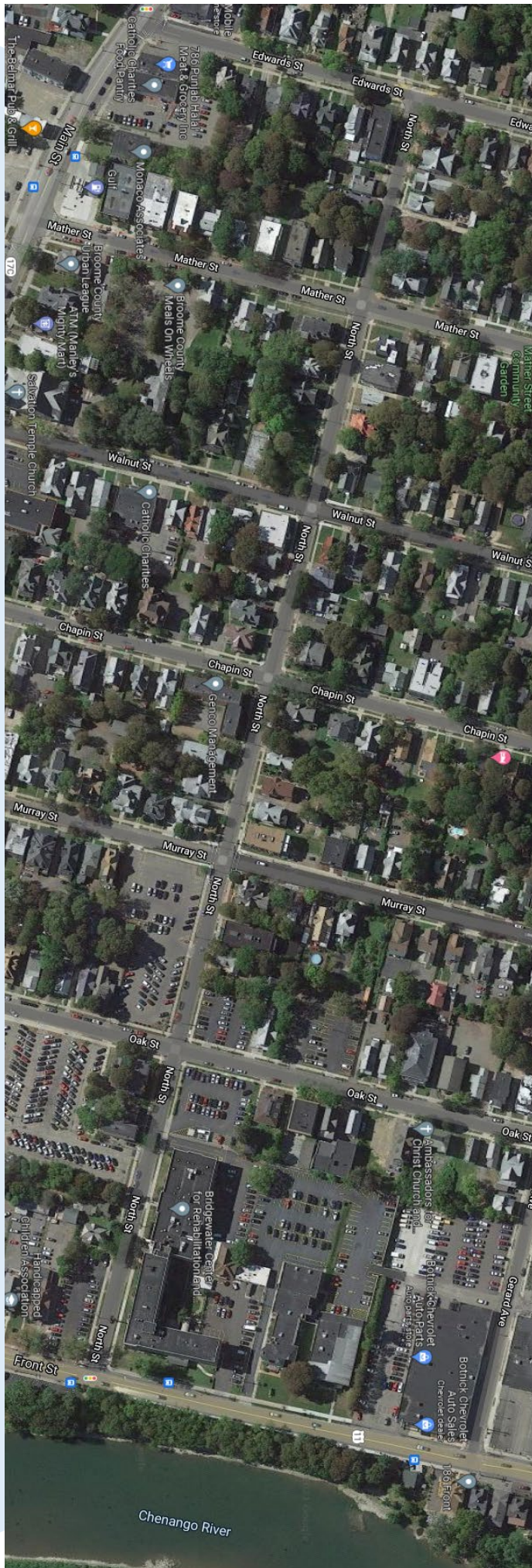


# NORTH STREET ROAD SAFETY ASSESSMENT CITY OF BINGHAMTON

## BINGHAMTON METROPOLITAN TRANSPORTATION STUDY SEPTEMBER 2021



## OVERVIEW

Road Safety Assessments (RSAs) are a generally accepted proactive, low-cost tool to identify safety issues of transportation facilities. The Federal Highway Administration (FHWA) encourages states and local municipalities to use RSAs. A Safety Assessment is simply a formal performance examination of an existing or planned transportation facility by an independent, qualified multidisciplinary team. The assessment team considers the safety of all users and suggests opportunities where safety can be improved.

## BACKGROUND

North Street is a local street, owned and maintained by the city of Binghamton. The eastern end of the corridor, in the vicinity of Front and Oak Streets, is adjoined by a nursing home for disabled and elderly residents and its associated parking areas. Parking areas for Binghamton City School District and Broome County Social Services are also at the eastern end of the corridor. The remainder of North Street is residential, with a mixture of multifamily and single-family dwellings.

The decision to conduct a road safety assessment at this location was made in response to the following items:

1. Neighbors and the City Councilperson representing the neighborhood have expressed safety concerns related to traffic speeds and accidents.
2. During an initial review of the corridor, BMTS staff identified deficiencies in signage and pavement markings that warranted a more detailed assessment.

## ROAD SAFETY ASSESSMENT PROCESS

BMTS staff first conducted a crash analysis for the three-year period between January 1, 2018 and December 31, 2020 (Appendix A). Over this three-year period there were 30 total intersection crashes, four of which involved pedestrians. Nearly half of these crashes were right angle. Based on the crash diagrams it appears that most of these right-angle crashes occurred when vehicles traveling on the minor street failed to yield the right of way to vehicles traveling along North Street.

On September 27, 2021 the RSA Team conducted a walking audit of the corridor. To familiarize everyone with the process and purpose of a Road Safety Assessment a brief was held onsite with the RSA Team.

The RSA Team was composed of the following individuals:

Daniel Correll, Retired Binghamton Police Department

Ron Lake, City of Binghamton Engineer

Franco Incitto, City of Binghamton

Lonnie Rawson, NYSDOT

Angela Riley, Binghamton City Council

Brandi Brown, NOMA Community Center Coordinator

Mary Webster, North Street neighbor, NOMA Board Chair

Peggy Benz, North Street neighbor

Rosemary Markoff, North Street neighbor, NOMA Treasurer

George Homsy, NOMA Board Member

Cyndi Paddick, BMTS

Ashley Seyfried, BMTS

Scott Reigle, BMTS

Leigh McCullen, BMTS

Following the walking audit this report was prepared by BMTS staff and circulated to the city of Binghamton before being finalized.

## STUDY AREA CHARACTERISTICS, OPERATIONS AND SAFETY ISSUES

The study area involves the entire length of North Street. The average annual daily traffic (AADT) of North Street and the intersecting streets is approximately 13,000. The posted speed limit is 30 mph. The land use pattern along North Street is primarily residential, with a residential care facility and parking lots located at its the eastern end.

The corridor contains two T-intersections, one all-way stop controlled intersection (Oak and North), and four other intersections with stop signs controlling the minor streets. The direction of traffic on most of the cross streets changes from two way to one way traffic. This may be confusing to drivers, particularly those unfamiliar with the area.

There is an overhead flashing light at the intersection of Murray and North Streets. This light flashes red for Murray Street traffic which must stop and flashes yellow for North Street traffic which is not required to stop. It was noted by neighbors that this flasher may be causing confusion for drivers. In fact, during the walking audit the RSA team observed a vehicle traveling eastbound on North Street make a full stop even though North Street traffic should not stop at this intersection.

A double yellow center strip divides the two travel lanes of North Street. Parking is permitted on the south side of the road. 'No Parking Here to Corner' signs are located at most intersections, but in some cases are missing. Many of these signs need replacing and, in some cases, need to be relocated to meet the City's Traffic Code. Although parking is not permitted on the north side of North 'No Parking' signs are missing.

Sidewalks are located throughout the study area, however some sections of sidewalk need replacing to mitigate tripping hazards. The RSA team observed a pedestrian walking with the assistance of a cane in the street, likely to avoid uneven sections of sidewalk. Painted crosswalks, a vital component of pedestrian access and safety, are missing at every intersection across North Street, except Front Street. Curb ramps are also missing or non-compliant with ADA standards at most intersections, particularly across North Street. During the walking audit, several pedestrians were observed crossing at intersections where pedestrian facilities were lacking.

Accidents from a three-year period between January 2018 and December 2020 were reviewed and evaluated for potential patterns and potential contributing factors to the crashes. Right angle crashes were the most frequent, suggesting that vehicles on cross streets are not yielding the right of way to through traffic on North Street. The conditions and placement of regulatory signs and limited lines of sight distance due to the location of parked vehicles too close to intersections may be contributing factors. Four crashes involved pedestrians. Lack of adequate pedestrian accommodations and pavement markings to identify where pedestrians should cross may be contributing factors.

## ASSESSMENT FINDINGS AND SUGGESTIONS

### CORRIDOR WIDE

#### OBSERVATIONS AND SAFETY CONCERNS

##### **Incomplete Pedestrian Accommodations:**

Some of the existing curb ramps are non-compliant with ADA standards. Curb ramps and painted crosswalks are also missing at intersections (see detailed analysis of intersections below). Pedestrians were observed crossing North Street at locations that lacked curb ramps and crosswalks.

Tripping hazards are present at various locations where sections of sidewalk have been displaced by heaving and erosion of the utility strip area. An individual using a cane was also observed walking in the travel lane of Edwards at North Street likely to avoid uneven sidewalks present throughout the study area.

Vegetation is encroaching onto the sidewalk at several locations, narrowing the usable sidewalk space. For example, landscaping along the north side of North Street adjacent to the Bridgewater parking lot should be trimmed back to allow full use of the sidewalk width. In other locations the utility strip/snow storage area has been paved over with asphalt.

Trash and debris were observed within the right-of-way throughout the corridor, making conditions unpleasant for walkers and degrading the quality of the neighborhood.

#### **Traffic Signs and Pavement Marking Deficiencies:**

**Stop Signs** – Many stop signs are too tall. Stop signs should be posted at a height of 7 feet from the bottom of the sign to the ground.

**No Parking Signs** – ‘No Parking Signs’ are missing along the north side of North Street.

**No Parking Here to Corner Signs and Associated Pavement Markings** – Many of the ‘No Parking Here to Corner’ signs and associated pavement markings are located less than 30 feet from intersections. According to the City’s Vehicle and Traffic Code parking is prohibited within 30 feet of an intersection to allow for adequate sight distance.

**Visual Obstructions and Fading Signage** – Clear view of several signs is obscured throughout the corridor and some signs are faded. For example, the one-way sign at Murray Street is not visible due to tree branches and the ‘No Parking’ signs at Edwards and North are faded.

**Street Lighting** – Based upon the crash analysis approximately a quarter of the accidents occurred in the dark/evening. These accidents were located throughout the corridor, which suggests that there isn’t a particular intersection or area that is more problematic at night. Street lighting should always be maintained and upgraded as needed to provide for the continuous illumination of streets, sidewalks and intersections.

#### **RISK ANALYSIS**

During the three-year period that was analyzed there were approximately 41 accidents, four of which involved pedestrians. Deficiencies in traffic signs and pavement markings may be factors contributing to accident risks. Lack of complete pedestrian accommodations posed safety risks to pedestrians.

#### **SUGGESTED CORRIDOR WIDE IMPROVEMENTS** (more detailed intersection comments are below)

- Bring all existing curb ramps into ADA compliance.
- Add ADA compliant curb ramps where they are missing, including along the entire length of North Street at each intersection.

- Add painted ladder style crosswalks at all intersections, including across North Street at all intersections.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Repair/replace sidewalks as needed to correct tripping hazards.
- Clear sidewalks of landscaping obstructions and remove asphalt from utility strips/snow storage areas.
- Check height of all signs (many stop signs were observed to be too tall) and correct where needed. The MUTCD (Manual of Uniform Traffic Control Devices) states that all signs should be posted with the bottom of the sign measuring 7 feet to the ground in an urban area. A supplemental sign (such as an 'all way stop' placard) can be placed below a stop sign and not adhere to the 7 foot height.
- Check for and clear visual obstructions from all street signs.
- Replace missing 'No Parking' signs along the length of North Street on the north side.
- Verify that 'No Parking from Here to Corner' signs are setback a minimum of 30 feet from each intersection and replace/relocate non-compliant signs.
- Repaint yellow 'no parking' on roadway at corner areas as needed to be consistent with above.
- Stripe in parking spaces along the south side of North Street where parking is permitted.
- Address trash accumulation, the encroachment of landscaping onto sidewalks, and the upkeep and maintenance of sidewalk areas, including utility strips/snow storage areas.
- Maintain and upgrade street lighting as needed to provide for the continuous illumination of streets, sidewalks and intersections.

## **PRIORITY FOR CONSIDERATION**

**High.** Many of these recommendations would bring the corridor into compliance with ADA standards and the MUTCD, which are intended to improve traffic and pedestrian safety, and therefore should be completed as soon as possible.

## **FRONT STREET AND NORTH STREET**

### **SAFETY CONCERNS**

Basic traffic safety features and signage are missing.

### **OBSERVATIONS**

#### **At the intersection:**

Curb cuts are not ADA compliant.

The pedestrian warning sign at the crosswalk on Front Street is missing in the southbound direction.

Crosswalk pavement markings are beginning to fade.

There is no stop bar on North Street at the intersection.

Sight distance is restricted for eastbound North St. traffic due to parking on the west side of Front Street.

Old signal cabinets are still in place.

#### **North segment from Front to Oak:**

No parking signs are missing on the north side of North Street adjacent to Bridgewater.

The utility strip/snow storage area adjacent to Bridgewater has been filled in with asphalt.

A section of sidewalk is heaved in front of 3 North Street.

The curb opening for Bridgewater's loading dock does not appear to align correctly with the loading space. This may be why a portion of the utility strip was paved.

#### **RISK ANALYSIS**

There were 7 total crashes at this intersection during the crash analysis study period, one involving a pedestrian. Sight distance looking southbound from Front Street is limited, making it difficult to see vehicles heading northbound on Front Street. Lack of proper pedestrian warning signs and compliant curb ramps pose safety hazards to pedestrians.

#### **SUGGESTED IMPROVEMENTS**

- Install missing pedestrian warning signs (W11-2 with a W16-7P) in the southbound direction on Front Street.
- Repaint crosswalks.
- Install a stop bar in advance of the crosswalk on North Street where there is a stop sign.
- Consider removing two parking spaces on the west side of Front Street just south of North Street to improve sight distance looking southbound from North Street. Relocate no parking signage and pavement markings accordingly.
- Remove old signal cabinets.
- The curb cut for Bridgewater's loading dock can be shifted to the east and narrowed up on the west side. This would provide better alignment and vehicles would not have to mount the curb to access the loading space.
- Remove asphalt from utility strip/snow storage area along Bridgewater, reseed and plant city of Binghamton recommended street trees.
- Repair heaved section of sidewalk in front of 3 North.

#### **PRIORITY FOR CONSIDERATION**

Pedestrian warning signs, crosswalks and address sight distance are a high priority to address traffic and pedestrian safety. All others low to medium.

## OAK STREET AND NORTH STREET

### SAFETY CONCERNS

Non-compliant traffic signs and inadequate pedestrian accommodations pose risks to traffic and pedestrian safety.

### OBSERVATIONS

Incorrect '4 way' stop signs placards are used.

Stop signs are too tall.

Crosswalks are missing.

View of 'No Parking' signs south of the intersection on Oak Street are obscured.

Landscaping and fencing for the Bridgewater parking lot at the northwest corner of North and Oak Street is encroaching into the sidewalk.

### RISK ANALYSIS

During the three-year crash analysis period there was one right angle crash and one pedestrian involved crash at this intersection.

### SUGGESTED IMPROVEMENTS

- Replace '4 way' stop sign placards with 'All Way' placard (R1-3P).
- Check height of all stop signs and correct where needed. Stop signs should be posted at a height of 7 feet from the bottom of the sign to the ground.
- Paint ladder-style crosswalks at all four legs of the intersection.
- Paint vehicular stop bars in advance of the crosswalks where there is a stop sign.
- Clear landscaping and fencing from sidewalk in front of Bridgewater parking lot.
- Trim branches obscuring 'No Parking' signs on Oak Street.

### PRIORITY CONSIDERATION

High

## INTERSECTION OF MURRAY STREET AND NORTH STREET

### SAFETY CONCERNS

Non-compliant traffic signs and inadequate pedestrian accommodations pose risks to traffic and pedestrian safety.



## **OBSERVATIONS**

The overhead flashing signal at this intersection may be contributing to driver confusion. During the walking audit the RSA team observed a vehicle traveling eastbound on North Street make a full stop even though North Street traffic should not stop at this intersection.

The 'One Way' sign on Murray is being obstructed by tree limbs.

The 'Do Not Enter' signs on Murray Street are faded.

No parking areas do not appear to be setback 30 feet from the intersection and signage is missing at the eastbound leg.

Curb ramps are missing on North Street at the east and west leg of the intersection.

Crosswalks across North Street are missing at the east and west leg of the intersection.

The North and Murray street sign located at the southeast corner is obscured from view.

The sight distance for Murray Street northbound vehicles looking west is obscured due to the location of parking less than 30 feet from the intersection.

## **RISK ANALYSIS**

Seven accidents and one pedestrian involved accident occurred over the three-year crash analysis study period. Non-compliant traffic signs, incomplete pedestrian accommodations, and limited sight distances pose risks to traffic and pedestrian safety.

## **ALL-WAY STOP EVALUATION**

BMTS compared traffic count that was taken at the intersection of North and Murray Streets in 1999 to counts taken in 2021. The traffic volumes are slightly less now than they were in 1999 and the pedestrian counts are similar, even a little less in 2021. The flashing signal was there in 1999.

Based on the MUTCD guidance for the installation of an all-way stop (Section 2B.07), the following was considered:

- 5 or more crashes in a 12-month period that are correctable with a multi-way stop. There were 5 crashes total in a 3-year period.
- At least 300 vehicles per hour on the major road approaches combined for 8 hours (does not appear to be met in the peak hour in 2021)
- At least 200 vehicles (this includes peds and bicycles) per hour on the minor street approaches combined for same 8 hours (not met in 2021 for peak hour)
- The volume can be reduced to 70% of the values if the 85% traffic speed exceeds 40 mph. (unlikely in this case)

Since none of above conditions are met, an all-way stop would not be recommended for this intersection. Other considerations are limited sight distance and high pedestrian generators. The recommendations in the report are intended to help address sight distances and improve pedestrian facilities.

If crashes continue to occur, after the recommendations in this RSA are implemented, an all-way stop should be reevaluated.

## **SUGGESTIONS**

- Remove flashing signal.
- Paint ladder style crosswalks across all four legs of the intersection.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Install ADA compliant curb ramps on North Street at the east and west leg of the intersection.
- Replace the 'Do Not Enter' sign on Murray.  
Add 'Cross Traffic Does Not Stop' (w4-4p) placard to all Murray Street stop signs to reduce confusion. If crashes continue to occur after the implementation of above recommendations, re-evaluated for an all-way stop.
- Clear tree branches that are obscuring view of the 'One Way' sign on Murray.
- Relocate the street identification sign from the southeast corner to the northern side of the intersection.
- Adjust the 'No Parking' zones so that they are a minimum of 30 feet from the intersections. Relocate signage and striping as needed. Pay particular attention to the sight distance of north bound Murray Street vehicles looking north. A 'No Parking' Zone greater than 30 feet may be needed for this approach given the location of street trees and driveways on the south side of North Street near the intersection.

## **PRIORITY FOR CONSIDERATION**

High

## **CHAPIN STREET AND NORTH STREET**

### **SAFETY CONCERNS**

Non-compliant traffic signs and inadequate pedestrian accommodations pose risks to traffic and pedestrian safety.

### **OBSERVATIONS**

Crosswalks are missing on North Street.  
Curb ramps on North Street are missing.  
No parking zones do not comply with 30-foot setback.  
Stop sign on southbound Chapin St is too tall and faded.

## **RISK ANALYSIS**

Four accidents, four of which were right angle, occurred over the three-year crash analysis study period. Non-compliant traffic signs, incomplete pedestrian accommodations, and limited sight distances pose risks to traffic and pedestrian safety.

## **SUGGESTIONS**

- Paint ladder style crosswalks across all four legs of the intersection.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Install ADA compliant curb ramps on North Street at the east and west leg of the intersection.
- Adjust the 'No Parking' zones so that they are a minimum of 30 feet from the intersections. Relocate signage and striping as needed.
- Replace stop sign at southbound Chapin Street with a 36" by 36" oversized stop sign. An oversized stop sign is warranted at this location because all of the crashes that occurred during the 3-year study period were right angle.

## **PRIORITY FOR CONSIDERATION**

High

## **INTERSECTION OF WALNUT STREET AND NORTH STREET**

### **SAFETY CONCERNS**

Non-compliant traffic signs and inadequate pedestrian accommodations pose risks to traffic and pedestrian safety.

### **OBSERVATIONS**

Crosswalks on North Street are missing.

ADA compliant curb ramps on North Street are missing.

'Do Not Enter' signs on Walnut are faded.

### **RISK ANALYSIS**

Seven accidents, three of which were right angle, occurred over the three-year crash analysis study period. Right angle crashes suggest that vehicles on Walnut are failing to yield the right of way to North Street traffic.

### **SUGGESTIONS**

- Install a 'Cross Traffic Does Not Stop' sign (w4-4P) on southbound Walnut Street just north of the intersection.

- Paint ladder style crosswalks across all four legs of the intersection.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Install ADA compliant curb ramps on North Street at the east and west leg of the intersection.
- Replace the 'Do Not Enter' signs on Walnut.
- The street identification sign is tipped and needs to be repaired.
- Remove old light poles. This could free up space for ADA compliant curb ramps.

**PRIORITY FOR CONSIDERATION**

High

**INTERSECTION OF MATHER STREET AND NORTH STREET**

**SAFETY CONCERNS**

Non-compliant inadequate pedestrian accommodations pose risks to pedestrian safety.

**OBSERVATIONS**

Crosswalks on North Street are missing.  
 ADA compliant curb ramps on North Street are missing.

**SUGGESTIONS**

- Paint ladder style crosswalks across all four legs of the intersection.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Install ADA compliant curb ramps on North Street at the east and west leg of the intersection.

**PRIORITY FOR CONSIDERATION**

High

**INTERSECTION OF EDWARDS STREET AND NORTH STREET**

**SAFETY CONCERNS**

Neighbors expressed concerns regarding vehicle speeds on Edwards Street. It is a wide street and lacks pavement markings. Non-compliant and incomplete pedestrian accommodations pose risks to pedestrian safety.

**OBSERVATIONS**

Crosswalks are missing.  
 ADA compliant curb ramps on Edwards Street at North are missing.

'No parking' sign is faded.

This intersection previously had street art which is now faded. The City may want to consider re-establishing.

### **SUGGESTIONS**

- Paint a double center line along the entire length of Edwards Street.
- Stripe in parking spaces.
- Paint ladder style crosswalks across all four legs of the intersection.
- Add painted stop bars in conjunction with crosswalks at stop signs.
- Install ADA compliant curb ramps across Edwards Street at North.
- Consider re-establishing the intersection street art. While street art is not technically approved by the MUTCD, it may slow traffic.
- Repair sidewalks on Edwards.

### **PRIORITY FOR CONSIDERATION**

High priority for pavement markings and pedestrian accommodations.

## **OVERALL OBSERVATIONS AND RECOMMENDATIONS**

North Street neighbors have expressed concerns regarding traffic speeds, accidents and pedestrian safety. During the walking audit, the RSA team observed many deficiencies that are likely contributing to these concerns.

The change in the direction of traffic from two way to one way on most of the cross streets may be confusing to drivers. Incorrectly posted, obscured, and faded signage, sight distance limitations, and lack of pavement markings are likely impacting traffic safety. In addition, the lack of adequate pedestrian facilities may be contributing to impacts on pedestrian safety.

North Street is primarily residential. Therefore, prioritizing traffic calming and pedestrian safety are high priorities. Many relatively low-cost improvements were identified in this report. These improvements have the potential to increase safety, calm traffic, improve the walkability of the area, and contribute to the concept of developing complete streets in Binghamton.

The City should consider correcting pedestrian deficiencies, updating signage to be consistent with the MUTCD, ensuring parking zones are setback a minimum of 30 feet from intersections, and removing the overhead flashing signal at Murray Street as high priorities for implementation. The recommendations in this report all have the potential to slow traffic, thereby making North Street safer for all users.

## CONCLUSIONS

This roadway assessment has been prepared to assist the city of Binghamton in identifying opportunities to improve safety within the area studied. The Road Safety Assessment is based on information that was available at the time of the field review. The suggestions in the report are for the consideration by the City. They are not intended to serve as design or operational recommendations.

The report does not preclude the identification of additional issues pertaining to safety by the City, or the emergence of new issues over time.

It is recommended that the city of Binghamton review the report; document their responses identified in the formal response; and track the implementation of safety improvements prompted by this assessment.

## TRAFFIC DATA APPENDIX A

## North Street Crashes from January 1, 2018 - December 31, 2020

	STREET/INTERSECTION	TOTAL CRASHES	ENTER VOLUME (estimate)	REAR END	LEFT TURN	RIGHT ANGLE	RIGHT TURN	OVER TAKE	HEAD ON	SIDE SWIPE	OTHER	BIKE	PED	Acc w/ injury
Intersections	North & Edwards	3	3100		2						1			
	North & Mather	2	3000			2								
	North & Walnut	7	3300			4					2		1	1
	North & Chapin	4	3300			3					1			
	North & Murray	5	3500		1	2	1						1	1
	North & Oak	2	4300			1							1	1
	North & Front	7	7000	2	2	2							1	
North Segment	North Mainline	11	2500	1						6	4			
	North Mainline & Intersections	41	13000	3	5	14	1			6	8		4	3



Municipality City of Binghamton County Broome File  
 Segment: North Street from Edwards St to Front St  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



SYMBOLS		MANNER OF COLLISION	
← Moving Vehicle	← P Pedestrian	← Rear-end	↔ Head-on
← M Motorcycle	← B Bicycle	↔ Side-swipe	↘ Left-turn
←>>> Backing Vehicle	□ Fixed Object	↪ Out of control	↙ Right-angle
← Stopped Vehicle		↪ Skidding	
▭ Parked Vehicle		↪ Overturned	

Municipality City of Binghamton County Broome File  
 Intersection: North/Edwards  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



SYMBOLS		MANNER OF COLLISION	
← Moving Vehicle	←-P- Pedestrian	←- Rear-end	→- Head-on
←-M- Motorcycle	←-B- Bicycle	↔ Side-swipe	↘ Left-turn
←->> Backing Vehicle	□ Fixed Object	↪ Out of control	↙ Right-angle
← Stopped Vehicle		↺ Skidding	
▭ Parked Vehicle		↻ Overturned	

Municipality City of Binghamton County Broome File  
 Intersection: North/Mather  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



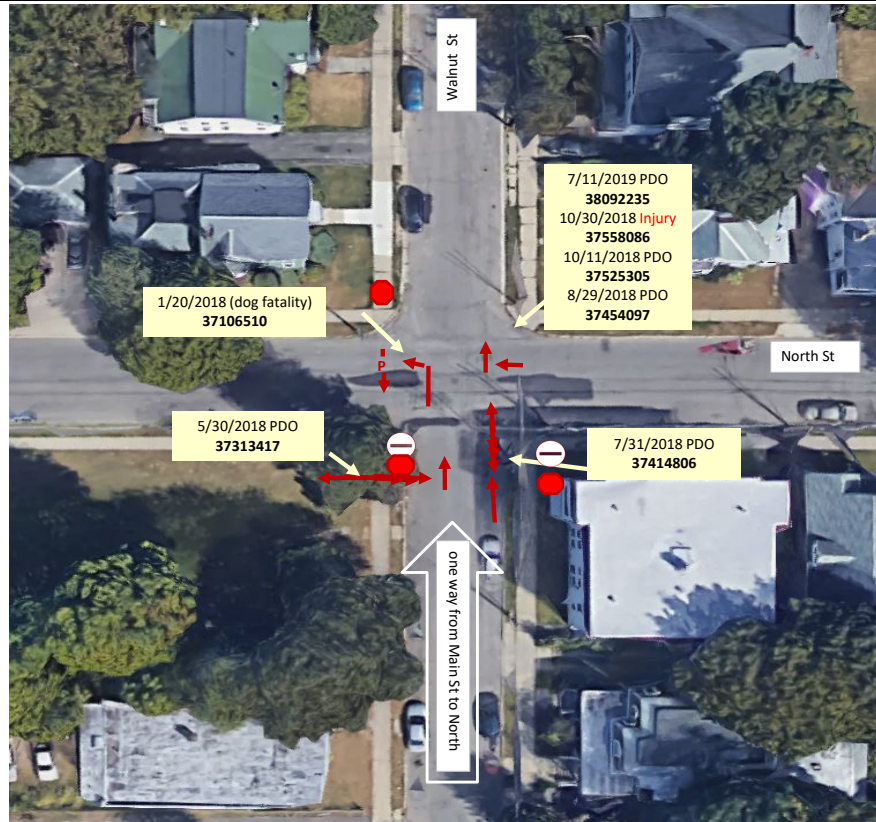
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← M ← Motorcycle	←-B- Bicycle
←>>> Backing Vehicle	□ Fixed Object
← Stopped Vehicle	
▭ Parked Vehicle	

MANNER OF COLLISION	
← Rear-end	→ Head-on
← Side-swipe	↘ Left-turn
← Out of control	↓ Right-angle
← Skidding	
← Overturned	

Municipality City of Binghamton County Broome File  
 Intersection: North/Walnut  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



SYMBOLS		MANNER OF COLLISION	
← Moving Vehicle	←-P- Pedestrian	← Rear-end	→ Head-on
← M Motorcycle	← B Bicycle	↔ Side-swipe	↙ Left-turn
←↔ Backing Vehicle	□ Fixed Object	↻ Out of control	↘ Right-angle
← Stopped Vehicle		↺ Skidding	
▭ Parked Vehicle		↻ Overturned	

Municipality City of Binghamton County Broome File  
 Intersection: North/Chapin  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



SYMBOLS	
← Moving Vehicle	←-P- Pedestrian
← M ← Motorcycle	←-B- Bicycle
←>>> Backing Vehicle	□ Fixed Object
← Stopped Vehicle	
▭ Parked Vehicle	

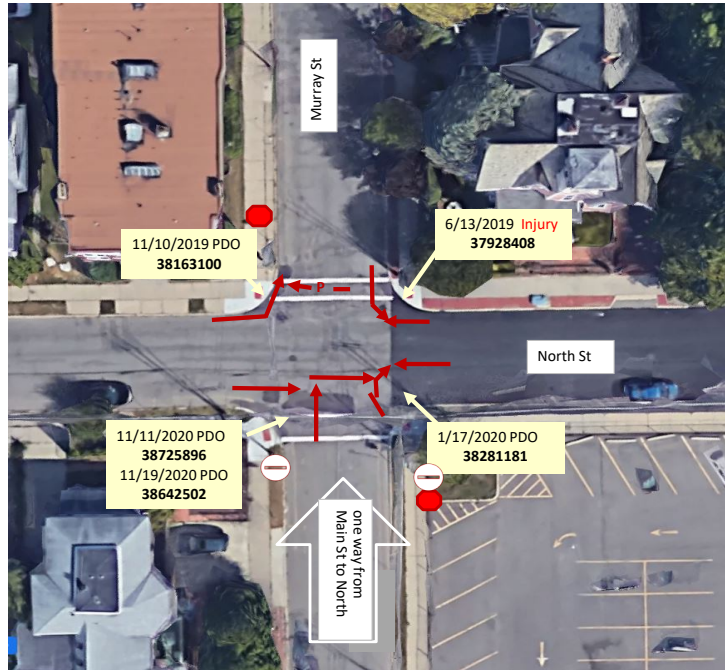
MANNER OF COLLISION	
← Rear-end	→ Head-on
← Side-swipe	↘ Left-turn
← Out of control	↙ Right-angle
← Skidding	
← Overturned	



Municipality City of Binghamton County Broome File  
 Intersection: North/Mather  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

COLLISION DIAGRAM



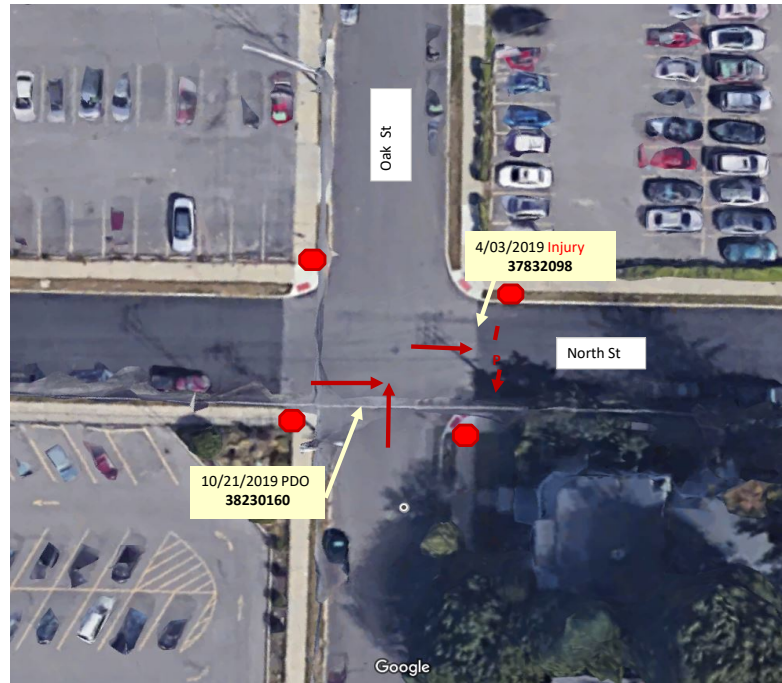
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←>>> Backing Vehicle	□ Fixed Object	⤿ Out of control	↙ Right-angle
← Stopped Vehicle		← Skidding	
▭ Parked Vehicle		← Overtuned	



Municipality City of Binghamton County Broome File  
 Intersection: North/Oak  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY

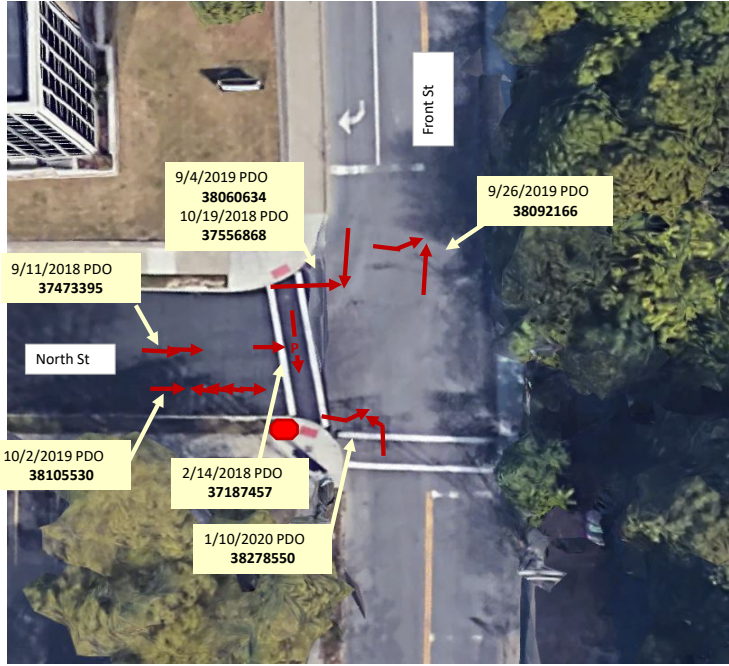
COLLISION DIAGRAM



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← Stopped Vehicle		← Skidding	
⊠ Parked Vehicle		⤿ Overturned	

Municipality City of Binghamton County Broome File  
 Intersection: North/Front  
 Period 3 Years 0 Months From 1/1/2018 To 12/31/2020 By AS Date Aug-21

BINGHAMTON METROPOLITAN TRANSPORTATION STUDY  
 COLLISION DIAGRAM



SYMBOLS		MANNER OF COLLISION	
← Moving Vehicle	←-P- Pedestrian	← Rear-end	→ Head-on
← M Motorcycle	←-B Bicycle	← Side-swipe	↘ Left-turn
←>>> Backing Vehicle	□ Fixed Object	⤿ Out of control	↙ Right-angle
← Stopped Vehicle		← Skidding	
⊠ Parked Vehicle		← Overtaken	