10/19/2016 | 16:02 | 2 | N/R | 1 | 3 | 1 | 1 | 9 | Rend | W1 stopped at Xwalk and was RE by W2 at Rock City Rd |  |  |  |  | 11 |
| 66 | 10/19/2016 | 17:30 | 2 | N/R | 1 | 1 | 1 | 1 | 7 | Rang | S2 made LT and collided with E1 at Library Ln |  |  |  |  | 1 |
| 67 | 1/2/2012 | 17:39 | 2 | N/R | 4 | 1 | 2 | 4 | 9 | Rend | E2 was waiting to make LT and RE by E1 at Rock City Rd |  |  |  |  | 11 |
| 68 | 1/25/2012 | 14:25 | 2 | $N / R$ | 1 | 2 | 1 | 1 | 4 | Park | E1 was entering parking spot \& c/w parked E2 75' e/o Rock City |  |  |  |  | 12 |
| 69 | 9/20/2014 | 15:35 | 2 | INJ | 1 |  |  |  |  | Park | Veh2 c/w parked Veh1 on Tannery Brook Rd at NY212 |  |  |  |  | 7 |



## ENVIRONMENTAL

64 - Obstruction/Debris Defective/Improper
68 - Traffic Control Device

vinb


KEY MAP
ULSTER COUNTY ROAD SAFETY ASSESSMENT PROJECT




## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: All Accidents
DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| 2012 | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| ---: | ---: | ---: | ---: | ---: | ---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 8 | 6 | 3 | 4 | 4 |
| 8 | 9 | 9 | 18 | 10 | 13 |
| 2 | 4 | 6 | 8 | 8 | 2 |
| $\mathbf{1 4}$ | 21 | 21 | 29 | 22 | 19 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Rear End Accidents
DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| ---: | ---: | ---: | ---: | ---: | ---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 6 | 1 | 1 | 2 | 2 |
| 5 | 4 | 5 | 5 | 7 | 6 |
| 0 | 2 | 3 | 4 | 7 | 1 |
| $\mathbf{8}$ | $\mathbf{1 2}$ | 9 | $\mathbf{1 0}$ | $\mathbf{1 6}$ | 9 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Overtaking Accidents
DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 1 | 0 | 1 |
| $\mathbf{1}$ | 1 | 1 | 2 | 1 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Right Angle Accidents
DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 2 | 1 | 1 | 0 |
| 1 | 3 | 1 | 4 | 1 | 5 |
| 0 | 1 | 0 | 1 | 1 | 0 |
| $\mathbf{1}$ | 4 | 3 | 6 | 3 | 5 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Wet Pavement Accidents
DATE: 2/21/2018


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 2 | 2 | 0 | 0 | 0 |
| 0 | 1 | 0 | 2 | 2 | 2 |
| 0 | 0 | 2 | 0 | 1 | 0 |
| 0 | 3 | 4 | 2 | 3 | 2 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Night Accidents


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 4 | 1 | 0 | 2 | 1 |
| 1 | 0 | 1 | 1 | 0 | 0 |
| 0 | 1 | 2 | 3 | 1 | 0 |
| 1 | 5 | 4 | 4 | 3 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Intersection of NYS Route 212 and NYS Route $32 \quad$ DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 2 | 1 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 | 3 |
| 0 | 1 | 2 | 0 | 0 | 0 |
| $\mathbf{1}$ | 3 | 3 | 1 | 0 | 4 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212 LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing MUNICIPALITY: Town of Saugerties COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113 REMARKS: Intersection of NYS Route 212 Ramps to/from Northbound I-87_ DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 0 | 2 |
| 0 | 0 | 1 | 3 | 1 | 0 |
| 2 | 1 | 2 | 5 | 1 | 2 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Intersection of NYS Route 212 and Kings Highway DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 2 | 2 | 0 | 2 |
| 0 | 0 | 0 | 1 | 0 | 0 |
| 1 | 0 | 2 | 3 | 0 | 2 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212 LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing MUNICIPALITY: Town of Saugerties COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: Intersection of NYS Route 212 and Big Lots Driveway
DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 2 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 2 | 0 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: EB Rear End Accidents aproaching Railroad Crossing_ DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 | 0 |
| 2 | 3 | 0 | 2 | 2 | 1 |
| 0 | 1 | 1 | 0 | 1 | 0 |
| 2 | 4 | 1 | 3 | 4 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NYS Route 32 / 212
LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing
MUNICIPALITY: Town of Saugerties
COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-6/30/2017 REFERENCE MARKERS / NODES 3286023121 - 3286023113
REMARKS: WB Rear End Accidents aproaching Railroad Crossing_ DATE: 2/21/2018


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ | $\mathbf{2 0 1 7}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 | 2 | 0 |
| 0 | 0 | 0 | 0 | 2 | 1 |

DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $6 / 30 / 2017$ <br> 66 MONTHS |  |  | $\begin{aligned} & \text { \# } \\ & \text { V } \\ & \text { E } \\ & \text { H } \\ & \text { I } \\ & \text { C } \\ & \text { L } \\ & \text { E } \\ & \end{aligned}$ | $\square$ | $\begin{aligned} & \mathrm{L} \\ & \mathbf{I} \\ & \mathrm{G} \\ & \mathrm{H} \\ & \mathrm{~T} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{O} \\ & \mathrm{~N} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \mathbf{R} \\ \mathbf{O} \\ \mathbf{A} \\ \mathrm{D} \\ \mathrm{C} \\ \mathrm{C} \\ \mathbf{H} \\ \mathrm{~A} \\ \mathrm{R} \end{array}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{U} \\ & \mathrm{R} \\ & \mathrm{~F} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathrm{E} \end{aligned}$ | WEAT$H$ER | ROUTE NUMBER/STREET NAME: NYS Route 32 / 212 <br> LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing <br> $\begin{array}{lll}\text { MUNICIPALITY: } \text { Town of Saugerties } & \text { COUNTY: Ulster } \\ \text { REFERENCE MARKERS / NODES: } \quad 3286023121- & 3286023113\end{array}$ |  |  |  |  | CASE No. <br> FILE: <br> BY <br> BY: <br> DATE: |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  |  | KEY \# |
| 1 | 2/18/2012 | 15:00 | 2 | PDO | 1 |  |  |  |  | Rend | V2 rear ended V1 stopped at railroad crossing e/o Abbotts Ct |  |  |  |  | 18 |
| 2 | 3/29/2012 | 7:53 | 2 | N/R | 1 | 1 | 1 | 2 | $7 \quad 4$ | Ltrn | S1 made left turn collided with N2 on I-87 SB ramp at NY32 |  |  |  |  | 2 |
| 3 | 2/18/2012 | 13:40 | 2 | PDO | 1 | 1 | 1 | 1 | 9 | Rend | E2 rear ended E1 slowing in traffic 30' w/o Railroad Ave |  |  |  |  | 16 |
| 4 | 5/3/2012 | 14:47 | 1 | INJ | 1 | 1 | 1 | 1 | $4 \quad 14$ | Ped | S1 making RT C/W EB ped at Big Lots dwy 250' e/o Kings Hwy |  |  |  |  | 15 |
| 5 | 5/23/2012 | 16:30 | 2 | N/R | 1 | 1 | 1 | 1 | $20 \quad 4$ | Ovtk | W1 changed lanes to bypass UV and c/w W2 30' e/o Kings Hwy |  |  |  |  | 14 |
| 6 | 6/2/2012 | 12:20 | 2 | INJ | 1 | 1 | 1 | 2 | 49 | Rend | E1 rear ended stopped E2 350' e/o Churchland Ln |  |  |  |  | 7 |
| 7 | 6/8/2012 | 12:41 | 2 | INJ | 1 | 1 | 1 | 1 | 49 | Rend | W1 rear ended W2 stopped in traffic at 1-87 northbound ramp |  |  |  |  | 10 |
| 8 | 6/15/2012 | 19:16 | 2 | PDO | 1 | 1 | 1 | 1 | 4 | Rend | E1 RE stopped E2 in traffic due to train crossing @ Railroad Av |  |  |  |  | 16 |
| 9 | 6/15/2012 | 19:20 | 1 | PDO | 1 | 4 | 1 | 1 | 46 | FixO | NW1 steering failed on ramp to NB NY 32, LC \& C/W small trailer |  |  |  |  | 3 |
| 10 | 8/22/2012 | 17:30 | 2 | PDO | 1 | 2 | 1 | 2 | 49 | Rend | W1 rear ended W2 while stopped in traffic on NY212 at NY32 |  |  |  |  | 4 |
| 11 | 10/12/2012 | 11:57 | 2 | INJ | 1 | 1 | 1 | 1 | 9 | Rend | E2 starting in traffic RE stopped E1 100' w/o 1-87 NB ramp |  |  |  |  | 7 |
| 12 | 10/27/2012 | 22:13 | 2 | PDO | 4 | 1 | 1 | 1 | $4 \quad 12$ | Rang | E1 ran red light and C/W N2 making LT at Kings Hwy \& NY32/212 |  |  |  |  | 13 |
| 13 | 8/10/2012 |  | 2 | PDO |  |  |  |  |  | Rend | V1 rear ended V2 on NY 32/212 at I-87 NB ramps |  |  |  |  | 10 |
| 14 | 1/3/2013 | 17:59 | 2 | INJ | 5 | 1 | 1 | 2 | 9 | Rend | E1 rear ended stopped E2 on NY 212 at NY 32 |  |  |  |  | 4 |
| 15 | 1/19/2013 | 16:09 | 2 | N/R | 1 | 1 | 1 | 1 | 49 | Rend | E1 RE E2 while picking uo dropped item 50' w/o Abbotts Ct |  |  |  |  | 16 |
| 16 | 1/25/2013 | 17:46 | 3 | N/R | 1 | 1 | 1 | 1 | 9 | Rend | W3 rear ended W2 into W1 slowing in traffic on NY212 at NY32 |  |  |  |  | 4 |
| 17 | 2/15/2013 | 18:58 | 2 | INJ | 4 | 2 | 1 | 1 | $7 \quad 4$ | Ltrn | E1 making LT collided with W2 at Abbotts Ct |  |  |  |  | 17 |
| 18 | 2/10/2013 | 16:04 | 2 | N/R | 1 | 1 | 1 | 2 | $26 \quad 7$ | Rang | W1 making LT collided with N 2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 19 | 2/18/2013 | 18:40 | 1 | N/R | 4 | 1 | 1 | 1 | 26 | FixO | S1 swerved to avoid veh, LC and hit sign at I-87 SB ramps |  |  |  |  | 2 |
| 20 | 3/16/2013 | 14:14 | 2 | PDO | 1 | 1 | 1 | 1 | 460 | Rend | E1 rear ended E2 slowing in traffic at Saugerties Manor Rd |  |  |  |  | 7 |
| 21 | 4/19/2013 | 16:52 | 2 | INJ | 1 | 2 | 2 | 2 | 4 | Rend | S1 rear ended S2 (truck)waiting to make RT onto NY212 from NY32 |  |  |  |  | 4 |
| 22 | 5/3/2013 | 17:30 | 3 | PDO | 1 | 1 | 1 | 1 | 9 | Rend | E1 rear ended E2 into E3 both stopped 40' w/o Railroad Ave |  |  |  |  | 16 |

DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $\frac{6 / 30 / 2017}{}$66 |  |  |  |  | LIGHTCCNND | $\begin{aligned} & \text { R } \\ & \text { O } \\ & \text { A } \\ & \text { D } \\ & \text { C } \\ & \mathbf{H} \\ & A \\ & R \end{aligned}$ | $\begin{aligned} & \mathrm{S} \\ & \mathbf{U} \\ & \mathbf{R} \\ & \mathrm{~F} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{E} \end{aligned}$ | WEATHER | ROUTE NUMBER/STREET NAME: NYS Route 32/212 <br> LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing <br> MUNICIPALITY: Town of Saugerties COUNTY: Ulster <br> REFERENCE MARKERS / NODES: 3286023121 - 3286023113 |  |  |  |  |  | CASE No. <br>  <br> FILE: <br> BY: <br> BYagerties <br> DATE: |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS |  | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  |  | KEY \# |
| 23 | 7/9/2013 | 8:05 | 2 | PDO | 1 | 1 | 1 | 2 | 7 | 7 | Rang | W1 making LT C/W N2 (truck) at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 24 | 7/20/2013 | 14:20 | 3 | PDO | 1 | 1 | 1 | 2 | 9 | 9 | Rend | E1 rear ended E2 into E3 75' w/o Railroad Ave |  |  |  |  | 16 |
| 25 | 7/28/2013 | 18:08 | 2 | PDO | 1 | 1 | 2 | 2 |  | 46960 | Rang | W1 making LT collided with N2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 26 | 8/12/2013 | 19:31 | 2 | INJ | 1 | 1 | 1 | 1 | 9 | 9 | Rend | N2 stopped abruptly for veh \& RE by N1 on NY32 at I-87 SB ramps |  |  |  |  | 2 |
| 27 | 9/29/2013 | 14:39 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | 7 | Rang | W1 making LT to park and ride C/W S2 at NY32 and I-87 SB ramps |  |  |  |  | 2 |
| 28 | 9/1/2013 | 13:22 | 2 | PDO | 1 | 1 | 1 | 2 |  | 718 | Ovtk | W2 C/W W1 (police) with lights activated 240' e/o Kings Hwy |  |  |  |  | 14 |
| 29 | 11/14/2013 | 18:11 | 2 | INJ | 4 | 1 | 1 | 2 |  | 94 | Rend | E1 RE E2 slowing in traffic at Big Lots dwy 250' e/o Kings Hwy |  |  |  |  | 15 |
| 30 | 11/14/2013 | 8:56 | 2 | PDO | 1 | 1 | 1 | 2 | 9 | 9 | Rend | E1 rear ended slowing E2 60' e/o Railroad Ave |  |  |  |  | 18 |
| 31 | 12/26/2013 | 17:54 | 2 | INJ | 4 | 1 | 2 | 1 |  | 75 | Ltrn | S1 making LT C/W N2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 32 | 12/19/2013 | 15:55 | 2 | INJ | 1 | 1 | 1 | 1 |  | 94 | Rend | E1 RE E2 stopped in traffic on NY32/212 at I-87 NB ramps |  |  |  |  | 10 |
| 33 | 2/8/2014 | 14:10 | 2 | PDO | 1 | 1 | 1 | 1 |  | 49 | Rend | W1 RE W2 waiting to make LT onto Kings Hwy from NY32/212 |  |  |  |  | 13 |
| 34 | 3/24/2014 | 18:03 | 2 | N/R | 1 | 1 | 1 | 1 | 9 | 9 | Rend | E1 rear ended E2 stopped for train at Railroad Ave |  |  |  |  | 16 |
| 35 | 4/18/2014 | 7:00 | 2 | PDO | 1 | 1 | 1 | 1 | 9 | 9 | Rend | W1 rear ended W2 slowing in traffic 300' e/o Abbotts Ct |  |  |  |  | 18 |
| 36 | 4/28/2014 | 7:52 | 2 | PDO | 1 | 1 | 1 | 1 |  | 74 | Othr | N1 (truck) making LT out of dwy C/W E2 415' e/o Railroad Ave |  |  |  |  | 18 |
| 37 | 6/4/2014 | 19:05 | 2 | PDO | 1 | 1 | 1 | 2 |  | 4 | Rend | E2 rear ended E1 stopped in traffic at I-87 northbound ramps |  |  |  |  | 10 |
| 38 | 6/11/2014 | 15:15 | 2 | INJ | 1 | 1 | 2 | 2 | 7 | 7 | Rang | S1 making LT C/W W2 at Saugerties Manor Rd and NY32/212 |  |  |  |  | 8 |
| 39 | 6/14/2014 | 16:07 | 2 | INJ | 1 | 1 | 1 | 1 |  | 74 | Ltrn | S1 making LT C/W N2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 40 | 7/8/2014 | 12:52 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | 7 | Rang | W1 making LT collided with N2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 41 | 7/7/2014 | 15:45 | 2 | N/R | 1 | 1 | 2 | 2 | 7 | 74 | Othr | S1 making LT out of dwy C/W W2 50' e/o Saugerties Manor Rd |  |  |  |  | 9 |
| 42 | 7/13/2014 | 21:16 | 2 | N/R | 4 | 1 | 2 | 2 | 7 | 7 | Rtrn | E1 making RT on red into dwy C/W S2 at NY32 and NY212 |  |  |  |  | 4 |
| 43 | 5/31/2014 | 8:52 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | 7 | Rtrn | N1 making RT on red and C/W E2 at NY32/212 and Kings Hwy |  |  |  |  | 13 |
| 44 | 7/8/2014 | 8:50 | 2 | INJ | 1 | 1 | 1 | 1 |  | 769 | Rang | E1 c/w N2 while a truck was parked on median at I-87 SB ramp |  |  |  |  | 2 |

DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $6 / 30 / 2017$ <br> 66 MONTHS |  |  | $\begin{aligned} & \text { \# } \\ & \text { V } \\ & \text { E } \\ & \text { H } \\ & \text { I } \\ & \text { C } \\ & \text { L } \\ & \text { E } \\ & \end{aligned}$ | $\begin{aligned} & S \\ & E \\ & V \\ & E \\ & R \\ & R \\ & \mathbf{I} \\ & \mathbf{T} \\ & \mathbf{Y} \end{aligned}$ | $\begin{aligned} & \mathrm{L} \\ & \mathrm{I} \\ & \mathrm{G} \\ & \mathrm{H} \\ & \mathrm{~T} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{~N} \\ & \mathrm{D} \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { R } \\ O \\ A \\ D \\ \mathbf{C} \\ \mathbf{H} \\ A \\ R \end{array}$ | $\begin{gathered} \mathrm{S} \\ \mathrm{U} \\ \mathrm{R} \\ \mathrm{~F} \\ \mathbf{A} \\ \mathbf{C} \\ \mathrm{E} \end{gathered}$ | W  <br> E  <br> A  <br> T  <br> H  <br> E  <br> R  <br>   | ROUTE NUMBER/STREET NAME: NYS Route 32 / 212 <br> LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing <br> MUNICIPALITY: Town of Saugerties COUNTY: Ulster <br> REFERENCE MARKERS / NODES: 3286023121 - 3286023113 |  |  |  |  | CASE No. <br> FILE: <br> Saugerties  <br> BY: JVR <br> DATE: $2 / 21 / 2018$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  |  | KEY \# |
| 45 | 8/23/2014 | 11:39 | 2 | N/R | 1 | 1 | 1 | 2 | 9 | Rend | W1 rear ended W2 stopped on NY212 at NY32 |  |  |  |  | 4 |
| 46 | 7/31/2014 | 19:22 | 1 | INJ | 1 | 2 | 1 | 1 | $17 \quad 14$ | Bike | N1 c/w WB bicyclist running red light on NY32 at NY212 |  |  |  |  | 4 |
| 47 | 10/6/2014 | 17:45 | 2 | INJ | 1 | 1 | 1 | 1 | $9 \quad 4$ | Rend | E1 rear ended E2 stopped in traffic at Saugerties Manor Rd |  |  |  |  | 7 |
| 48 | 12/7/2014 | 17:44 | 2 | PDO | 4 | 1 | 1 | 1 | 7 | Othr | W1 making LT into Mobil dwy C/W E2 100' e/o Kings Hwy |  |  |  |  | 14 |
| 49 | 12/22/2014 | 17:37 | 2 | N/R | 4 | 1 | 1 | 1 | $7 \quad 4$ | Ovtk | N1 and N2 collided both making LT from I-87 NB ramp to NY32/212 |  |  |  |  | 10 |
| 50 | 12/24/2014 | 17:35 | 2 | INJ | 4 | 1 | 2 | 3 | 20 | Ltrn | S1 making LT C/W N2 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 51 | 1/29/2015 | 8:08 | 3 | PDO | 1 | 1 | 1 | 1 | 62 | Rend | E1 rear ended E2 into E3 both stopped at Saugerties Manor Rd |  |  |  |  | 7 |
| 52 | 2/17/2015 | 13:24 | 2 | PDO | 1 | 1 | 1 | 2 | 7 | Rang | N1 exiting dwy C/W E2 at NY212 and NY32 |  |  |  |  | 4 |
| 53 | 2/24/2015 | 14:56 | 2 | N/R | 1 | 1 | 1 | 1 | 49 | Rend | E1 rear ended E2 at I-87 northbound ramps |  |  |  |  | 10 |
| 54 | 2/21/2015 | 21:44 | 2 | N/R | 5 | 1 | 4 | 4 | $28 \quad 9$ | Ovtk | N2 passed on left and C/W N1 on Kings Hwy at NY32/212 |  |  |  |  | 13 |
| 55 | 3/3/2015 | 17:04 | 2 | N/R | 3 | 3 | 4 | 4 | 66 | Rang | N1 slid through stop sign and C/W E2 at Railroad Ave |  |  |  |  | 17 |
| 56 | 3/13/2015 | 22:19 | 2 | N/R | 5 | 1 | 1 | 1 | 9 | Rend | W2 rear ended W1 stopped at I-87 northbound ramps |  |  |  |  | 10 |
| 57 | 3/12/2015 | 8:31 | 2 | PDO | 1 | 1 | 1 | 1 | 4 | Rend | E1 rear ended E2 stopped in traffic 40' w/o Saugerties Manor Rd |  |  |  |  | 7 |
| 58 | 4/21/2015 | 13:19 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | Rang | W2 failed to stop and C/W N1 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 59 | 4/25/2015 | 13:45 | 2 | PDO | 1 | 1 | 1 | 1 | 75 | Ltrn | W1 making LT C/W E2 on NY32/212 at Kings Hwy |  |  |  |  | 13 |
| 60 | 4/28/2015 | 15:30 | 3 | INJ | 1 | 3 | 1 | 1 | 9 | Rend | E1 rear ended E2 into E3 at Railroad Avenue |  |  |  |  | 16 |
| 61 | 6/9/2015 | 21:10 | 1 | N/R | 5 | 1 | 1 | 2 | 61 | Anml | S1 (police) collided with WB deer on NY32 200' n/o NY212 |  |  |  |  | 3 |
| 62 | 6/15/2015 | 7:28 | 2 | PDO | 1 | 1 | 2 | 3 | 9 | Rend | E1 rear ended E2 stopped in traffic 40' w/o Railroad Ave |  |  |  |  | 16 |
| 63 | 6/14/2015 | 13:29 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | Rang | W2 making LT collided with N1 at NY32 and I-87 southbound ramps |  |  |  |  | 2 |
| 64 | 7/24/2015 | 17:49 | 2 | N/R | 1 | 1 | 1 | 1 | $4 \quad 19$ | Rend | E1 rear ended E2 stopped in traffic 30' w/o Churchland Ln |  |  |  |  | 5 |
| 65 | 7/13/2015 | 16:40 | 2 | PDO | 1 | 1 | 1 | 1 | 418 | Othr | W1 (with trailer) made LT into dwy \& C/W N2 100' e/o Kings Hwy |  |  |  |  | 14 |
| 66 | 7/31/2015 | 17:25 | 2 | N/R | 1 | 1 | 1 | 1 | 4 | Rend | E1 rear ended E2 starting in traffic 250' e/o Churchland Ln |  |  |  |  | 7 |

DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $6 / 30 / 2017$ <br> 66 MONTHS |  |  | \#VE$H$ICLES | $\begin{aligned} & \mathrm{S} \\ & \mathrm{E} \\ & \mathrm{~V} \\ & \mathrm{E} \\ & \mathrm{R} \\ & \mathbf{I} \\ & \mathbf{T} \\ & \mathbf{Y} \end{aligned}$ |  | ROADCCHAR | $\begin{aligned} & \mathbf{S} \\ & \mathbf{U} \\ & \mathbf{R} \\ & \mathbf{F} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{E} \end{aligned}$ | WE$A$$T$$H$$E$$R$ | ROUTE NUMBER/STREET NAME: NYS Route 32 / 212 <br> LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing <br> MUNICIPALITY: Town of Saugerties COUNTY: Ulster <br> REFERENCE MARKERS / NODES: 3286023121 - 3286023113 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  | KEY \# |
| 67 | 7/16/2015 | 11:30 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | Othr | S2 making LT from dwy C/W W1 100' w/o Tomsons Rd |  |  | 11 |
| 68 | 9/3/2015 | 17:00 | 2 | PDO | 1 | 1 | 1 | 2 | 69 | Othr | N2 (tow truck) making RT C/W N1 stopped in RSh on I-87 NB ramp |  |  | 10 |
| 69 | 9/11/2015 | 18:57 | 1 | N/R | 1 | 2 | 1 | 1 | 469 | FixO | E1 on RSh, backed into tree merging onto road w/o I-87 NB ramps |  |  | 10 |
| 70 | 9/24/2015 | 7:32 | 2 | PDO | 1 | 1 | 1 | 1 | 17 | Rang | W1 ran red light and C/W S2 at NY32/212 and I-87 NB ramps |  |  | 10 |
| 71 | 9/27/2015 | 14:29 | 2 | INJ | 1 | 1 | 1 | 1 | 7 | Rtrn | E1 making RT C/W N2 at NY32 and I-87 southbound ramps |  |  | 2 |
| 72 | 9/1/2015 | 17:55 | 2 | PDO | 1 | 1 | 1 | 1 | $13 \quad 7$ | Ovtk | W1 changing lanes collided with W2 at Kings Hwy |  |  | 13 |
| 73 | 11/13/2015 | 13:58 | 2 | PDO | 1 | 2 | 1 | 2 | 94 | Rend | E1 rear ended E2 stopped in traffic 90' w/o Railroad Ave |  |  | 16 |
| 74 | 12/18/2015 | 12:43 | 2 | INJ | 1 | 1 | 1 | 1 | $7 \quad 17$ | Rang | W2 making LT collided with N1 at NY32 and I-87 southbound ramp |  |  | 2 |
| 75 | 12/8/2015 | 18:00 | 2 | PDO |  | 1 |  |  |  | Othr | S2 making RT out of dwy C/W E1 making LT to Saugerties Manor Rd |  |  | 8 |
| 76 | 1/5/2016 | 18:05 | 2 | INJ | 4 | 2 | 1 | 1 | $9 \quad 13$ | Rend | W1 rear ended W2 stopped to make LT at Churchland Ln |  |  | 6 |
| 77 | 2/5/2016 | 12:52 | 2 | N/R | 1 | 1 | 1 | 1 | 9 | Rend | E1 rear ended E2 stopped for train 50' w/o Railroad Ave |  |  | 16 |
| 78 | 2/21/2016 | 14:00 | 2 | N/R | 1 | 1 | 1 | 1 | 69 | Rang | W2 making LT collided with S1 at NY32 and I-87 SB ramps |  |  | 2 |
| 79 | 4/21/2016 | 14:00 | 2 | N/R | 1 | 1 | 1 | 1 | 19 | Rend | E1 rear ended E2 stopped in traffic at l-87 NB ramps |  |  | 10 |
| 80 | 5/8/2016 | 13:47 | 2 | PDO | 1 | 1 | 1 | 1 | 20 | Ovtk | W1 changing lanes C/W W2 at Big Lots dwy 250' e/o Kings Hwy |  |  | 15 |
| 81 | 6/3/2016 | 11:13 | 2 | INJ | 1 | 2 | 1 | 2 | $4 \quad 24$ | Rend | E1 rear ended E2 slowing in traffic 215' e/o Railroad Ave |  |  | 18 |
| 82 | 5/17/2016 | 15:16 | 2 | PDO | 1 | 1 | 0 | 1 | 94 | Rend | E1 rear ended E2 stopped for train 100' w/o Railroad Ave |  |  | 16 |
| 83 | 7/10/2016 | 13:14 | 2 | PDO | 1 | 1 | 1 | 1 | 9 | Rend | S2 RE S1 stopped in traffic at Big Lots dwy 250' e/o Kings Hwy |  |  | 15 |
| 84 | 8/7/2016 | 13:26 | 2 | PDO | 1 | 1 | 1 | 1 | $7 \quad 4$ | Rang | S1 making LT from dwy C/W W2 100' w/o Tomsons Rd |  |  | 11 |
| 85 | 8/13/2016 | 12:04 | 2 | N/R | 1 | 1 | 1 | 1 | 9 | Rend | E1 rear ended E2 slowing in traffic 75' w/o Churchland Ln |  |  | 5 |
| 86 | 9/16/2016 | 17:00 | 2 | PDO | 1 | 2 | 1 | 1 | 49 | Rend | E1 rear ended E2 stopped in traffic 30' e/o Churchland Ln |  |  | 7 |
| 87 | 9/18/2016 | 7:46 | 2 | PDO | 2 | 1 | 2 | 3 | 8 | HdOn | S2 fell asleep and C/W N1 100' n/o Augusta Savage Rd |  |  | 1 |
| 88 | 9/30/2016 | 16:48 | 2 | PDO | 1 | 1 | 2 | 3 | 66 | Rend | E2 rear ended E1 stopped in traffic 300' w/o l-87 NB ramps |  |  | 7 |

DETAILS OF ACCIDENT HISTORY


DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $\frac{6 / 30 / 2017}{}$ <br>   |  |  |  | SEVERITY |  | ROADCCHAR |  | $\begin{array}{l\|} \mathbf{S} \\ \mathbf{U} \\ \mathbf{R} \\ \mathbf{F} \\ \mathbf{A} \\ \mathbf{C} \\ \mathbf{E} \end{array}$ | W  <br> E  <br> A  <br> T  <br> H  <br> E  <br> R  | ROUTE NUMBER/STREET NAME: NYS Route 32 / 212 <br> LOCATION: From SB NYS Thruway Exit 20 to the At-Grade Railroad Crossing <br> MUNICIPALITY: Town of Saugerties COUNTY: Ulster <br> REFERENCE MARKERS / NODES: 3286023121 - 3286023113 |  |  |  |  |  | CASE No. <br>  <br> FILE: <br> BY: <br> Saugerties <br> DATE: |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No. | DATE | TIME |  |  |  |  |  |  |  | CONTRIB. <br> FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  | KEY \# |
| 111 | 6/7/2017 | 3:55 | 2 | PDO | 1 | 1 |  |  | 1 | 1 | 9 |  | Rend | E1 RE stopped E2 on NY32/212 at NB I-87 Ramps |  |  |  | 10 |
| 112 | 3/14/2017 | 17:16 | 1 | PDO | 1 | 5 |  | 4 | 4 |  | 619 | FixO | W1 exited road and struck sign post on NY32/212 at NY32 |  |  |  | 4 |
| 113 | 8/19/2013 | 11:31 | 2 | INJ | 1 | 1 |  | 1 | 2 |  | $4 \quad 24$ | Rend | E2 stopped in traffic \& RE by E1 on NY32/212 550' e/o Abbott Ct |  |  |  | 18 |
| 114 | 10/21/2013 | 17:47 | 2 | PDO | 1 | 2 |  | 1 | 1 | 7 |  | Othr | N1 made LT from dwy C/W S2 (RT) on NY32/212 100' e/o RR tracks |  |  |  | 18 |
| 115 | 3/21/2014 | 17:07 | 2 | N/R | 1 | 1 |  | 1 | 1 |  | 94 | Rend | E1 RE stopped E2 on NY32/212 200' w/o Teetsel St |  |  |  | 18 |
| 116 | 6/1/2014 | 19:55 | 2 | PDO | 1 | 2 |  | 1 | 1 | 9 | 9 | Rend | E1 was distracted and RE E2 on NY32/212 at Teetsel St |  |  |  | 19 |
| 117 | 11/15/2014 | 16:24 | 3 | PDO | 1 | 2 |  | 1 | 1 |  | 960 | Rend | E1 RE stopped E2 into E3 on NY32/212 300' w/o Teetsel St |  |  |  | 18 |
| 118 | 11/26/2015 | 12:57 | 2 | PDO | 1 | 2 |  | 1 | 2 | 9 | 9 | Rend | E1 RE E2 on NY32/212 500' e/o Abbot Ct |  |  |  | 18 |
| 119 | 10/23/2015 | 16:25 | 2 | PDO | 1 | 1 |  | 1 | 1 |  | 360 | Othr | W2 made LT to dwy and C/W E1 on NY32/212 50' e/o Teetsel St |  |  |  | 19 |
| 120 | 12/1/2015 | 17:15 | 2 | PDO | 4 | 2 |  | 2 | 2 | 7 | 7 | Othr | E1 made LT to dwy C/W W2 on NY32/212 450' e/o Abbotts Ct |  |  |  | 18 |
| 121 | 3/1/2016 | 18:41 | 2 | N/R | 4 | 1 |  | 1 | 1 | 9 | 9 | Rend | W2 stopped for passing train \& RE by W1 670' e/o Abbotts Ct |  |  |  | 18 |
| 122 | 7/22/2016 | 16:00 | 2 | N/R | 1 | 1 |  | 1 | 1 |  | 4 | Rend | W1 stopped for passing train \& RE by W2 200' e/o RR tracks |  |  |  | 18 |
| 123 | 2/17/2017 | 13:51 | 3 | PDO | 1 | 1 |  | 1 | 1 |  | 94 | Rend | W1 pressed gas pedal \& RE stopped W2 into W3 200' w/o Teetsel |  |  |  | 18 |
| 124 | 3/13/2017 | 10:29 | 2 | PDO | 1 | 1 |  | 1 | 1 | 60 | 04 | Park | E1 lost trailer \& trailer hit parked E2 150' w/o Teetsel St |  |  |  | 18 |
| 125 | 6/15/2017 | 13:00 | 1 | INJ | 1 | 1 |  | 1 | 1 |  | 4 | Bike | N1 made LT from dwy \& C/W EB bicyclist 600' e/o Abbotts Ct |  |  |  | 18 |
| 126 | 11/1/2012 | 11:00 | 2 | PDO | 1 | 2 |  | 1 | 2 | 7 | 7 | Othr | N1 made LT from dwy C/W S2 (RT) on NY32/212 100' e/o RR tracks |  |  |  | 18 |



## ENVIRONMENTAL

64 - Obstruction/Debris Defective/Improper
68 - Traffic Control Device




ULSTER COUNTY ROAD SAFETY ASSESSMENT PROJECT









## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: All Accidents
DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| ---: | ---: | ---: | ---: | ---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 3 | 5 | 4 | 4 |
| 10 | 8 | 4 | 8 | 11 |
| 4 | 7 | 4 | 8 | 6 |
| $\mathbf{1 4}$ | $\mathbf{1 8}$ | $\mathbf{1 3}$ | $\mathbf{2 0}$ | $\mathbf{2 1}$ |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Rear End Accidents
DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | 1 |
| 0 | 3 | 0 | 3 | 1 |
| $\mathbf{1}$ | 3 | 1 | 3 | 3 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Run Off The Road Accidents
DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 2 |
| 0 | 1 | 0 | 2 | 0 |
| 0 | 3 | 1 | 4 | 3 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Accidents involving Animals
DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents
Non-Reportable Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 7 | 5 | 3 | 3 | 5 |
| 3 | 3 | 3 | 2 | 3 |
| 10 | 8 | 6 | 5 | $\mathbf{8}$ |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Night Accidents


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents
Non-Reportable Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 |
| 4 | 4 | 2 | 2 | 4 |
| 2 | 5 | 2 | 0 | 2 |
| 6 | 9 | 5 | 3 | 6 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES 29986011025 - 29986011050
REMARKS: Wet Pavement Accidents
DATE: 11/1/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 0 |
| 0 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 2 | 1 |
| 1 | 0 | 1 | 4 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Snow-Covered Surface Accidents
DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 3 | 1 | 0 |
| 1 | 1 | 0 | 0 | 1 |
| 0 | 2 | 0 | 0 | 0 |
| $\mathbf{1}$ | 3 | $\mathbf{3}$ | 1 | $\mathbf{1}$ |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Intersection of NY299 and Albany Post Road/Butterville Road_ DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 3 | 0 | 0 | 1 |
| 2 | 3 | 1 | 3 | 5 |
| 2 | 3 | 1 | 1 | 0 |
| 4 | 9 | 2 | 4 | 6 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Intersection of NY299 and Gate House Road/Jacobs Lane/Rosemary Court DATE: 10/31/2017


SUMMARY OF ACCIDENT SEVERITY BY YEAR:
Fatal Accidents
Injury Accidents
Property Damage Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 2 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 1 | 1 |
| 2 | 1 | 2 | 1 | 1 |

## ACCIDENT SUMMARY SHEET

ROUTE: NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road
MUNICIPALITY: Town of New Paltz $\qquad$ COUNTY: Ulster
TIME PERIOD COVERED: 1/1/2012-12/31/2016 REFERENCE MARKERS / NODES: 29986011025 - 29986011050
REMARKS: Intersection of NY299 and Libertyville Road/Red Barn Road
DATE: 10/31/2017


## SUMMARY OF ACCIDENT SEVERITY BY YEAR:

Fatal Accidents
Injury Accidents

| $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ | $\mathbf{2 0 1 5}$ | $\mathbf{2 0 1 6}$ |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 2 | 1 |
| 0 | 0 | 0 | 3 | 3 |



DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $1 / 1 / 2012$ <br> TO: $\frac{12 / 31 / 2016}{}$ <br>  MONTHS |  |  |  | SEVE$R$ITY | $\begin{aligned} & \mathrm{L} \\ & \mathrm{I} \\ & \mathrm{G} \\ & \mathrm{H} \\ & \mathrm{~T} \\ & \mathrm{C} \\ & \mathrm{O} \\ & \mathrm{~N} \\ & \mathrm{D} \end{aligned}$ | ROADCCHAR | $\begin{aligned} & S \\ & U \\ & R \\ & F \\ & A \\ & \mathbf{A} \\ & E \end{aligned}$ | WEATHER | ROUTE NUMBER/STREET NAME: NY 299 <br> LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road $\begin{array}{lll}\text { MUNICIPALITY: } \quad \text { Town of New Paltz } & \text { COUNTY: Ulster } \\ \text { REFERENCE MARKERS / NODES: } & 29986011025-029986011050\end{array}$ |  |  |  |  | CASE No. <br> FILE: <br> BY: <br> New Paltz <br> DATE: <br> $10 / 31 / 2017$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
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| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. <br> TYPE | ACCIDENT DESCRIPTION |  |  |  | KEY \# |
| 22 | 7/26/2013 | 19:09 | 1 | PDO | 1 | 1 | 1 | 1 | 61 | Anml | E1 C/W NB deer 3000' w/o Albany Post Rd |  |  |  | 3 |
| 23 | 8/10/2013 | 12:00 | 2 | INJ | 1 | 3 | 1 | 1 | 47 | Rang | E1 C/W S2 at Albany Post Rd |  |  |  | 4 |
| 24 | 8/12/2013 | 17:05 | 2 | N/R | 1 | 1 | 1 | 1 | 49 | Rend | W2 RE W1 stopped waiting to make LT to Albany Post Rd |  |  |  | 4 |
| 25 | 10/13/2013 | 16:00 | 2 | PDO | 1 | 1 | 1 | 1 | 7 | Rtrn | S2 making RT from Butterville Rd C/W W1 (MC) |  |  |  | 4 |
| 26 | 10/9/2013 | 20:01 | 1 | PDO | 5 | 1 | 1 | 1 | 61 | Anml | E1 C/W SB deer 700' w/o Gate House Rd |  |  |  | 5 |
| 27 | 11/14/2013 | 18:20 | 2 | N/R | 4 | 1 | 1 | 2 | 4 | Rend | N1 RE N2 stopped at stop sign on Albany Post Rd |  |  |  | 4 |
| 28 | 11/15/2012 | 19:28 | 1 | PDO | 5 | 1 | 1 | 1 | 61 | Anml | W1 C/W deer at Albany Post Rd |  |  |  | 4 |
| 29 | 12/24/201き | 22:53 | 1 | N/R | 5 | 1 | 4 | 4 | 26 | RORd | E1 hit embankment when avoiding veh who went through stop sign |  |  |  | 4 |
| 30 | 12/24/2012 | 19:20 | 3 | N/R | 5 | 1 | 4 | 4 | $\begin{array}{llll}9 & 66 & 9 & 66\end{array}$ | Rend | W2 RE W1 causing W1 to RE W3 250' w/o Jenkins Rd |  |  |  | 1 |
| 31 | 2/18/2014 | 12:15 | 2 | INJ | 1 | 5 | 4 | 4 | $66 \quad 27$ | HdOn | E1 slid into WB lane and C/W W2 at Rosemary Ct |  |  |  | 6 |
| 32 | 4/7/2014 | 7:40 | 1 | N/R | 1 | 1 | 1 | 2 | 61 | Anml | E1 C/W deer 0.3 miles w/o Gate House Rd |  |  |  | 5 |
| 33 | 4/21/2014 | 0:14 | 1 | N/R | 5 | 1 | 1 | 1 | $61 \quad 19$ | Anml | W1 avoid deer, ROR, spun and hit tree 1758' e/o Albany Post Rd |  |  |  | 5 |
| 34 | 4/20/2014 | 3:45 | 1 | N/R | 5 | 4 | 1 | 1 | 61 | Anml | W1 avoided deer and went into a ditch 738' e/o Jacobs Ln |  |  |  | 7 |
| 35 | 5/11/2014 | 20:45 | 1 | PDO | 5 | 1 | 1 | 2 | 61 | Anml | W1 C/W 2 NB deer 0.5 miles w/o Butterville Rd |  |  |  | 3 |
| 36 | 6/28/2014 | 13:22 | 2 | INJ | 1 | 5 | 1 | 1 | 427 | Side | E2 crossed into WB lane and C/W W1 at Rosemary Ct |  |  |  | 6 |
| 37 | 8/5/2014 | 9:49 | 1 | INJ | 1 | 2 | 1 | 1 | 4 | Bike | E1 C/W EB bicycle 1074' w/o Albany Post Rd |  |  |  | 3 |
| 38 | 8/27/2014 | 12:49 | 2 | PDO | 1 | 2 | 1 | 1 | 4 | Rend | E2 RE E1 making LT to Butterville Rd |  |  |  | 4 |
| 39 | 10/11/2014 | 18:52 | 1 | PDO | 4 | 1 | 1 | 1 | 61 | Anml | W1 C/W a deer 2075' w/o Gate House Rd |  |  |  | 5 |
| 40 | 10/21/2014 | 15:29 | 1 | N/R | 1 | 1 | 2 | 2 | 50 | Othr | W1 driver exited veh w/o brake; hit pole 200' w/o Albany Post |  |  |  | 4 |
| 41 | 11/26/2014 | 13:03 | 2 | INJ | 1 | 2 | 4 | 4 | 2719 | Othr | E2 LC, C/W W1 then hit ditch off shoulder 0.3 mi e/o Jenkins Rd |  |  |  | 3 |
| 42 | 12/9/2014 | 5:23 | 1 | INJ | 5 | 1 | 4 | 5 | 66 | RORd | E1 slid on ice, spun into ditch north of road 210' e/o Rosemary |  |  |  | 7 |

DETAILS OF ACCIDENT HISTORY

| PERIOD STUDIED:  <br> FROM: $\frac{1 / 1 / 2012}{}$ <br> TO: $\frac{12 / 31 / 2016}{}$ <br>  MONTHS |  |  | \#VEHICLES | $\begin{aligned} & \mathrm{S} \\ & \mathrm{E} \\ & \mathrm{~V} \\ & \mathrm{E} \\ & \mathrm{R} \\ & \mathrm{I} \\ & \mathrm{~T} \\ & \mathrm{Y} \end{aligned}$ |  |  | S  <br> U  <br> R  <br> F  <br> A  <br> C  <br> E  | $\begin{gathered} \text { W } \\ \text { E } \\ \text { A } \\ \mathbf{T} \\ \mathbf{H} \\ E \\ R \end{gathered}$ | ROUTE NUMBER/STREET NAME: $\qquad$ NY 299 LOCATION: From New Paltz/Gardiner Town Line to Libertyville Road MUNICIPALITY: Town of New Paltz $\square$ COUNTY: Ulster REFERENCE MARKERS / NODES: 29986011025 - 29986011050 |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No. | DATE | TIME |  |  |  |  |  |  | CONTRIB. FACTORS | ACC. TYPE | ACCIDENT DESCRIPTION |  |  |  |  | KEY \# |
| 43 | 1/4/2015 | 11:59 | 1 | N/R | 1 | 4 | 5 | 3 | 66 | RORd | E1 LC, spun into an embankment off shoulder 500' w/o Jacobs Ln |  |  |  |  | 5 |
| 44 | 3/16/2015 | 19:05 | 1 | N/R | 3 | 1 | 1 | 1 | 61 | Anml | E1 C/W SB deer 1700' w/o Gate House Rd |  |  |  |  | 5 |
| 45 | 3/16/2015 | 11:31 | 2 | N/R | 1 | 2 | 1 | 2 | 4 | Rend | N2 pulled forward \& RE N1 stopped at Libertyville Rd stop sign |  |  |  |  | 8 |
| 46 | 3/18/2015 | 5:00 | 1 | PDO | 5 | 6 | 2 | 4 | 1966 | RORd | W1 LC into wooded area on south side 100' w/o Libertyville Rd |  |  |  |  | 7 |
| 47 | 4/13/2015 | 6:48 | 2 | PDO | 1 | 3 | 1 | 1 | 769 | Rang | S2 failed to yield and C/W E1 at Butterville Rd |  |  |  |  | 4 |
| 48 | 4/18/2015 | 18:11 | 1 | N/R | 1 | 1 | 1 | 1 | 61 | Anml | W1 C/W deer 455' e/o Albany Post Rd |  |  |  |  | 5 |
| 49 | 4/27/2015 | 18:51 | 1 | PDO | 3 | 1 | 1 | 1 | 4 | FixO | W1 was distracted and hit utility pole 65' e/o Rosemary Ct |  |  |  |  | 7 |
| 50 | 5/11/2015 | 8:35 | 3 | N/R | 1 | 5 | 1 | 1 | $9 \quad 9$ | Rend | W3 RE W2 then W2 RE stopped to make LT to Jacobs Ln |  |  |  |  | 6 |
| 51 | 5/15/2015 | 13:48 | 2 | PDO | 1 | 2 | 1 | 1 | 7 | Rang | S1 thought Butterville intersection was a 4-way stop and C/W E2 |  |  |  |  | 4 |
| 52 | 5/25/2015 | 17:07 | 2 | INJ | 1 | 1 | 1 | 1 | 7 | Ltrn | W1 failed to yield when making LT to Libertyville Rd and C/W E2 |  |  |  |  | 8 |
| 53 | 5/7/2015 | 13:43 | 1 | INJ | 1 | 4 | 1 | 1 | $4 \quad 27$ | FixO | W1 eyes off road cross EB lane into tree 0.5 mi w/o Albany Post |  |  |  |  | 3 |
| 54 | 6/21/2015 | 9:12 | 1 | N/R | 1 | 2 | 2 | 3 |  | RORd | E1 avoided SB veh and ROR onto 156 Butteville Rd lawn |  |  |  |  | 4 |
| 55 | 6/29/2015 | 12:38 | 2 | N/R | 1 | 1 | 1 | 1 | 13 | Ovtk | E2 passing on right C/W E1 stopped for others at Red Barn Rd |  |  |  |  | 10 |
| 56 | 8/26/2015 | 12:55 | 2 | PDO | 1 | 2 | 1 | 1 | 7 | Rang | S1 C/W E2 at Butterville Rd |  |  |  |  | 4 |
| 57 | 10/15/2015 | 18:00 | 1 | PDO | 1 | 1 | 1 | 1 | 61 | Anml | E1 C/W deer 1245' e/o Albany Post Rd |  |  |  |  | 5 |
| 58 | 12/2/2015 | 13:52 | 1 | INJ | 1 | 5 | 2 | 3 | 66 | FixO | W1 LC, hit \#21 NY299 mailbox; into ditch 709' w/o Libertyville |  |  |  |  | 7 |
| 59 | 12/30/2015 | 12:48 | 2 | N/R | 1 | 2 | 2 | 2 | 4 | Rend | N1 RE N2 stopped at stop sign on Libertyville Rd |  |  |  |  | 8 |
| 60 | 1/6/2016 | 17:23 | 1 | N/R | 5 | 1 | 1 | 1 | 61 | Anml | W1 C/W deer 1008' e/o Albany Post Rd |  |  |  |  | 5 |
| 61 | 12/28/2015 | 23:16 | 1 | INJ | 5 | 5 | 4 | 5 | 66 | RORd | E1 LC and struck a ditch on north side 632' e/o Gate House Rd |  |  |  |  | 7 |
| 62 | 1/16/2016 | 10:15 | 2 | N/R | 1 | 5 | 2 | 2 | 9 | Ovtk | W1 C/W W2 who was making LT to Jacobs Ln |  |  |  |  | 6 |
| 63 | 3/26/2016 | 16:29 | 2 | N/R | 1 | 1 | 1 | 1 | 9 | Rend | N1 RE N2 stopped at stop sign on Libertyville Rd |  |  |  |  | 8 |

DETAILS OF ACCIDENT HISTORY


DETAILS OF ACCIDENT HISTORY
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## ABBREVIATIONS:

FAT - Fatal Injury
PDO - Property Damage Only
N/R - Non-Reportable
Rend - Rear End
Ovtk - Overtake
Rtrn - Right Turn
ROR - Run Off Roadway
Ltrn - Left Turn
Rang - Right Angle
Side - Sideswipe
HdOn - Head On
Ovrt - Overturned
FixO - Fixed Object
Bike - Bicycle
Park - Parked Vehicle
Anml - Animal
Back - Backing
Ped - Pedestrian
Othr - Other
V - Vehicle
CV - Construction Vehicle
EV - Emergency Vehicle
UV - Uninvolved Vehicle
GT - General Traffic
HT - Heavy Traffic
MC - Motorcycle
CO - Cut Off
LC - Lost Control
ChLn - Changed Lanes
STA - Swerved To Avoid
GR - Guide Rail
JB - Jersey Barrier
CB - Concrete Barrier
IA - Impact Attenuator
SB - Sand Barrel
UP - Utility Pole
LP - Light Pole
ROW - Right of Way
LSA - Left Scene of Accident
RTOR - Right Turn on Red
DWI - Driving While Intoxicated
RM or Key \# - Reference Marker
N\# - Northbound Vehicle \#
S\# - Southbound Vehicle \#
E\# - Eastbound Vehicle \#
W\# - Westbound Vehicle \#
NB - Northbound
SB - Southbound
EB - Eastbound
WB - Westbound
n/o - North of
s/o - South of
e/o - East of
w/o - West of
dwy - Driveway
LT - Left Turn
RT - Right Turn
R/L - Right Lane
L/L - Left Lane
C/L - Center Lane
R/C/L - Right Center Lane
L/C/L - Left Center Lane
RS - Right Side
RSh - Right Shoulder
LS - Left Side
LSh - Left Shoulder
CM - Center Median
C/w - Collided with

## APPARENT CONTRIBUTING FACTORS

HUMAN

2 - Alcohol Involved
3 - Backing Unsafely
4 - Driver Inattention
5 - Driver Inexperience
6 - Drugs (illegal)
7 - Failure to Yield Right of Way
8 - Fell Asleep

9 - Following Too Closely
10- Illness
11 - Lost Consciousness
12 - Passenger Distraction
13 - Passing or Lane Usage Improper
14 - Pedestrian's/Bicyclist's Error/Confusion
15 - Physical Disability

47 - Tire Failure/Inadequate
48 - Tow Hitch Defective
49 - Windshield Inadequate
50 - Driverless/Runaway Vehicle
60 - Other Vehicular
61 - Animal's Action
16 - Prescription Medication
17 - Traffic Control Disregarded
18 - Turning Improperly
19 - Unsafe Speed
20 - Unsafe Lane Changing
21 - Fatigued/Drowsy
22 - Cell Phone (hand held)

62 - Glare
63 - Lane Marking Improper/Inadequate
65 - Pavement Defective
66 - Pavement Slippery
67 - Shoulders Improper/Non-Working
69 - View Obstructed/Limited

## ENVIRONMENTAL

64 - Obstruction/Debris Defective/Improper
68 - Traffic Control Device


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## Appendix C: Conceptual Improvement Plans





ULSTER COUNTY ROAD SAFETY ASSESSMENT PROJECT









NYS Route 299 (New Paliz-Minnewaska Road)
 b

ULSTER COUNTY ROAD SAFETY ASSESSMENT PROJECT



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FIGURE C-3: NEW PALTZ CONCEPTUAL IMPROVEMENT PLAN

ULSTER COUNTY ROAD SAFETY ASSESSMENT PROJECT





## Appendix D: Safety Implementation Plan Summaries

Location 1: NYS Route 212 - Town of Woodstock - Safety Implementation Plan

| Improvement | Local |  |  | County |  | State <br> NYSDOT | Implementation <br> Term (Short, Medium, Long) | Approximate Estimated Construction Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mayor/ Supervisor | Police Dept. | Emergency Response | DPW | UCTC |  |  |  |
| Roadway Pavement/Pavement Markings: |  |  |  |  |  |  |  |  |
| 1) Realign/upgrade skewed pedestrian crossings. | $\bigcirc$ |  |  |  |  | $\bullet$ | Short | \$ 1K-\$ 5K |
| 2) Restripe roadway using durable, high visibility pavement marking materials. | $\bigcirc$ |  |  |  |  | - | Short | \$1K-\$ 5 K |
| 3) Incorporate new mid-block pedestrian crosswalk in vicinity of Town Hall. | $\bigcirc$ |  |  |  |  | - | Short | \$ 5 K - \$ 10K |
| 4) Incorporate time restrictions for loading zones within on-street parking area limits. | $\bigcirc$ |  |  |  |  | - | Medium | \$ $1 \mathrm{~K}-\mathrm{\$} 5 \mathrm{~K}$ |
| 5) Delineate on-street parking spaces. | $\bigcirc$ |  |  |  |  | - | Medium | \$ 10K-\$15K |
|  |  |  |  |  |  |  |  |  |
| Signage: |  |  |  |  |  |  |  |  |
| 1) Replace worn out, faded, and/or damaged signs. | $\bigcirc$ |  |  |  |  | - | Short | \$ 5K-\$ 10K |
| 2) Re-orient parking related signage to the proper angle (between $30^{\circ}$ and $45^{\circ}$ facing the affected direction of traffic flow). | $\bigcirc$ |  |  |  |  | - | Short | \$ 5 K - \$ 10k |
| 3) Upgrade pedestrian crossing warning signage in accordance with NYSDOT PSAP guidelines and NYSDOT Standards. | $\bigcirc$ |  |  |  |  | - | Short | \$ 5 K - \$ 10k |
| 4) Relocate the existing curve warning sign east of Rock City Road to a more appropriate distance from the curve based on the MUTCD, and install a new curve warning sign west of Rock City Road for eastbound traffic. | $\bigcirc$ |  |  |  |  | - | Short | \$ 1K-\$ 5K |
| 5) Install new municipal parking signs. | $\bigcirc$ |  |  |  |  | $\bullet$ | Short | \$1K-\$5k |
| 6) Remove "No Parking" signs along north side of NYS Route 212. | $\bigcirc$ |  |  |  |  | - | Short | \$ $1 \mathrm{~K}-\mathrm{\$} 5 \mathrm{~K}$ |
| 7) Continue to upgrade street name signs. | $\bigcirc$ |  |  |  |  | - | Short | \$ 5K-\$ 10K |
|  |  |  |  |  |  |  |  |  |
| User Behavior: |  |  |  |  |  |  |  |  |
| 1) Delineate "No Parking" areas using pavement markings in addition to signs. | $\bigcirc$ |  |  |  |  | - | Medium | \$ $5 \mathrm{~K}-10 \mathrm{~K}$ |
| 2) Relocate the "Do Not Block Side Road" sign on Rock City Road closer to Old Forge Road and restripe the gridlock box. | $\bigcirc$ |  |  |  |  | - | Short | \$1K-5K |
|  |  |  |  |  |  |  |  |  |
| Traffic/Roadway/Roadside Characteristics: |  |  |  |  |  |  |  |  |
| 1) Restrict parking within 20 -feet of pedestrian crosswalks, intersections and driveways. | $\bigcirc$ |  |  |  |  | $\bullet$ | Medium | \$ 5 K - \$ 10K |
| 2) Reduce the parking duration along the west end of the corridor from 30 minutes to 10 or 15 minutes to encourage higher parking turnover. | $\bigcirc$ |  |  |  |  | - | Short | \$1K-\$ 5 K |
| 3) Explore metered parking alternatives. | $\bigcirc$ |  |  |  |  | - | Medium | \$ 50K-\$ 100K |
| 4) Clean out drainage structures as necessary. | $\bigcirc$ |  |  |  |  | - | Short | \$1K-5K |
| 5) Upgrade the lighting in the area to LED, and provide additional lighting near crosswalks. | $\bigcirc$ |  |  |  |  | $\bullet$ | Medium | \$ 100K-\$ 200k |

- Lead agency responsible for coordinating implementation
- Agency responsible for providing support with implementation

Short Term: 1-2 years

## Appendix D: Safety Implementation Plan Summaries

