# TRAFFIC CIRCULATION & SAFETY STUDY

## North Road from NY Route 383 to NY Route 386

## FINAL REPORT

Village of Scottsville, New York
Town of Wheatland, New York

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

ingalls planning & design

Steinmetz Planning Group

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# Acknowledgements


## Study Advisory Committee

Paul Gee, Mayor of Scottsville
Julie Kuhn, Scottsville Village Clerk
Steve Farrell, Scottsville Department of Public Works Superintendent
Meaghan Capuano, Monroe County DOT
Terry Rice, Monroe County DOT
Dan Hallowell, New York State DOT
Chuck Hazelton, Town of Wheatland Highway Superintendent
Cynthia Kwiatowski, Wheatland-Chili CSD Transportation/Facilities Manager
Mike Connelie, Scottsville Emergency Medical Services
Tony Favro, Genesee Transportation Council
Yvonna Salgado, PathStone
Sam Carrera, Resident
Gail Woerner, Resident
Sarah Kloos, Resident
Molly Cook, Resident

## Study Preparation Team / Consultants

Stephen Ferranti, Principal, SRF & Associates
Matt Ingalls, Principal, Ingalls Planning and Design
John Steinmetz, Principal, Steinmetz Planning Group

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# Table of Contents

## List of Figures

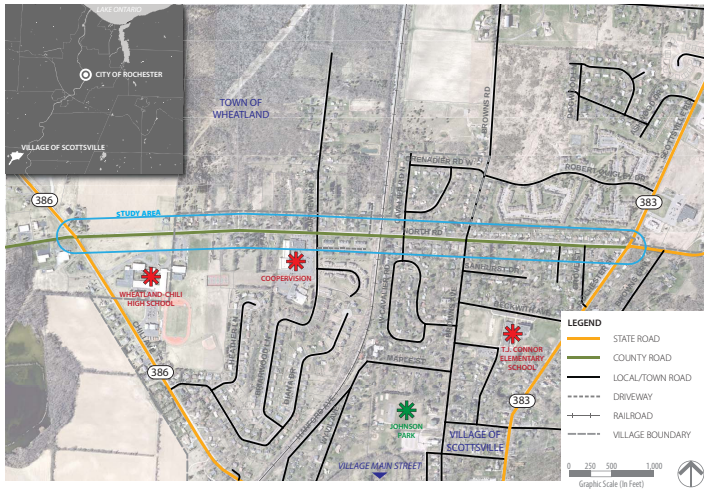


## List of Tables

# Executive Summary

## Study Purpose/Objective

The purpose of the *Village of Scottsville Traffic Circulation and Safety Study* is to develop feasible planning, design, and regulatory concepts that aim to improve circulation, accessibility, safety, and the overall North Road corridor appearance for pedestrians, bicyclists, and motorists alike. This plan will aid officials in guiding future projects in such a way as to achieve a balance among modes of transportation and land uses to promote Scottsville's goals as stated in the *Town of Wheatland/Village of Scottsville 2004 Comprehensive Plan*. For continuity purposes, a section of North Road outside the Village has been included in the study.




## Study Area

The Village of Scottsville is located within the Town of Wheatland in southwestern Monroe County. Settlement of Scottsville dates back to 1786 when Ebenezer Allen, an early settler of lands west of the Genesee River, arrived with Isaac Scotts and settled on Otaka Creek. In 1789, the Village was officially founded and subsequently named after Isaac Scotts. The fertile lands provided great opportunities for the agricultural development. Later, the area would discover gypsum and achieve technological advancements such as the LeRoy-Scottsville Railroad, Genesee Valley Canal, electricity, and a village water supply and sewage system.

Currently, much of North Road's makeup is residential. However, two primary destinations along the corridor are Wheatland-Chili Senior High School and CooperVision, a globally-based contact lens company.

North Road travels along the Village's northern border. The study area consists of six intersections within the Village and Town, stretching from NY 383 (Rochester Street) to NY 386 (Chili Avenue). North Road serves as an important connector roadway between Rochester and the nearby interstate highway system and communities further west.

## Community Engagement Process

In order to gather meaningful public input, a Public Open House Workshop was held at the Wheatland Senior Center on December 5th, 2012. Approximately 25 knowledgeable and engaged citizens attended the workshop. The purpose of the workshop was to solicit input on the safety, operations, and appearance of North Road. Members of the community have shared valuable opinions and insights regarding: pedestrian and bicycle circulation; safety concerns; speeding issues; congestion problems; overall aesthetic appearance; the needs for gateway treatments; parking availability; and any other concerns that may affect the safety and operations of North Road. The information gathered at the workshop has proven to be instrumental in identifying circulation, accessibility, safety, and overall appearance issues, opportunities, and the potential for improvements along North Road.

As a result of the feedback given, preliminary project goals have been established. These goals are aligned with the vision and recommendations set forth by previous plans for the Village of Scottsville, so as to develop a cohesive framework for actions implemented along North Road. These project goals are highlighted to the right.

- Improve safety for all users
- Reduce vehicular speeds using traffic calming measures
- Enhance the pedestrian experience along the corridor
- Provide an integrated bicycling environment
- Improve the transportation system using innovative design
- Improve the overall aesthetics and community character

▼ Existing view facing west

## Recommendations

As a result of the existing conditions analysis, public feedback on existing issues and concerns, and input from the study's steering and technical adivsory committees, a list of recommendations have been developed for North Road. These recommendations take into account the alternatives presented in the previous section and provide specific strategies and guidance for consideration under an incremental timeline approach. The timelines used range from immediate to near-term (0-5 years) to medium-term (5-10 years) and ultimately long-term (10-20 years). Immediate to near-term recommendations focus on high-impact, low-cost solutions for the Village and Town. These short-term strategies can range from updates to the regulatory language found within the Zoning Code and Village/Town Codes to the installation of pedestrian signage.

**Immediate to Near-Term (0-5 years)**

*Regulatory Recommendations*

The proposed zoning and regulatory modifications are based upon the recommendations contained in the Town and Village Comprehensive Plan, feedback provided by the public and the Steering Committee as well as best practices from across the State and Nation. It should be noted that these code recommendations are to be considered a starting point for a future re-zoning discussion. The exact language and level of flexibility that is appropriate for Wheatland and Scottsville will need to be determined through a process that would involve elected officials, Planning and Zoning Board members, and property owners within the various zoning districts.

Briefly, recommendations made under the regulatory framework can be found in the One-Family Residence Districts and General Business (GB) Districts, as well as the Central Business (CB) District. The following list depicts the recommendations made under non-residential building and site design standards:

- Building orientation & composition;
- Façade composition;
- Other building design considerations;
- Pedestrian & bicycle accomodations;
- Vehicular access & circulation;
- Off-street parking requirements;
- Off-street parking placement & design; and
- Landscaping

*Complete Streets Policy*

According to the National Complete Street Coalition, "Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work."

The development of a Complete Streets Policy is beyond the scope of this study but there are many examples on which the Village can draw from. The following links provide examples of policies that Scottsville could use as a starting point in developing their own policy.

- Village of Pittsford - http://www.villageofpittsford.org/documents/StreetsPolicyApril2011.pdf
- City of Rochester - http://www.cityofrochester.gov/CompleteStreets
- National Complete Streets Coalition - http://www.smartgrowthamerica.org/complete-streets/changing-policy

*Tradeoff of Installing Street Trees and Other Streetscape Components*

North Road currently lacks street trees and the dedicated space within the right-of-way to plant them. The asphalt areas extending beyond each side of the gutter could provide the space necessary to plant trees. However, after discussions with the Monroe County DOT, it is believed that this space provides much needed space for bicyclists and would not be worth the associated costs in the short-term. In addition, this asphalt area is used by pedestrians along the north side where a sidewalk is not available. In the short-term this creates a tradeoff between the benefits that street trees provide (e.g. shade, traffic calming, improved aesthetics, etc.) and the benefits provided by having a "multi-use" space adjacent to the travelway (e.g. cycling, walking/running, parking, etc). The feasibility of planting trees in the existing strip between the asphalt area and the sidewalk was considered but is deemed too narrow. Planting trees on the backside of the sidewalk near the edge of the right-of-way was also considered. However, trees would be too far back from the roadway and would not provide the intended benefits. They would also interfere with the overhead utilities.

The existing asphalt area adjacent to the gutter could provide a tree lawn if removed. However, it currently is used by pedestrians, cyclists and for parking.

*Install Gateway Signs / Improvements*

Gateway Signs should be considered near the intersection of Scottsville Road (NY Route 383) and North Road and just east of the Wheatland Chili High School. Although there is currently highway type signs in these locations they are non-descript and do little to showcase the Village. In addition to decorative Village of Scottsville signs, landscaping should also be included around the signs.


*Share the Road Signage*

It is recommended that "Share the Road" signs be installed along North Road to alert drivers to the presence of bicyclists. Demographic trends show a decreased dependency on motor vehicles and an greater reliance on bicycles as a primary form of transportation. Therefore, it is important to indicate to motorists that they must share the travel lanes with bicyclists.

*Speed Enforcement*

The introduction of speed monitoring or feedback devices will make motorists aware of their speeds, especially in the area of WCHS and Connor Elementary School. These devices can be mounted on existing speed limit signs as a permanent fixture to indicate real-time speed feedback as drivers pass. Otherwise, temporary portable speed trailers can provide the same level of feedback for motorists and can be transported to key locations, such as locations near schools.



*Modify Signal Timings at NY Route 383 (Rochester Street/Scottsville Road)*

Short-term improvements in the PM peak hour traffic flow can be acheived by modifying the existing signal timings to balance operations on all approaches. As a result of modifications, reductions in queuing and delay can be achieved. This will improve overall congestion and traffic flow, as well as have cost benefits to motorists as idling time will be reduced. This in turn can reduce emissions of greenhouses gases attributed to intersection delays.

*High Visibility Crosswalks & Signage*

It is recommended that high visibility crosswalks be installed at the existing marked locations and refreshed on a regular basis. They provide an improved indication to motorists that the travel-way is for pedestrians, along with vehicles. Increasingly, upgrading pedestrian crossings can change the perception and behaviors people traveling along the corridor to promote a more walkable environment.

Moreover, to further enhance pedestrian crossings, pedestrian warning signage may be used to provide an extra level of visibility on approaches that are not controlled by stop signs. Enhanced crosswalks, ADA compliant ramps, and new or updated signage should be installed at the following intersections as appropriate:

- Browns Avenue/Road
- Briarwood Lane
- Chili Avenue
- Scottsville Road/Rochester Street

*Develop a Safe Routes to School Plan for Connor Elementary School*

It is recommended that Connor Elementary School develop a Safe Routes to School Program (SRTS). Infrastructure (i.e., sidewalks, crosswalks, signage, multi-use paths, bike storage) and non-infrastructure improvements (i.e., encouragement programs such as Walk/Bike to School Day programs, bicycle rodeos, Walking School Bus) are benefits that can result from a comprehensive SRTS plan.


*Walking School Bus*

With low-cost, high-impact solutions in mind, communities such as the Village of Scottsville and the Town of Wheatland may look to implement certain aspects of a Safe Routes to School plan without developing a full-scale program. A walking school bus program can be quick and simple to implement.

*Shift Change at CooperVision*

Based on the Consultant Teams' analysis and feedback, shift change times are recommended to be moved back by one half hour to ease congestion and safety concerns found at the intersection, if feasible. Moving the shift change times forward would cause a conflict with morning school traffic.

*Improve Pedestrian Crossing at the Railroad Tracks*

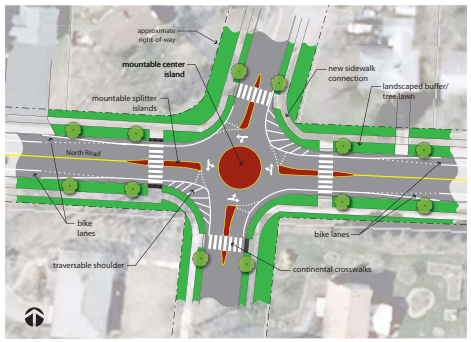
It is recommended that imperfections in the pavement contributing to challenging conditions for all users be repaired. Vegetaion may be used to dampen the noise from passing trains. In time, a rubber crossing surface that is friendlier to pedestrians and bicyclists, versus an asphalt surface, should be considered by the rail line operator.

**Medium-Term (5-10 years)**

*Resurface North Road*

It is recommended that North Road be resurfaced to provide a more aesthetically appealing, durable, and safer operating environment for all users. Other benefits can be reduced road noise and a smoother riding surface. In addition to resurfacing, the Village can puruse the installation of sharrows. This will enhance the appearance of North Road as a bicycle friendly road and provide a traffic calming effect.

Shared-lane marking "sharrow"



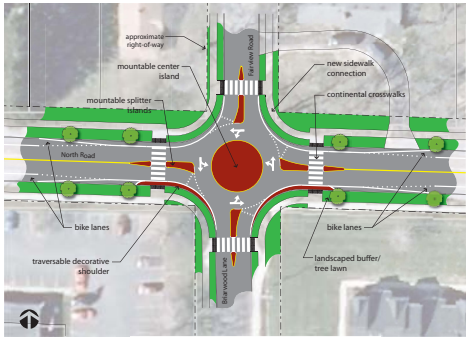

Browns Avenue/Road Mini Roundabout

*Mini Roundabout at Browns Avenue/Road*

It is recommended that a mini roundabout be installed at the intersection of Browns Avenue/Road and North Road. Benefits to the surrounding area could be improved traffic flow; slower vehicle speeds; enhanced pedestrian safety; and an overall sense of place.

*Mini Roundabout at Briarwood Lane*

The installation of a mini roundabout is also recommended at the intersection of Briarwood Lane and North Road. As with the Browns Avenue/Road mini roundabout, Briarwood Lane could see improved traffic flow and a safer environment for pedestrians, bicyclists, and motorists.



Briarwood Lane Mini Roundabout

*Replace Existing Asphalt Southern Sidewalk*

It is recommended that the existing asphalt sidewalk be replaced with a 5' concrete sidewalk.

*Install Sidewalk Along North Side*

Currently, the north side of North Road lacks a sidewalk. Pedestrians and bicyclists walk on the asphalt area outside the travels ways or in the gutter. Installing a new sidewalk will greatly increase pedestrian access and circulation along the corridor and improve safety.

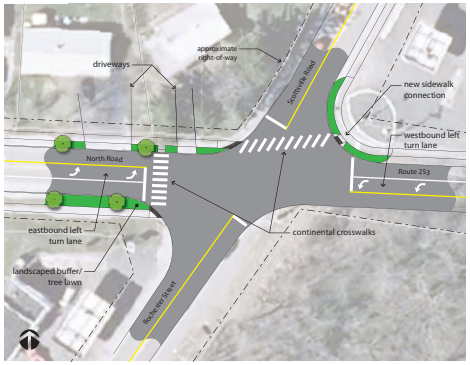
*Install Pedestrian Scaled Lighting*

Pedestrian scaled lighting should be installed along the corridor. The corridor is utilized by walkers, runners, and cyclists and the added visibility of North Road at night will promote transportation safety, dissuade potential criminal activity, and promote a sense-of-place.

**Long-Term (10-20 years)**

*Realignment of North Road & Rochester Street*

It is recommended that the intersection be re-aligned to include eastbound and westbound left turn lanes. The re-alignment will greatly improve traffic operations for eastbound and westbound traffic as well as the northbound and southbound traffic. Pedestrian safety will be greatly improved with the introduction of sidewalks and ADA compliant curb ramps.



Concept Realignment Illustration

*Rebuild North Road as a Complete Street*

It is recommended as a long-term solution to rebuild North Road to incorporate all elements of a Complete Street. The figure below illustrates the Complete Street recommendation taking into account enhancements proposed prior to the long-term strategy for North Road (i.e., pedestrian scaled lighting, rebuilt sidewalk on south side, new sidewalk on the north side, street trees and lanscaping elements, other streetscape components).

Existing North Road
view looking east

Proposed Complete Street Long-term Enhancement - Option B (Looking East)

## Cost Estimates

The costs associated with many of the immediate to near-term recommended improvements are relatively low and inexpensive. A number can be implemented with little or no cost, (e.g. signal timing modifications, enhanced crosswalk striping, signage, landscaping, furnishings), while other recommendations require a more significant infrastructure investment. The cost for these as well as for the more substantial improvements such as the rebuilding of North Road as a Complete Street were estimated based upon recent bid prices for comparable elements.

It should be noted that there is significant variability in the degree to which improvements can be implemented and the costs associated with the improvements. For example, the streetscape enhancements can include sidewalk replacement and pedestrian scaled lighting or other less expensive treatments with only plantings and less expensive crosswalk treatments. Other improvements in the transportation system, such as the mini roundabouts, may likely evolve over an extended time through a combination of private/public partnerships.

| RECOMMENDATIONS | PLANNING LEVEL COST ESTIMATE |
|---|---|
| *Immediate to Near-term (0-5 years)* | |
| Develop Regulatory Code Language | $ 3,000 - $ 20,000 |
| Develop Complete Streets Code Language | $ 0 - $ 5,000 |
| Street Trees, Landscaping, other Streetscape Components | $ 133,400 |
| Gateway Signage | $ 3,000 |
| Share the Road Signage | $ 2,700 |
| Speed Trailers or Permanent Speed Feedback Devices | $ 15,000 |
| Modify Signal Timings at Route 383 to Improve Traffic Flow | Routine Maintenance Cost |
| High Visibility Crosswalks & Signage at Browns Road/Avenue | $ 3,300 (crosswalks) |
| *Rectangular Rapid Flashing Beacons* | $ 15,000 (signage) |
| HIgh Visibility Crosswalks, Signage, and ADA Curb Ramps at Briarwood Lane | $ 6,300 |
| High Visibility Crosswalks & Signage at Chili Avenue | $ 5,450 |
| High Visibility Crosswalks and ADA Curb Ramp at Scottsville Road/Rochester Street | $ 4,900 |
| Develop a Walking School Bus Program | $ 500 |
| Shift Change at CooperVision | no cost |
| Improvements to the Pedestrian Crossing at the Railroad Tracks | $ 3,200 |
| Develop Safe Routes to School Plan for Connor Elementary School | $ 10,000 |
| *Medium-term (5-10 years)* | |
| Replace Existing Sidewalk Along South Side with New Concrete Sidewalk | $ 256,000 |
| Re-surface North Road[1] | $ 559,000 |
| Mini-roundabout at Browns Road/Avenue[1] | $ 83,000 |
| Mini-roundabout at Briarwood Lane[1] | $ 90,000 |
| Install North Side Sidewalk[1] | $ 326,000 |
| Install Pedestrian Level Lighting | $ 1,000,000 |
| *Long-term (10-20 years)* | |
| Realignment of North Road/Rochester Street Intersection | $ 420,000 |
| Road Re-construction to Install Option B (Complete Street) | $ 6,660,000 |

▲ Cost Estimates

Notes:
1. Costs include MPT, design, survey, construction inspection.
2. Schematic cost estimates have been prepared using a 40% contigency.
3. Costs are provided in 2012 dollars.
4. Costs do not include right-of-way.

## Implementation and Funding

Recommendations for implementation of the proposed improvements are are subdivided into three categories: Immediate to Near-Term (0-5 years), Medium-Term (5-10 years), and Long-Term (10-20 years). Many of the Immediate to Near-Term recommendations can be implemented as part of ongoing maintenance. Meanwhile, others items in this phase of implementation are either relatively low cost modifications or funding for these improvements may be more readily available. Medium-Term recommendations require more planning and funding to implement and can likely be accomplished in the 5 to 10 year timeframe. The Long-Term recommendations are generally more expensive and are likely to require significant planning to implement. It is noted that the longer timeframes may more closely align with typical NYSDOT timeframes used for programming funding. Specific long term improvements may be made sooner if funding becomes available.

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SECTION I

# Introduction

# Introduction

The best streets are comfortable to walk along with leisure and safety. They are streets for both pedestrians and drivers. They have definition, a sense of enclosure with their buildings; distinct ends and beginnings, usually with trees. Trees, while not required, can do more than anything else and provide the biggest bang for the buck if you do them right. The key point again, is great streets are where pedestrians and drivers get along together. - Allan Jacobs

Today's community transportation issues involve much more than moving vehicles and preserving safety and efficiency of travel. Creating walkable, liveable communities requires a balanced mix of land uses and a high degree of street and route connectivity. Public safety, economic development, the environment, and quality of life are also critically important in understanding transportation problems and solutions. There are opportunities in the Village of Scottsville to create strong, identifiable connections to activity centers, while also enhancing the safety and livability of North Road. For continuity purposes, a section of North Road outside the Village has been included in the study. A major goal of this study is to balance the need of motorists to pass through the Village on North Road, while also preserving and enhancing the corridor's character and walkability.

The quality of the public realm contributes to the overall economic and social well-being of a community. Streets and the public spaces along them must be attractive, safe, and function effectively. This study will carefully evaluate the existing streetscape and public realm experience and develop a framework for which to make enhancements that balance the needs of all users.

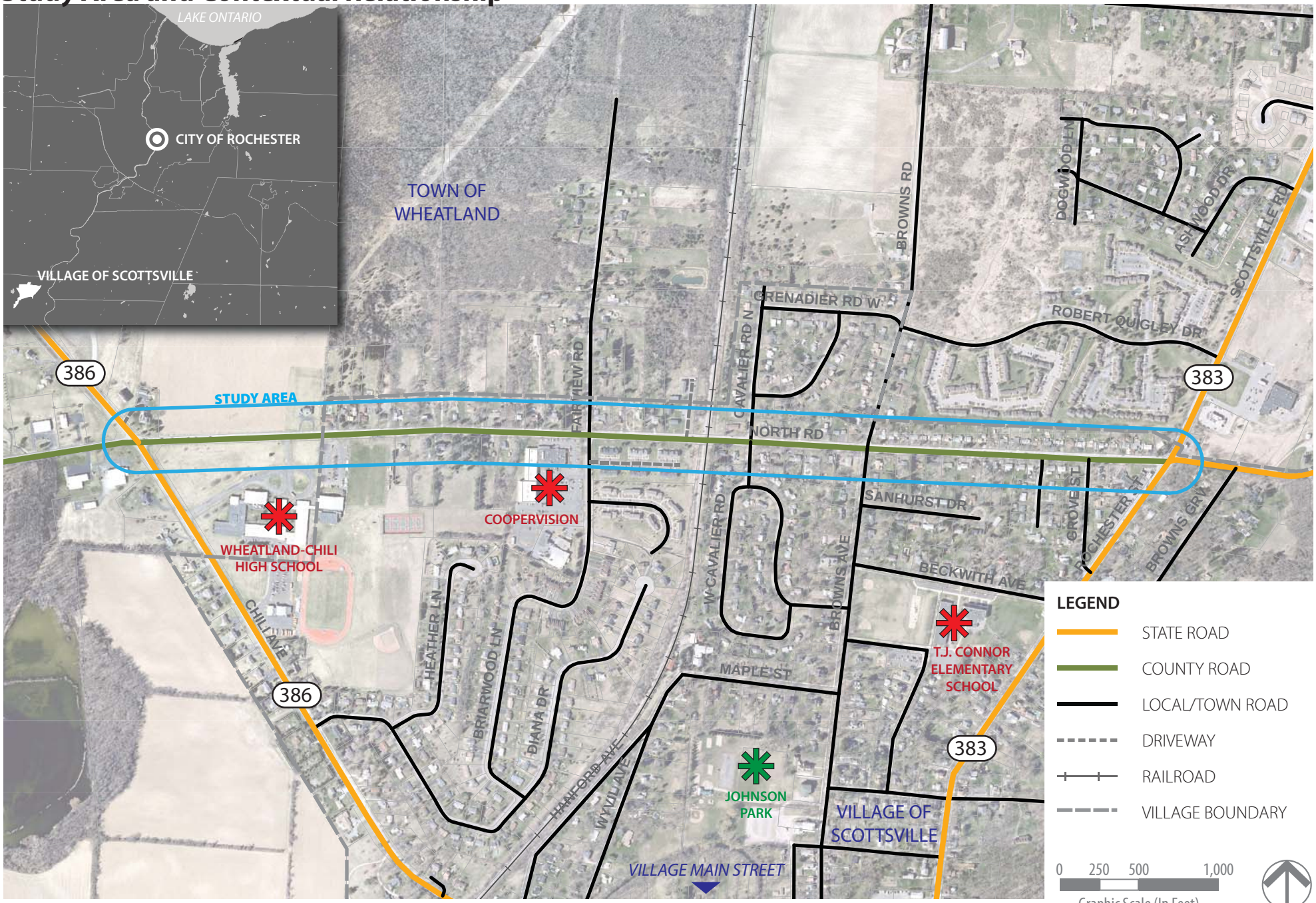
## Community Background and Study Area Description


The Village of Scottsville is located within the Town of Wheatland in southwestern Monroe County. Settlement of Scottsville dates back to 1786 when Ebenezer Allen, an early settler of lands west of the Genesee River, arrived with Isaac Scotts and settled on Otaka Creek. In 1789, the Village was officially founded and subsequently named after Isaac Scotts. The fertile lands provided great opportunities for the agricultural development. Later, the area would discover gypsum and achieve technological advancements such as the LeRoy-Scottsville Railroad, Genesee Valley Canal, electricity, and a village water supply and sewage system.

**Figure 1** illustrates the study area for which this report addresses. Currently, much of North Road's make-up is residential. However, two primary destinations along the corridor are Wheatland-Chili Senior High School and CooperVision, a globally-based contact lens company.

FIGURE 1

# Study Area and Contextual Relationship



North Road travels along the Village's northern border. The study area consists of six intersections within the Village and Town, stretching from NY 383 (Rochester Street) to NY 386 (Chili Avenue). North Road serves as an important connector roadway between Rochester and the nearby interstate highway system and communities further west.

▲ Existing view facing west along North Rd.

## Study Purpose, Process, & Preliminary Goals

The purpose of the *Village of Scottsville Traffic Circulation and Safety Study* is to develop feasible planning, design, and regulatory concepts that aim to improve circulation, accessibility, safety, and the overall North Road corridor appearance for pedestrians, bicyclists, and motorists alike. This plan will aid officials in guiding future projects in such a way as to achieve a balance among modes of transportation and land uses to promote Scottsville's goals as stated in the *Town of Wheatland/Village of Scottsville 2004 Comprehensive Plan*.


▲ Preliminary issues as a result of the kickoff meeting

At the beginning of the study, a Steering Committee (SC) was formed to establish Village priorities, provide continuity and oversight, and progress the goals of the *Comprehensive Plan* with respect to transportation and community design. The committee has guided the study process, facilitated a community Open House Design Workshop, and acted as liaisons to the broader community. Members of the committee include Village officials, nearby school and local business representatives, and interested residents. Other members include representatives from the New York State Department of Transportation (NYSDOT), Genesee Transportation Council (GTC), and Monroe County Department of Transportation (MCDOT). GTC is the regional Metropolitan Planning Organization (MPO) that is overseeing and administering the Village of Scottsville Traffic Circulation and Safety Study. GTC is responsible for the disbursement of federal aid monies for transportation-related projects, programs, and initiatives.

A Technical Advisory Committee (TAC) was formed to advise the project team of a variety of project elements. The TAC is comprised of representatives from MCDOT, NYSDOT, the Town of Wheatland Highway Department, Scottsville EMS, the Scottsville Fire Department, and the Wheatland-Chili School District.

At the project kickoff meeting, various issues were identified. As a result, there are nine issue categories that are a focus for

detailed study in this report. They include: safety concerns; congestion issues; speeding issues; the desire for additional sidewalks; a dedicated bicycle route; improved aesthetics; the desire for a gateway; parking needs; and any other issues identified throughout the study. The detailed results of the Public Open House Workshop held on Wednesday, December 5th, 2012 are discussed in further detail under the *Needs and Opportunities* section later in this report.

As a result of the feedback given, preliminary project goals have been established. These goals are aligned with the vision and recommendations set forth by previous plans for the Village of Scottsville, so as to develop a cohesive framework for actions implemented along North Road. These project goals are:

- Improve safety for all users
- Reduce vehicular speeds using traffic calming measures
- Enhance the pedestrian experience along the corridor
- Provide an integrated bicycling environment
- Improve the transportation system using innovative design
- Improve the overall aesthetics and community character

Participants in the Public Open House Workshop

SECTION II

# Inventory & Analysis

# Inventory & Analysis

## Community Assets

There are several community assets in close proximity to the North Road Study area. The Scottsville Ice Arena, located at 2000 Scottsville-Chili Road, is recognized as an asset. It is located north of the study area and offers both organized ice hockey programs as well as general skating for both adults and children. According to local stakeholder, people living in neighborhoods adjacent to North Road can be seen walking to the arena.

Johnson Park and Canawaugus Park are the two Village parks located in close proximity to the North Road corridor. Johnson Park is located near the geographic center of Scottsville, south of the North Road study area on Browns Avenue/Road. The Park is approximately 9 acres and contains a picnic pavilion, restrooms, volleyball courts, basketball courts, a playground, and ball fields. The park primarily serves as a neighborhood park. Canawaugus Park is a 1-acre park located near the southeastern corner of Scottsville that provides picnic tables and fishing access. The park can be accessed from River Road and "George" Bridge, which is an old railroad trestle that carries the Genesee Valley Greenway over Oatka Creek.[1]

## 2011 Village of Scottsville Tree Report

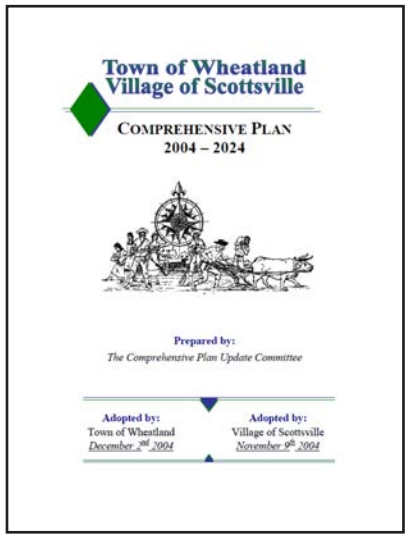
The *Village of Scottsville 2011 Tree Inventory Report* inventoried public tree conditions and recommended planting standards for future trees. The scope of the study included the North Road area and examined the quality of street trees. In general, the report identified the North Road right-of-way as a significant opportunity area for future plantings. The report indicated the Bur Oak adjacent to the Wheatland-Chili High School driveway as struggling, and in need of additional village resources. The Report should be used as a guide for future street tree planting along North Road.[2]

1 Town of Wheatland – Village of Scottsville Comprehensive Plan 2004 – 2024, Chapter 2; Page 35. Scottsville, NY: Village of Scottsville.
2 Urban Forestry, LLC. (2011). Village of Scottsville Tree Inventory Report, Page 17. Scottsville, NY: Village of Scottsville.

## Recent Plans and Studies

*2004 Town & Village Comprehensive Plan*

The Town and Village completed a joint comprehensive planning effort in 2004. The process resulted in a single plan that was adopted by both municipalities. The adoption of the joint plan by Scottsville and Wheatland indicates a broad level of support for the Plan's goals and policies. These goals include:




1. Preserve/Maintain Rural & Historic Character
2. Maintain/Promote Safety & High Quality of Life for Residents/Businesses
3. Protect/Enhance the Natural Environment & Resources
4. Attract/Promote Clean & Diverse Commerce, Technology & Industry
5. Provide High Quality & Efficient Municipal Services

The Comprehensive Plan contains a number of recommendations that pertain to this circulation and safety study. These include but are not limited to the following:

- **Chapter 2: Streetscapes** - In addition to the functionality of highways for transportation, there is another dimension frequently overlooked. The visual appeal of the street landscape, or 'streetscape' is an important factor when evaluating the overall appearance of a community. The results of the Public Information Survey revealed that citizens in our community are aware of the value of the beautiful streets. This is most evident in urbanized areas such as Scottsville and Mumford where the street is essentially an extension of the front yards. The trees, the sidewalks and the street lighting have the potential to enhance or detract from the visual appeal of each residence and business.

  When searching for property, the streetscape of a neighborhood sets the buyer's expectations for the quality of the neighborhood and the personalities of the neighbors. Appealing, well-kept streets imply a nice neighborhood with quality real estate and respectable neighbors. An ugly street implies the opposite. Therefore, based on the results of the Public Information Survey that indicates that the community as a whole values the nice appearance of our neighborhoods and the positive impression of the community that they reflect, there is a need to encourage streetscape improvements whenever feasible through capital improvements projects, tree planting and maintenance programs, beautification programs and the creation of public garden.

- **Chapter 4: Quality of Life & Commercial Policies** -
  - Maintain existing neighborhood amenities that promote walking, socializing and other neighborhood interaction. Features such as 'Dark Sky' compliant street lighting, street trees, sidewalks and wide shoulders are necessary for quality neighborhoods.
  - Discourage the current utility company hack-and-slash practice of tree trimming that resolves conflicts with wiring yet destroys the beauty of tree-lined streets by removing visible foliage and unbalancing the overall geometry of the street trees. Promote the use of skilled arborists by utility companies and public education regarding safe tree planting.
  - Ensure that development design practices in commercial areas promote safe and efficient vehicular and pedestrian movement among the various businesses, giving favor to site proposals that encourage pedestrian movement between nearby businesses.
  - Ensure adequate circulation among commercial sites for automobile and pedestrian traffic.
  - Minimize the number of curb cuts along major state and county highways and promote internal access solutions between commercial sites.

- **Chapter 6: Land Use & Zoning** - Expand moderate density residential land use along the western and southwestern edges of Scottsville, adjacent to other new homes along NYS Route 386 and the WCCS High School. The housing demand in this area appears to be high. This area either has, or is close to public water and sanitary sewer services. It is also within easy walking distance of the High School and other neighborhoods. Zoning in this area should only be changed once a complete review of the zoning requirements for the new district has been made. This area is envisioned as an extension of the "village" appearance, and as such the zoning requirements should be first revised to require sidewalks, street lighting and other features typically seen in "village" settings.

- **Chapter 6: Highway Safety & Pedestrian Mobility** - The Public Information Survey indicated that the community is concerned about the speed of traffic through our neighborhoods and the notable presence of truck traffic. Since Wheatland is a rural community, most residents are not accustomed to much traffic, congestion or traffic noise. Any increase is noticeable. It is no surprise that the community also noted that traffic impacts could negatively impact their good quality of life and could cause them to leave Wheatland and move to a more rural area.

  Traffic counts were reviewed and traffic volumes are growing[1]. It is suspected that these increases in traffic volumes can be attributed to growth in other communities to the south and west of Wheatland, such as Caledonia, LeRoy and other locations in Livingston and Genesee Counties. However, as Wheatland and these other areas continue to grow, traffic volumes will undoubtedly increase. So will commuter expectations and resident concerns. Commuters will want the fastest and easiest

1 Based on *2004 Town and Village Comprehensive Plan*. During 2012 existing conditions, traffic volumes have declined.

way to get through Wheatland, and on to their destinations in Rochester, Chili and Henrietta. Residents will want them to slow down and respect our community. Therefore, consideration should always be given to providing and maintaining safe and efficient commuter routes away from the heavily populated neighborhoods.

Young and old residents, as well as those that work in the community, are looking for new ways to maintain active lifestyles and get much-needed exercise. Walking and jogging are growing in popularity. One of the major factors that pedestrians take into consideration before choosing a route is safety. This not only includes separation from motor vehicles, many older exercise enthusiasts need a smooth and well-maintained surface to assure the lowest possibility of falling. Another key factor is continuity of the route. Patches of sidewalk and pieces of shoulders are not appealing for pedestrians.

Therefore, based on the citizens' desire to improve pedestrian access in the community, it is recommended that the Town of Wheatland and the Village of Scottsville continue upgrades to all types of pedestrian facilities under their jurisdiction, and communicate the same community desire for better pedestrian access to all highway agencies so that improvements can be implemented, as feasible. Improvements that should be considered include paved sidewalks, pedestrian-level lighting in heavily populated areas, widened shoulders on rural highways, asphalt or cinder trails in recreational areas, and street lighting at intersections and other hazardous locations in rural areas.

- Encourage Village of Scottsville policy interaction with NYSDOT on the NYS Route 253/383 project to incorporate traffic calming measures into the project to slow traffic, especially truck traffic, through the Scottsville village business area and the Rochester Street Historic District.

Since the completion of the Comprehensive Plan in 2004, the Village has continued to plan for its future. In 2007, Scottsville was one of two communites within our region that participated in the "*Preparing Village Main Streets for Planning*" effort. This plan identifies the Rochester St/North Rd/West Henrietta Rd intersection as a location that could benefit from enhanced pedestrian crossings. In 2009 a Main Street Improvement Study was completed for the central business district. Although there are land use and design principles within the Main Street Study that could be applied to the North Road Corridor, there are no specific recommendations that are made within the Main Street Study that pertain to this project.

Make no little plans; they have no magic to stir men's blood - Daniel Burnham

## Existing Land Use

The existing land use pattern within the Study Area is shown in **Figure 2** and is summarized below:

*Residential* - The dominant land use type along the North Road corridor is single family homes (shown in gray in **Figure 2**). In addition, there are two multi-family housing projects abutting North Road, west of the railroad tracks. Multi-family housing units are also located along Robert Quigley Drive within the Town. The multi-family housing units are classified as commercial and are shown in orange in **Figure 2**.


*Single Family Homes Along North Road*


*Townhomes Along North Road*


*Commercial Uses Along Rochester Street*


*Gas station at the east end of the study area*

*Commercial* - Commercial activity (shown in orange) is generally concentrated at the eastern and western ends of the study area. More specifically, commercial uses are located adjacent the intersections of North Road with NYS Route 386 and NYS Route 383.

*Industrial* - The industrial land uses along the North Road corridor are shown in yellow. These include the Cooper Vision facility is located at the corner of Briarwood Lane, in the Village. Outside of the Village, there is a small group of industrial operations west of NYS Route 386 on both sides of North Road.


*Cooper Vision*

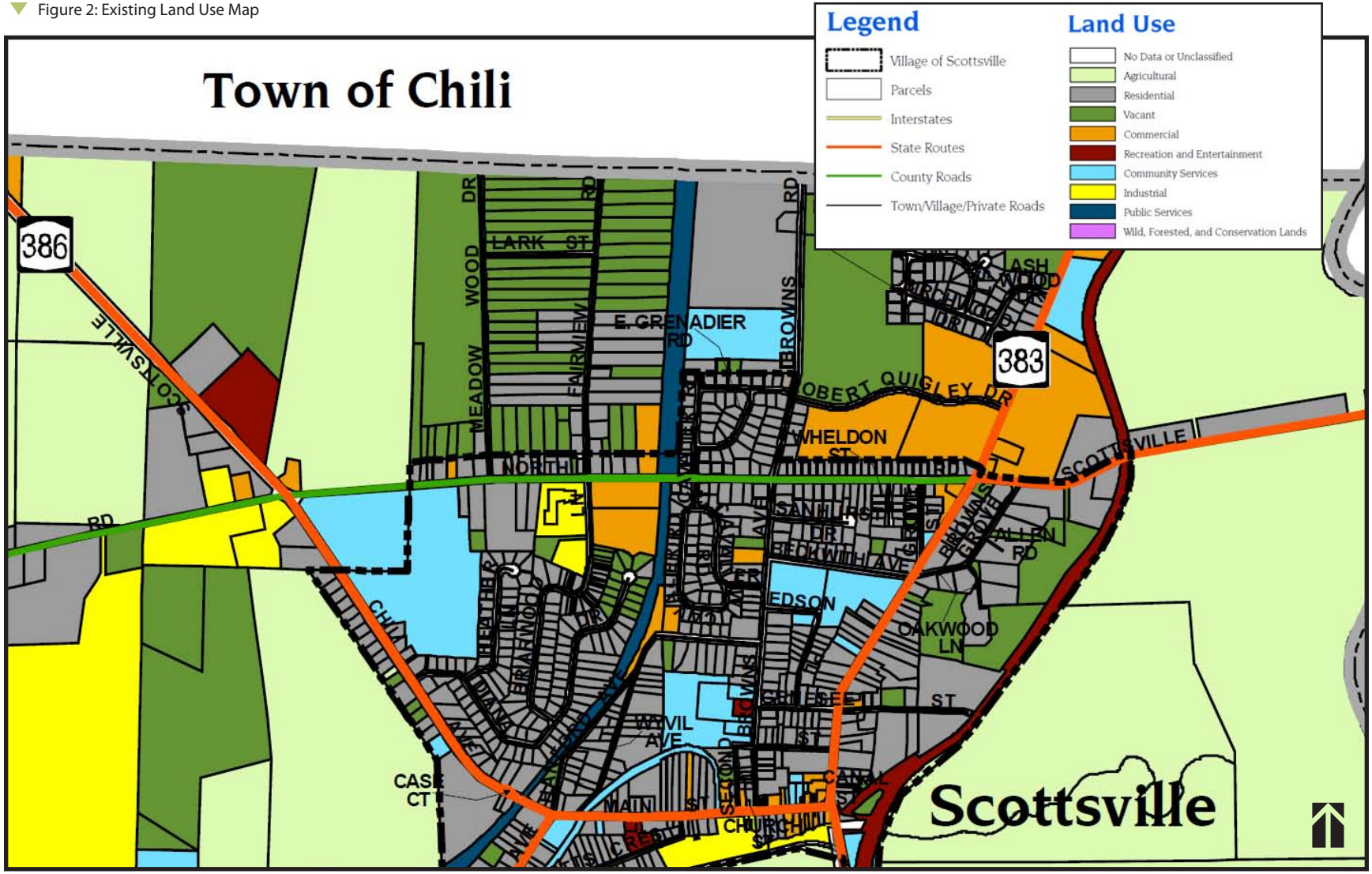

*ADRIA machine shop in Wheatland*


*Middle & High School Campus*


*Middle & High School Campus*

*Community & Agricultural* - The western end of the study area between NYS Route 386 and the Village line is dominated by two land use types. The north side of North Road is presently used for farming (shown in light green). The Wheatland Chili Middle and High School Campus is located on the south side of North Road and is shown in light blue.

Figure 2: Existing Land Use Map




*The Existing Land Use Map is re-printed from the 2004 Comprehensive Plan. A review of an Existing Land Use Map created by Monroe County Geographic Information Services Division in 2011 indicates the existing land use pattern within the project study area has remain relatively unchanged since the completion of the Town and Village Comprehensive Plan.*

## Current Zoning Summary

This section serves to summarize the regulatory language and requirements of the zoning districts that abut North Road within the project study area. This overview will provide a foundation upon which zoning recommendations can be made to correspond with the goals and objectives developed as part of the planning process. There are a total of seven zoning districts within the project limits; five within the Village and two in the Town. All the zoning districts rely on the standard functions of use and bulk regulations. These districts are shown in **Figure 3** and summarized below.

**R-1-16 One-Family Residence** - This District derives its name from its 16,000 square foot minimum lot size requirement. The primary intent of the R-1-16 District is to accommodate single family detached dwellings. However, other public and community uses are permitted by right or with a Special Exception. These uses include but are not limited to churches, parks, schools, and cemeteries.

**R-1-12 One-Family Residence** - This District derives its name from its 12,000 square foot minimum lot size requirement. The primary intent of the R-1-12 District is consistent with the R-1-16 District; to accommodate single family detached dwellings. The list of permitted and specially permitted uses are identical to the R-1-16 District with one exception. Funeral homes are permitted by right in the R-1-16 District and are allowed only by Special Exception in the R-1-12 District.

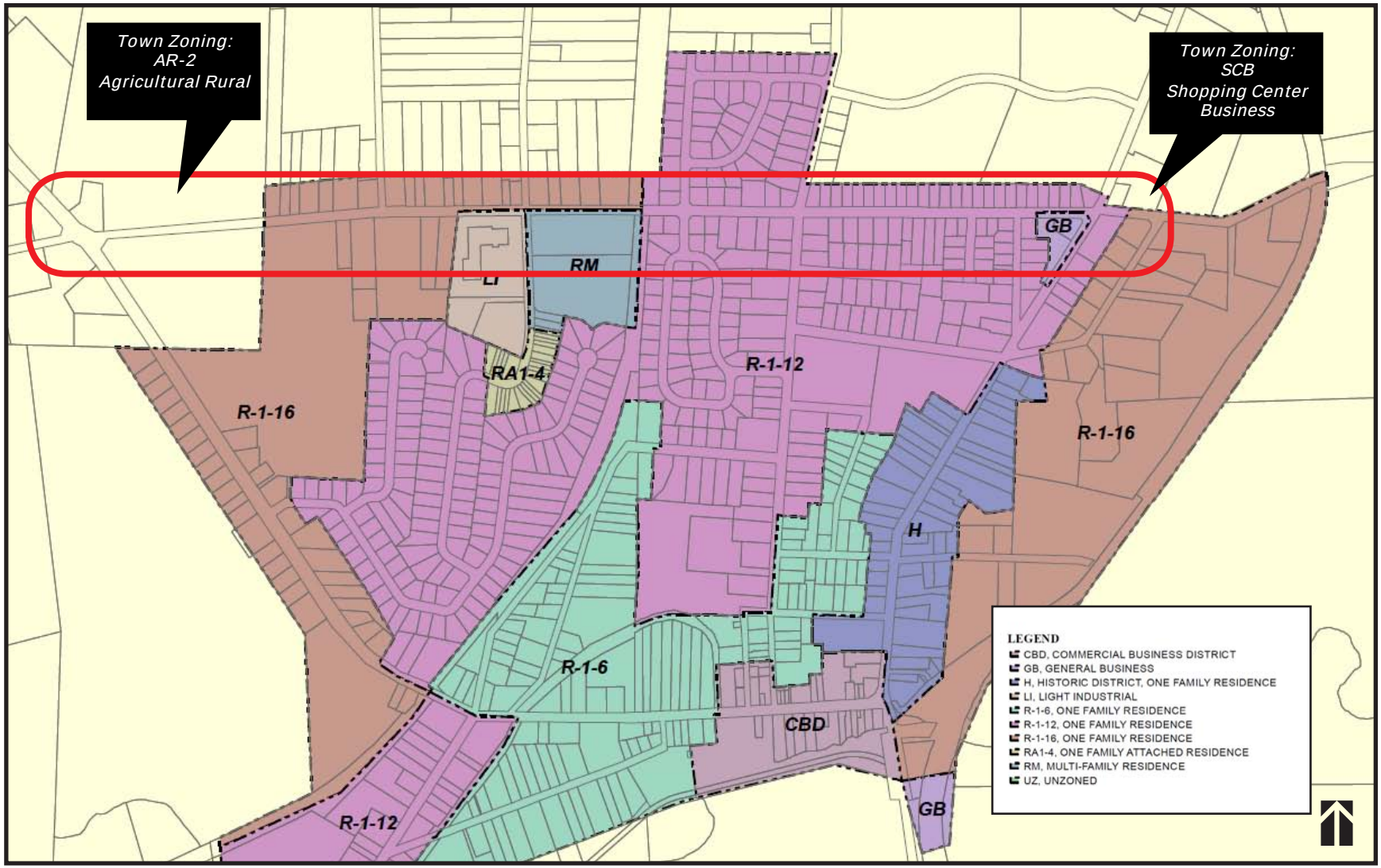
**RM Multiple Residence** - This District is intended to accommodate multi-family dwellings within the Village. The District also permits other public and community type uses.

**LI Light Industrial** - The purpose of the LI District is to accommodate manufacturing and related activities that are not considered a nuisance to the neighboring properties or the community at large. Permitted uses include but are not limited to offices, broadcasting studios, wholesale businesses, industrial operations, and warehousing. Uses allowed by Special Exception include greenhouses, outdoor recreation, truck terminals, research laboratories, and outdoor storage activities.

**GB General Business** - The intent of the GB District is to encourage a range of commercial activities. The permitted uses include professional offices, retail stores, restaurants, and taverns. Uses allowed by Special Exception include automobile oriented uses, larger scale commercial operations, and industrial activities.

**AR-2 Agricultural Rural** - "The purpose of the AR-2 Agricultural Rural District is to encourage a proper environment to foster normal agricultural operations and a rural, low-density, residential land use; to preserve viable land for agriculture;

Figure 3: Current Zoning Map




*The Current Zoning Map is provided by the Monroe County Department of Planning and Development.*

to assure compatible types and densities of rural development where public sewers and/or water service do not exist and are not envisioned; and to protect groundwater quality to the greatest extent possible by controlling development over established aquifers. It is intended to be rural in character with rolling open countryside, fields, woods and sparse development predominantly outside the higher-density business and residential areas. Any development in AR-2 should focus on preservation of agriculture, open space, wood lots and rural residential character. Business development, if permitted, should blend architecturally and visually with adjacent residential and agricultural uses. All development should be compatible with the surrounding area." Permitted uses include single family homes, churches, parks, and agricultural uses. Uses allowed by Special Exception include two-family dwellings, kennels, nursing homes, hospitals, and greenhouses.


▲ Agricultural Rural Aerial


▲ Shopping Center Business Aerial

**SCB Shopping Center Business** - "The purpose of the SCB Shopping Center District is to provide planned commercial development of sites that provide principally personal services and that are primarily accessible by motor vehicles and which require on-site parking. It is intended that structures in the SCB District shall relate to a common design theme and shall complement the adjacent residential neighborhoods." The permitted and specially permitted uses are very similar to those allowed in the Village's GB District. These uses include but are not limited to retail and service establishments, professional offices, and taverns. Specially permitted uses include churches and other community facilities, and automobile oriented commercial operations.

## North Road Transportation Characteristics

North Road (County Road 139) is a Monroe County highway that travels in an east/west orientation and connects NY Route 386 (Scottsville-Chili Road/Chili Avenue) in the Town of Wheatland to the west and NY Route 383 (Rochester Street/Scottsville Road) in the Village of Scottsville to the east. The portion of the roadway within the study area is functionally classified as an urban collector roadway. There is one travel lane in each direction. The speed limit posted along North Road is 30 miles per hour (MPH).


▲ Commemorative signage

### *Quick Facts*

Functional Classification:
**Urban collector**

Right-of-way:
**66 feet**

Sidewalk on south side:
**~4 feet**

Travel-way width:
**~23-24 feet (10' travel lanes, 1'-6" shoulders)**

Speed limit:
**30 mph**

Transit:.
**Rochester Regional Transit Service**

Bicycle Facilities:
**1'-6" shoulder on both sides**

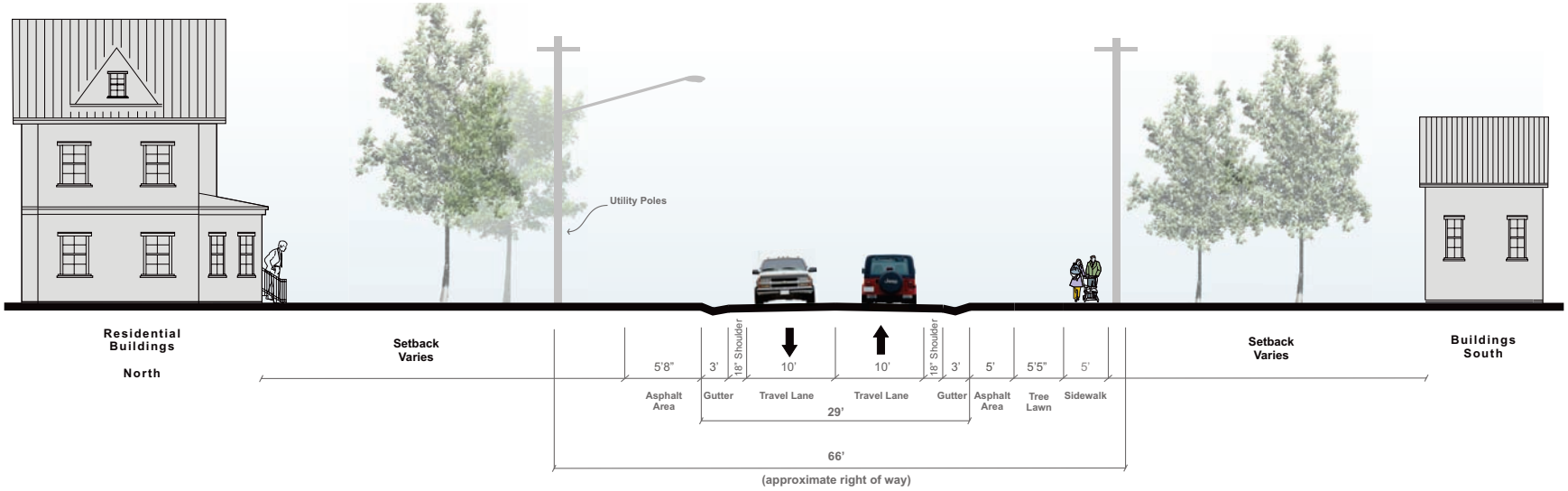
Detached Shoulder Space:
**5' - 6' asphalt area available for parking, peds, bikes**

▲ Existing view facing east

▲ Existing view facing west

▲ Existing view facing west

▼ Typical existing cross-section looking east




▲ Existing view facing west

Note:
The portion of North Road west of WCHS has a different cross-section.

*Dimensions are:*
8' shoulders and 10' travel lanes (each direction)

▲ Existing view facing west

## Existing Traffic Data & Analyses

Weekday AM (6:00AM-8:00AM) and afternoon school time (1:45PM-3:45PM) vehicular turning movement count volumes and pedestrian crossings were collected by SRF & Associates at six intersections within the study area on Wednesday, October 31, 2012. Additional PM commuter peak turning movement counts were conducted at the intersections of NY 383 and NY 386 between 4:30PM-6:00PM. The existing peak hour volumes are illustrated on **Figures 4 through 6** and provided in the Appendices. The study team observed and documented traffic operations along North Road during peak and off-peak hours.

*Average Daily Traffic & Speed Assessment*

Average daily traffic (ADT) volumes on North Road were documented using a radar machine (between WCHS and CooperVision) that collected volume, speed and vehicle classification data over a 24 hour period on November 1st, 2012. The ADT was 3,889 vehicles per day (vpd): 1,952 vpd westbound and 1,937 vpd eastbound comprised of 3.7% truck traffic. Traffic volumes have decreased since the most recent machine count data by NYSDOT in 2009 - 4,645 vpd. **Table 1** depicts the hourly distribution of traffic volumes over the course of the day. The bi-directional (eastbound/westbound) traffic is split relatively evenly, with minor deviations during the AM and midday school time peaks. **Table 2** describes the average and 85th percentile motor vehicle speeds on North Road.

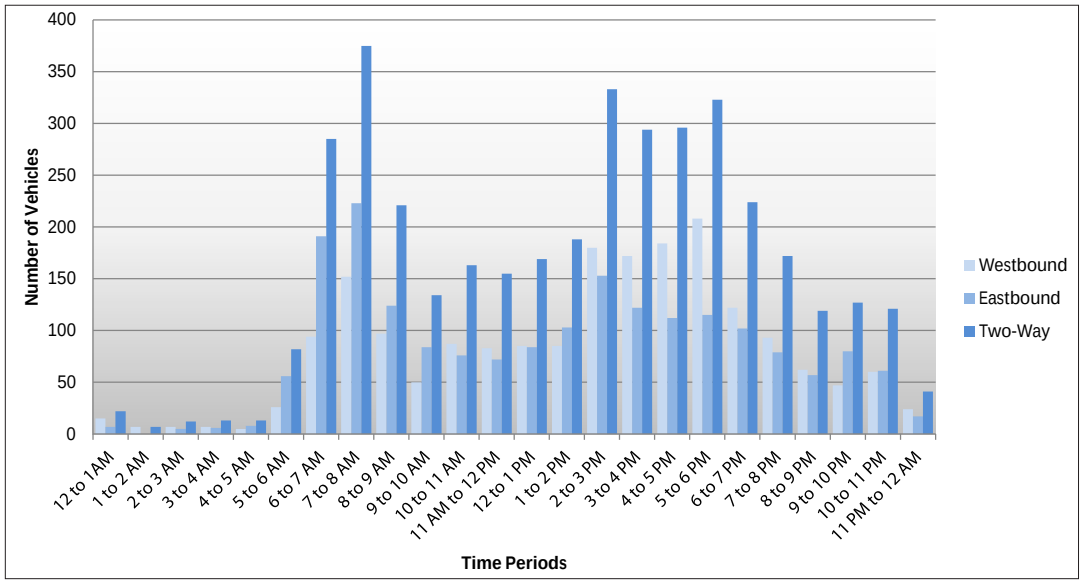



Table 1: 24-hour traffic data

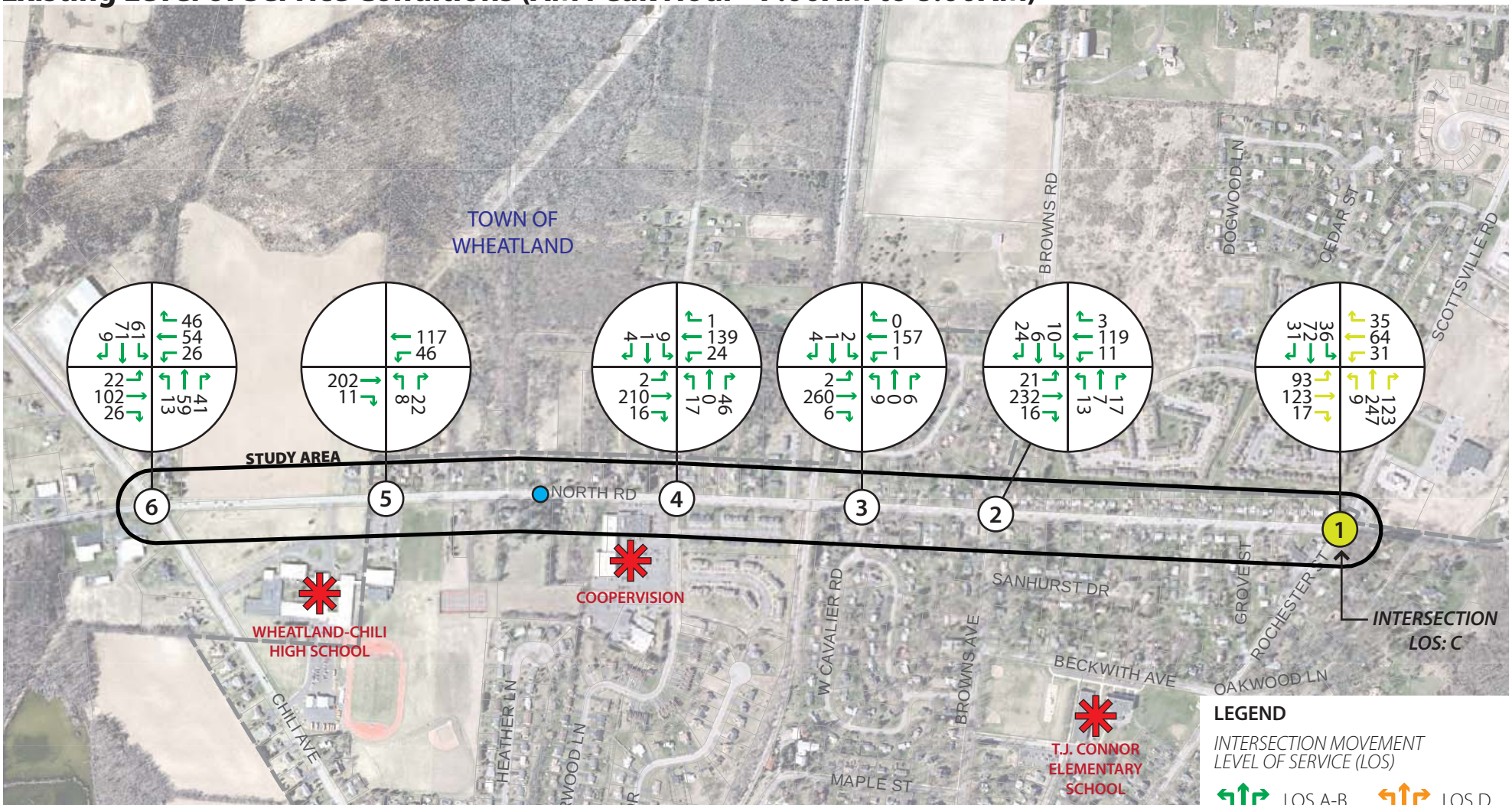
| | Eastbound | Westbound |
|---|---|---|
| Average Speed | 32 MPH | 34 MPH |
| 85th Percentile Speed | 37 MPH | 40 MPH |

Table 2: Traffic speeds

Note:
The radar traffic counter was located between intersections 4 & 5, as depicted on the following page.

FIGURE 4

# Existing Level of Service Conditions (AM Peak Hour - 7:00AM to 8:00AM)




Location of radar traffic counter

**INTERSECTIONS (NORTH ROAD at)**

1. Rochester Street (NY 383)
2. Browns Road/Avenue
3. Cavalier Road
4. Briarwood Lane/Fairview Road
5. WCHS Student Parking Lot
6. Chili Avenue (NY 386)

**LEGEND**

*INTERSECTION MOVEMENT LEVEL OF SERVICE (LOS)*

LOS A-B
LOS C
LOS D
LOS E-F

VILLAGE BOUNDARY

Note: Intersection of Rochester Street and North Road is signalized. All other intersections are unsignalized.

0 250 500 1,000

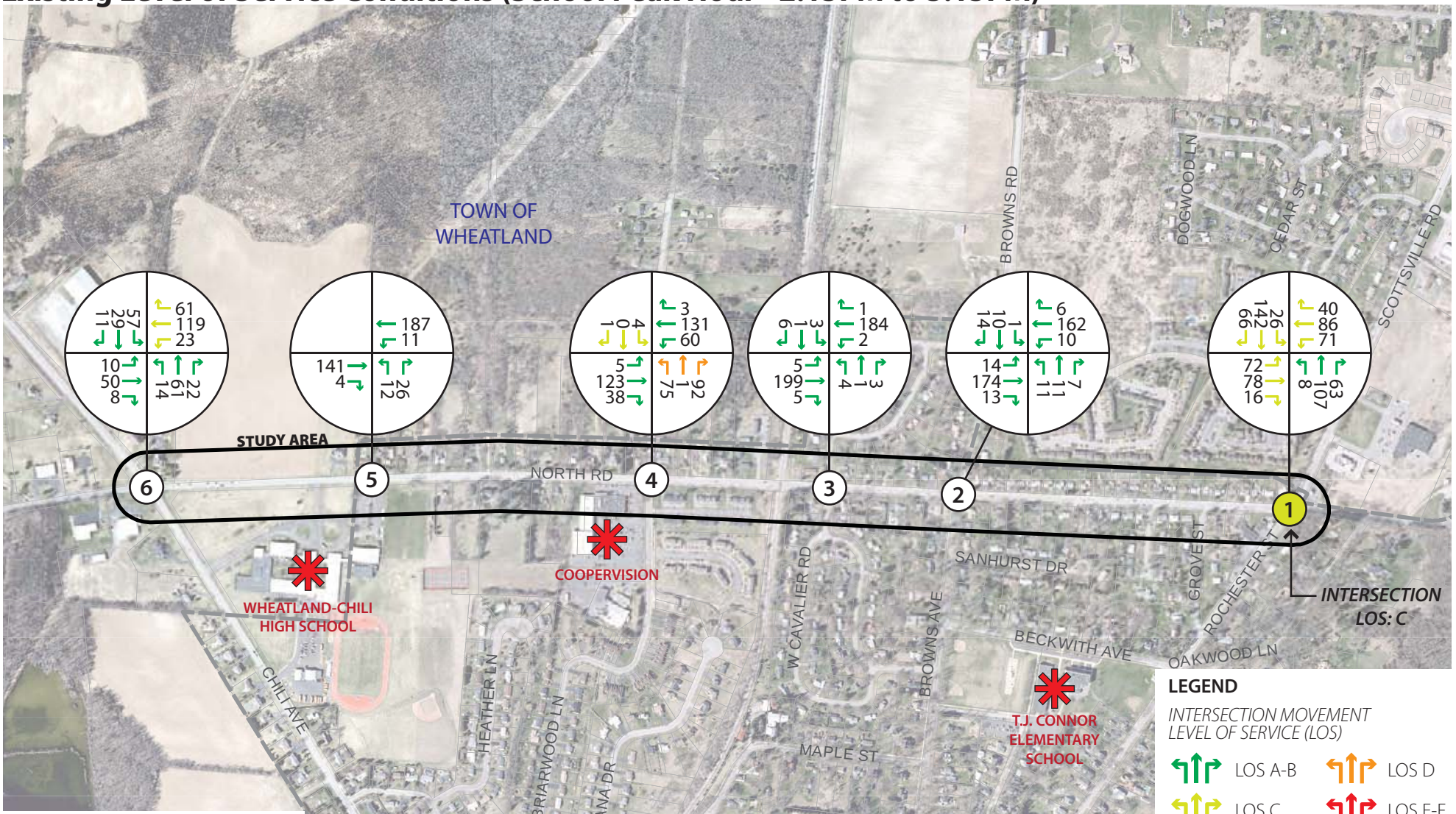
Graphic Scale (In Feet)



MAP DRAWN: DECEMBER 11, 2012

FIGURE 5

# Existing Level of Service Conditions (School Peak Hour - 2:15PM to 3:15PM)




**INTERSECTIONS (NORTH ROAD at)**

1. Rochester Street (NY 383)
2. Browns Road/Avenue
3. Cavalier Road
4. Briarwood Lane/Fairview Road
5. WCHS Student Parking Lot
6. Chili Avenue (NY 386)

**LEGEND**

*INTERSECTION MOVEMENT LEVEL OF SERVICE (LOS)*

LOS A-B
LOS C
LOS D
LOS E-F

VILLAGE BOUNDARY

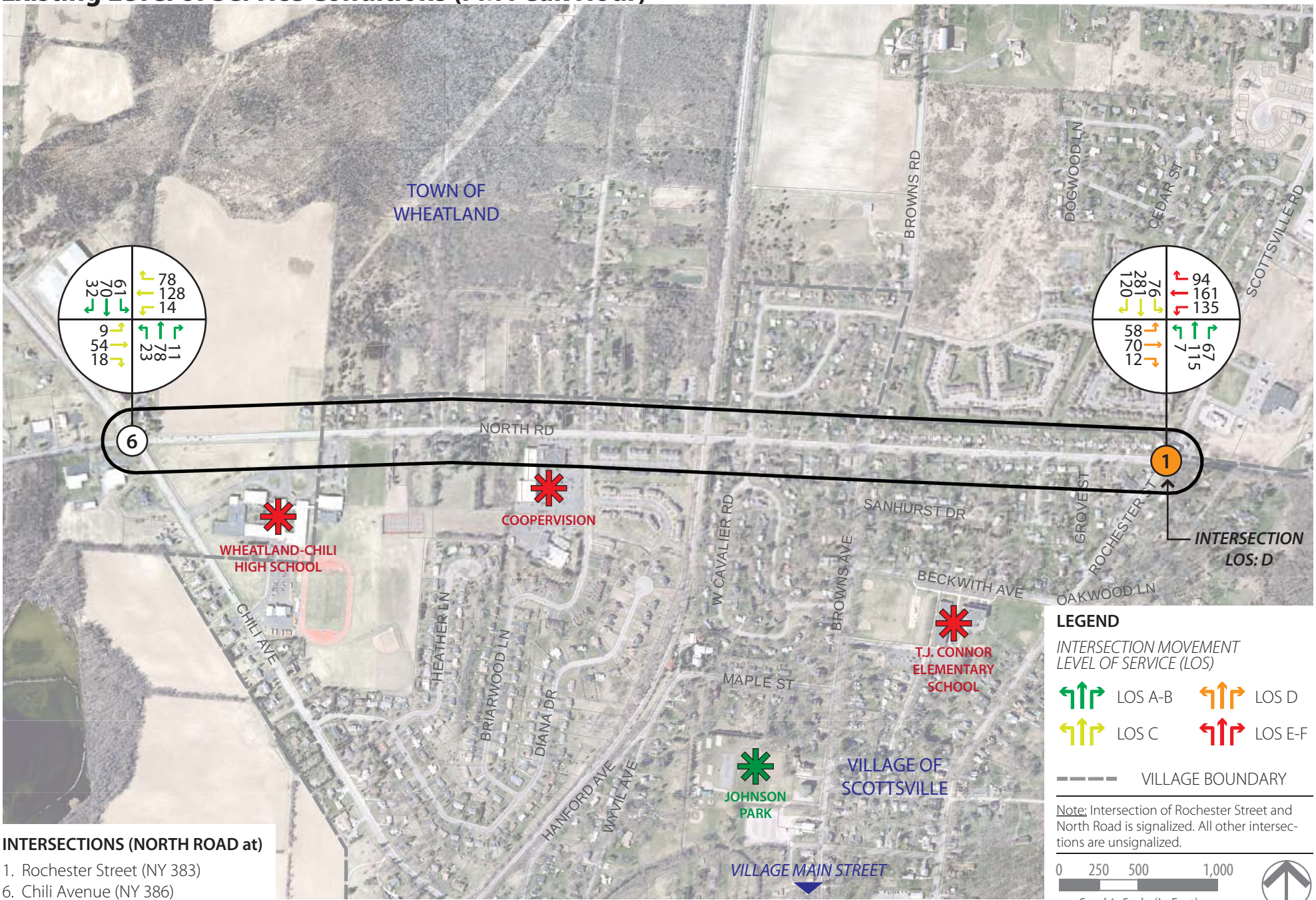
Note: Intersection of Rochester Street and North Road is signalized. All other intersections are unsignalized.

0 250 500 1,000

Graphic Scale (In Feet)

FIGURE 6

# Existing Level of Service Conditions (PM Peak Hour)




**INTERSECTIONS (NORTH ROAD at)**

1. Rochester Street (NY 383)
6. Chili Avenue (NY 386)

**LEGEND**

*INTERSECTION MOVEMENT LEVEL OF SERVICE (LOS)*

LOS A-B
LOS C
LOS D
LOS E-F

VILLAGE BOUNDARY

Note: Intersection of Rochester Street and North Road is signalized. All other intersections are unsignalized.

0 250 500 1,000

Graphic Scale (In Feet)

*Vehicular Traffic Analysis*

Data was collected to assess the quality of traffic flow for the existing AM commuter peak, afternoon school peak, and PM commuter peak hour conditions. Capacity analysis is one technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Intersection capacity analyses have been performed and described in this section of the report.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing operating conditions with the least time delay. LOS "F" is the least desirable operating condition where longer delays are experienced by motorists. The standard procedure for capacity analysis of signalized and unsignalized intersections is outlined in the *2010 Highway Capacity Manual* (HCM 2010). Traffic analysis software, SYNCHRO (Build 773, Rev 8), which is based on procedures and methodologies contained in the HCM 2010, was used to analyze operating conditions at study area intersections. The procedure yields a Level of Service (LOS) based on the HCM 2010 as an indicator of how well intersections operate. Existing operating conditions are documented in the field and modeled using traffic analysis software. The traffic analysis models are calibrated based on the actual field observations.

Existing operating conditions during the peak study periods are evaluated to determine a basis for comparison with the future no-build conditions. Capacity results for existing and future no-build conditions are depicted in **Figures 4 through 6** (previously) and **Figures 11 through 13** (no-build later in report) respectively. All capacity analysis calculations are included in the Appendices.

Analysis of the existing intersections indicates that all movements operate at an acceptable LOS of "C" or better during the AM peak hour. The only signalized intersection, Rochester Street, operates at overall LOS "C." Westbound, northbound and eastbound movements operate at LOS "C", while the southbound movement operates at LOS "B" or greater. All other movements for the remainder of the study area intersections operate at LOS "B" or greater.

During the school peak hour, intersection one operates at overall LOS "C." All movements operate at LOS "C" or better. Intersections two, three and five operate at LOS "B" or greater for all movements. The northbound movement at intersection four operates at LOS "D", while the southbound operates at "C." Eastbound and westbound movements operate at LOS "B" or greater. The westbound movement at intersection six operates at LOS "C." All other movements at intersection six operate at LOS "B" or greater.

PM peak hour results indicate an overall LOS "D" for the Rochester Street intersection, as shown in **Figure 6.** The westbound movement operates at "F." The Chili Avenue intersection results in an LOS "C" for the eastbound and westbound directions.

*Safety Evaluation*

Accident reports were investigated to assess the safety history at the intersections within the study area. The vehicular accidents included in the current review collectively covered a three-year time period from January 2009 through December 2011; pedestrian and bicycle related crashes were reviewed for the time period from 2007 to 2012. During the three-year time period for vehicular crashes, a total of 29 were documented along North Road; comprised of 27 intersection related crashes and two crashes in the segments between Chili Avenue (NY Route 386) and Rochester Street (NY Route 383). Crashes at NY Routes 383 and 386 were calculated using NYSDOT crash rates for similar intersections. Crash rates at all other study area intersections were calculated based on MCDOT crash rates. **Figure 7** illustrates the crash summary.

> Accidents, and particularly street and highway accidents, do not happen - they are caused. - Ernest Greenwood, Rep. New York

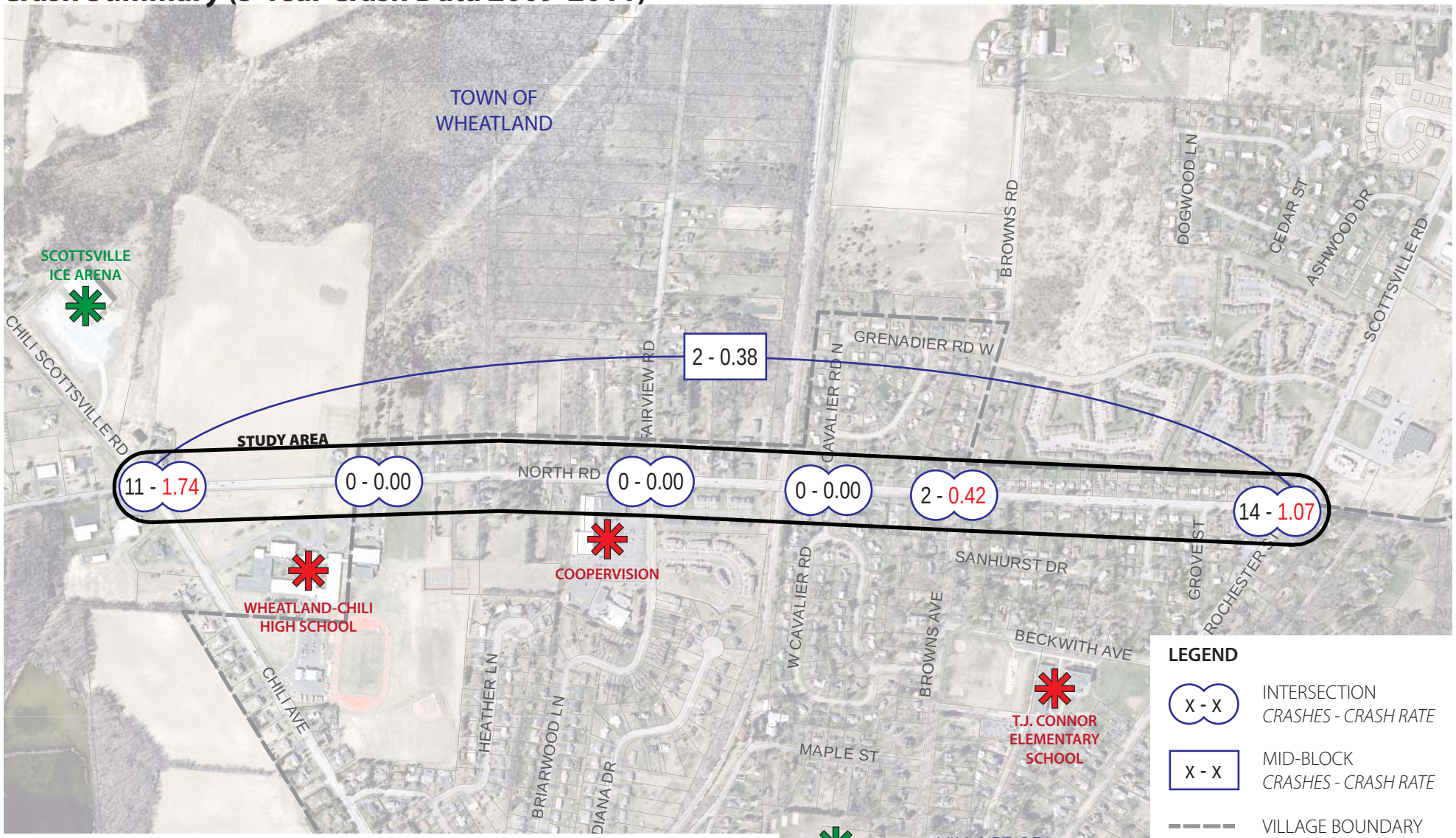
Of the 27 intersection incidents, 14 of the crashes occurred at NY Route 383, while two occurred at Browns Avenue/Road. The remaining 11 crashes occurred at NY Route 386. There were no incidents reported at North Cavalier Road, Briarwood Lane, and the Wheatland-Chili Senior High School parking lot. Regarding segment related crashes, one crash occurred between the intersections of North Cavalier Road and Briarwood Lane; and the WCHS parking lot and NY Route 386. No pedestrian or bicycle related crashes were reported during the reviewed time period.

| Int. ID | ACCIDENT SEVERITY | | | | | | | TYPE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Injury | | | | | PDO | Total | SideSwipe | | Angle | Right Turn | Left Turn | Over taking | Rear End | Fixed Object | Unknown | Animal | Head On | Ped/ Bike | Total |
| | Fatal | Major | Moderate | Minor | Unknown | | | Same | Opp. | | | | | | | | | | | |
| **INTERSECTION RELATED** | | | | | | | | | | | | | | | | | | | | |
| 1 - NY 383 | | | 2 | 4 | | 8 | **14** | 1 | | | | 2 | | 3 | 3 | 3 | 1 | 1 | | **14** |
| 2 - Browns | | | | | | 2 | **2** | | | 2 | | | | | | | | | | **2** |
| 3 - Cavalier | | | | | | | **0** | | | | | | | | | | | | | **0** |
| 4 - Briarwood | | | | | | | **0** | | | | | | | | | | | | | **0** |
| 5 - WCHS | | | | | | | **0** | | | | | | | | | | | | | **0** |
| 6 - NY 386 | | | 1 | | | 10 | **11** | | | 3 | | 1 | 1 | 1 | 3 | | 2 | | | **11** |
| **SEGMENT RELATED** | | | | | | | | | | | | | | | | | | | | |
| Int. 1 to Int. 2 | | | | | | | **0** | | | | | | | | | | | | | **0** |
| Int. 2 to Int. 3 | | | | | | | **0** | | | | | | | | | | | | | **0** |
| Int. 3 to Int. 4 | | | | 1 | | | **1** | | | | | | | 1 | | | | | | **1** |
| Int. 4 to Int. 5 | | | | | | | **0** | | | | | | | | | | | | | **0** |
| Int. 5 to Int. 6 | | | | | | 1 | **1** | | | | | | | 1 | | | | | | **1** |

Table 3: Accidents by severity and type

FIGURE 7

# Crash Summary (3-Year Crash Data 2009-2011)




Notes:

1. Crash rates at the intersections of Chili Ave/Chili-Scottsville Rd and Rochester St/Scottsville Rd are compared to NYSDOT averages. Rates include all reportable and non-reportable crashes.
2. Crash rates at all other study area intersecetions are compared to MCDOT averages. Rates include reportable crashes only.

## Pedestrian Realm Evaluation

The pedestrian realm can be defined as the area of the right-of-way (ROW) between the roadway and the abutting building façade or, in the case of North Road, adjacent property lines. This is the primary area designated for pedestrian circulation. The pedestrian realm often includes:

- Sidewalks;
- Buffers, which are areas between the sidewalk and the roadway, used to create space between pedestrians and vehicular traffic;
- Plantings or landscaped buffers;
- Street/pedestrian lighting;
- Pedestrian amenities – features for convenience and safety of pedestrians (e.g., benches, pedestrian signals, curb ramps);
- Signage; and
- Street furniture (e.g., benches, waste and recycling containers, public art)

> Everywhere is walking distance if you have the time
>
> – Steven Wright

Oftentimes, traffic control devices, road signage, and other objects are placed within the pedestrian realm, but may not be intended for the use of pedestrians. In this case, these items can become obstructions for pedestrians.

Existing view facing east

It is important that pedestrian related facilities be provided in areas that experience frequent pedestrian traffic. Pedestrian facilities can encourage a more active lifestyle leading to improved health, lower transportation related costs, and reduced roadway congestion. Focusing investments on pedestrian related improvements can also improve safety for adults and children alike, especially in areas where there are students who choose to walk to school versus using being dropped off or using the bus.

The Consultant Team performed a field audit of pedestrian related amenities. **Figure 8** shows the location of corridor-wide sidewalks, marked crosswalk locations, and nearby recreational destinations. During the time of data collection, pedestrians were found to be using the sidewalks and crossing at marked crosswalk locations, while some crossed at mid-block locations. It is noted that crossings do not currently meet design standards as establish by the American with Disabilities Act (ADA), such as no curb ramps or tactile detector pads. Critical variables were documented during the data collection process and were utilized

FIGURE 8

# Parks and Recreational Facilities

to evaluate how well the North Road corridor serves non-motorized users. Some of the variables include:

- Sidewalk width/quality
- Buffer space width
- Crossing facilities (e.g., marked crosswalks) and locations
- Pedestrian amenities
- Pedestrian generators (linkage opportunities)
- Conflict points (i.e., locations where a pedestrian is in direct conflict with vehicular traffic while using the sidewalk)
- Features providing additional comfort, convenience, or safety for the pedestrian
- Personal security (the feeling of safety – lighting, dark/under lit areas, etc.)

What attracts people most, it would appear, is other people - William H. Whyte

A Pedestrian Level of Service Model has been developed for the pedestrian realm on both sides of the roadway, along the length of the corridor. The corridor is divided into three segments based on the unique characteristics of each segment. Every segment of the North Road pedestrian realm, on both the north and south sides of the road, has its own LOS score ranging from A-E, based on the pedestrian realm variables previously described.

The Australian method, developed by Nicole Gallin for calculating Pedestrian Levels of Service, was used for analysis purposes in this study[1]. A research paper entitled "*Application of Level of Service Methods for Evaluation of Operations at Pedestrian Facilities*" published in the *Transportation Research Record* (TRB) in 2002 compared five different pedestrian LOS methodologies. This method was chosen upon review of the previously mentioned research paper and because of the critical pedestrian realm factors that are considered in calculating the LOS score. The Australian Method is focused on safety, as well as the relative comfort and convenience for pedestrians, which the *Highway Capacity Manual* methodology neglects to measure.

The consultant team, in collaboration with the Steering Committee, has assigned weights to the Pedestrian LOS variables, ranging from 1 to 5, corresponding to their importance in the context of the North Road corridor. The scale depicted in **Table 4** was used for determining the weight of each variable.

| Weighting Scale | |
|---|---|
| 1 | least important |
| 2 | less important |
| 3 | important |
| 4 | more important |
| 5 | most important |

Table 4: LOS weighting scale

1 Gallin, Nicole (February 2011), *Australia: Walking the 21st Century ~ 20th to 22nd*

In order to clarify why variables were assigned a specific weight, the following explanations are presented:

**5 - Path Width** - Along the North Road Corridor, the width of the sidewalk is important in terms of comfort and a perception of safety.

**5 - Surface Quality** - The quality of the sidewalk's surface is of great importance to users for safety and perception of the environment, and has been weighted accordingly for this assessment.

**3 - Obstructions** - Obstructions can be a problem for those users with mobility impairments; however, due to a lack of major obstructions along the corridor, this variable was assigned an average weight of importance.

**3 - Crossing Opportunities** - Concern was expressed that pedestrian crossing facilities should be given particular attention in this study; therefore, they were weighted as slightly more important in this assessment.

**1 - Support Facilities** - Pedestrian amenities and road characteristics suited to pedestrians are likely to contribute to users' desire to walk the corridor; however, given the nature of the corridor, they were not weighted heavily.

**5 - Connectivity** - The degree to which the path provides a useful, direct and logical link between key departure points and destinations is an important measure of the walkability of the corridor and was weighted accordingly.

**5 - Path Environment** - The quality and width of buffer space between a pedestrian and vehicular traffic contributes positively to that pedestrian's level of comfort; hence, buffer space was weighted more important in this assessment.

▲ Sidewalk adjacent to Rochester St

▲ Crossing at Browns Ave

**2 - Potential for Conflict** - Pedestrian/vehicle conflicts is not a highly recognized issue along the North Road Corridor, despite the numerous driveways. The driveways are not heavy traffic generators, as the single family residences is the dominate land use. This factor has been weighted accordingly.

**3 - Pedestrian Volume** - Since the North Road Corridor is low intensity suburban/rural in character, and not a bustling downtown core, the presence of other pedestrians will not significantly decrease a users' comfort, therefore this variable was assigned an average weight.

**5 - Mix of Users** - Most of the users observed on the sidewalks of North Road were walking (as opposed to skateboarding, rollerblading, etc.). The presence of other non-walking users can significantly decrease a user's comfort; therefore, this variable was assigned a high weight.

**2 - Personal Safety** - User comfort is diminished if there is any perception that criminal activities or violence is prevalent in the surrounding community; however, this variable was weighted lower based on the nature of the community.

The LOS is determined by the total point value accumulated, which is calculated by multiplying the points awarded to each variable based on field data by the weight of that variable. The LOS is determined by the point scale in **Table 5**.

*Level of Service Grading Scale*

It should be noted that Pedestrian Level of Service differs greatly from Vehicular Levels of Service. A Level of Service of "C" is generally considered an acceptable vehicular level of service. However, a Level of Service of "C" or lower for a pedestrian level of service indicates that while basic pedestrian conditions exist, a significant number of factors impact the pedestrians' safety and comfort.

Therefore, a pedestrian LOS of "B" or greater is a desirable score for a segment of pathway or sidewalk.

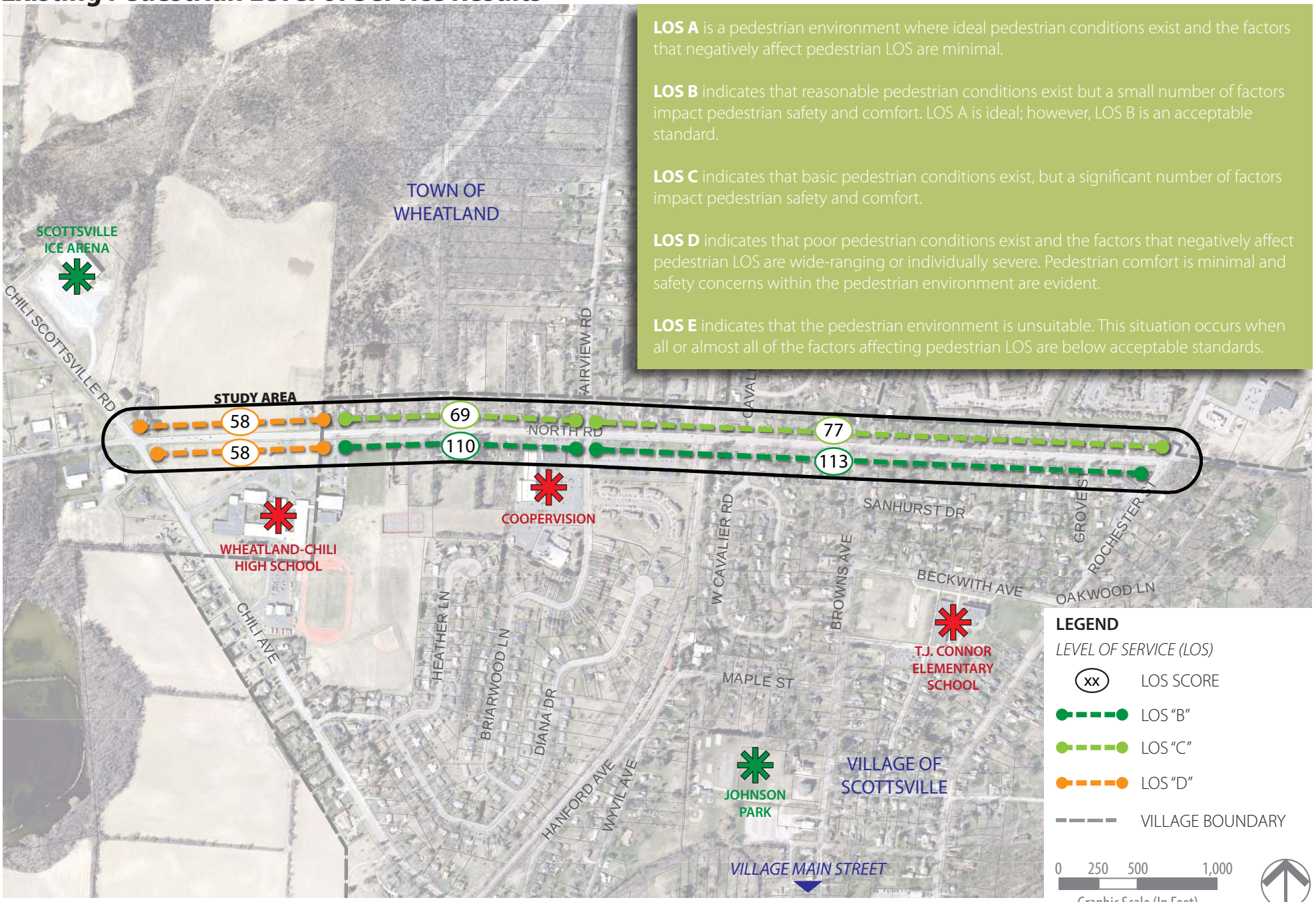
| Level of Service Scale | |
|---|---|
| LOS A | ≥ 132 points |
| LOS B | 101-131 points |
| LOS C | 69-100 points |
| LOS D | 37-68 points |
| LOS E | ≤ 36 points |

Table 5: LOS scoring scale

The pedestrian LOS along the North Road Corridor ranges from LOS "D" to "B". Generally, the LOS of the segments on the south side of North Road was better than those on the north side based on the presence of a sidewalk. **Figure 9** illustrates the pedestrian LOS for the segments analyzed.

FIGURE 9

# Existing Pedestrian Level of Service Results




**LOS A** is a pedestrian environment where ideal pedestrian conditions exist and the factors that negatively affect pedestrian LOS are minimal.

**LOS B** indicates that reasonable pedestrian conditions exist but a small number of factors impact pedestrian safety and comfort. LOS A is ideal; however, LOS B is an acceptable standard.

**LOS C** indicates that basic pedestrian conditions exist, but a significant number of factors impact pedestrian safety and comfort.

**LOS D** indicates that poor pedestrian conditions exist and the factors that negatively affect pedestrian LOS are wide-ranging or individually severe. Pedestrian comfort is minimal and safety concerns within the pedestrian environment are evident.

**LOS E** indicates that the pedestrian environment is unsuitable. This situation occurs when all or almost all of the factors affecting pedestrian LOS are below acceptable standards.

**LEGEND**

*LEVEL OF SERVICE (LOS)*

- (xx) LOS SCORE
- LOS "B"
- LOS "C"
- LOS "D"
- VILLAGE BOUNDARY

0 250 500 1,000

Graphic Scale (In Feet)

## Bicycle Accommodations

Bicycle safety is judged on the presence or absence of a dedicated bicycle facility, shared lane widths and the amount of space a cyclist needs to safely maneuver. Other considerations which affect bicycle safety are speed limits; ADT volumes; lane width and should space; and pavement conditions. Bicycle infrastructure and facilities were reviewed during field observations of the study area. North Road has been rated as "Good" in the GTC Bicycling Map handout. This rating is the highest rating possible.

While North Road within the study area does accommodate bicyclists, it does so using a non-typical cross-section design. Currently bicyclists are able to ride on an asphalt area which is buffered from vehicles by a gutter space. In terms of on-road facilities, there are no bicycle lanes and only a narrow shoulder space from the intersection of Rochester Street to the WCHS for bicyclists to use. The travel lanes are generally too narrow to accommodate bicycles riding alongside vehicular traffic. In most cases, bicycle users must use the aforementioned asphalt area, the sidewalk, or ride within the travel lanes and narrow shoulder, depending on the skill level of the rider.

> Nothing compares to the simple pleasure of a bike ride - John F. Kennedy

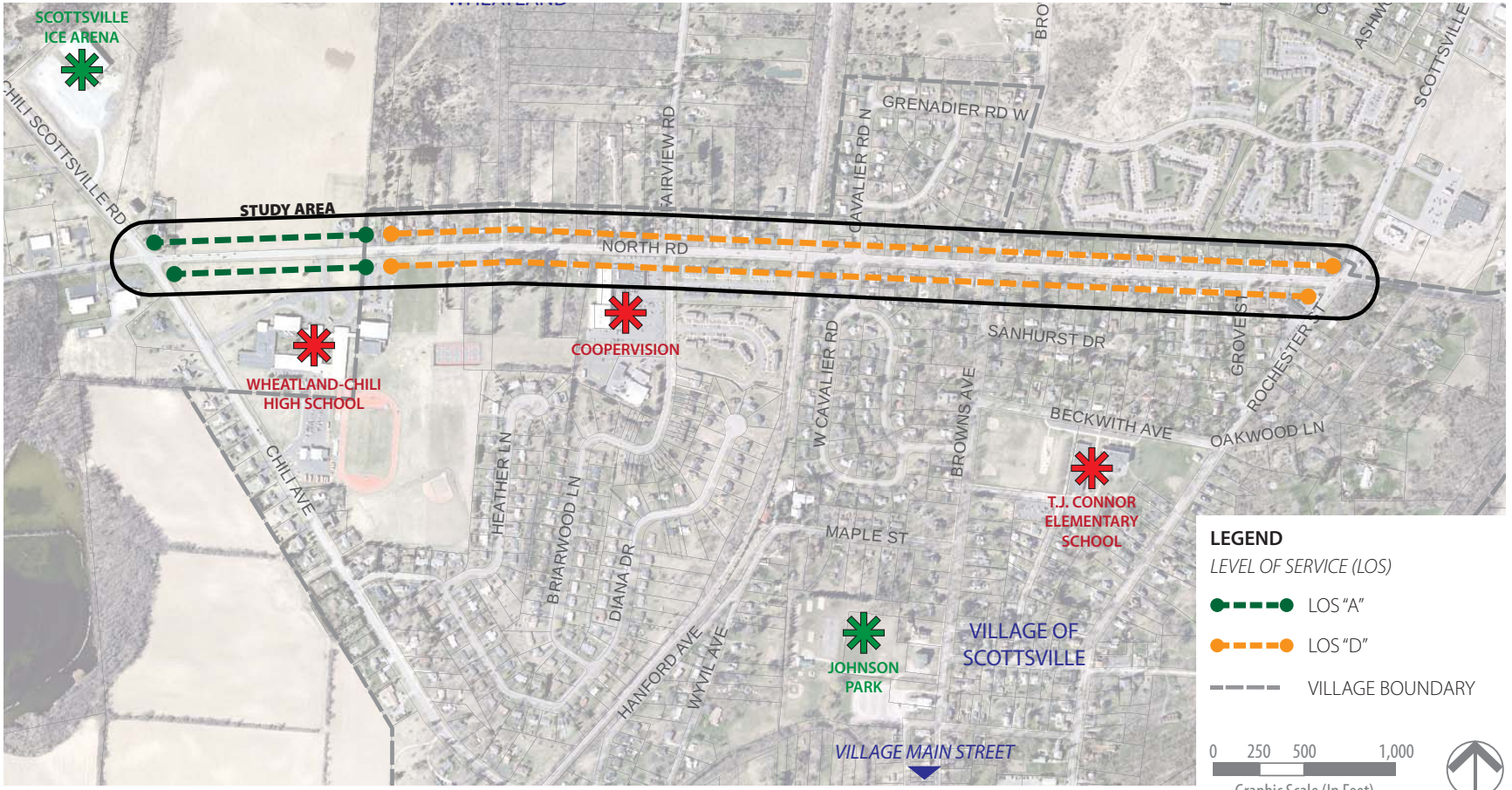
It was observed during field investigations that bicyclists were riding on the asphalt area on the south side of North Road; however, as reported in the following section, *Needs and Opportunities*, riders feel the cross-slope is too severe to comfortably ride on as they are directed towards traffic. North Road and the Village of Scottsville in particular are popular bicycle riding routes for local bicycling clubs, such as the Rochester Bicycling Club (RBC). The RBC has at least seven routes that either travel along portions of North Road, cross the corridor, or run along Rochester Street. Additionally, the nearby schools, parks, Village Main Street, and Genesee Valley Greenway provide popular destinations for bicycle enthusiasts and recreational users alike.

▲ Bicyclist and pedestrian traveling eastbound

Automotive travel ways can be evaluated to determine their user friendliness as it relates to bicycle users as opposed to the traditional motor vehicle. As mentioned earlier, the most common measure of effectiveness used for vehicular traffic is level of service (LOS). This model, also known as the Bicycle Level of Service Model, is a measure considering the users' safety and/or comfort level with the highway as it relates to traffic volumes, vehicle speed limit, percentage of truck traffic, outside lane width, paved shoulder/bike lane width, and pavement condition. This analysis is an adopted methodology for evaluating bicycle conditions contained in the *2010 Highway Capacity Manual*.

The factors are used in calculating a numerical and letter score on the scales of ≤ 1.5 and ≥ 5.5 and A-F respectively. These results are used to analyze the segments along North Road and how to recommend the most suitable alternatives for implementation of bicycle facilities. A score of A-B is generally described as above average and the most acceptable realms, while E-F is the least comfortable and unacceptable performance. It should be noted that some roadways should not be expected to receive A-B scores, based on their functionality and their location within the area's context.

**Figure 10** illustrates the bicycle level of service along North Road. The segment from Rochester Street to WCHS earned a "D", while the segment from WCHS to Chili Avenue resulted in an "A." Although there is a paved asphalt area from Rochester Street to WCHS, it was no taken into account within the analysis as it is non-typical bicycle facility.



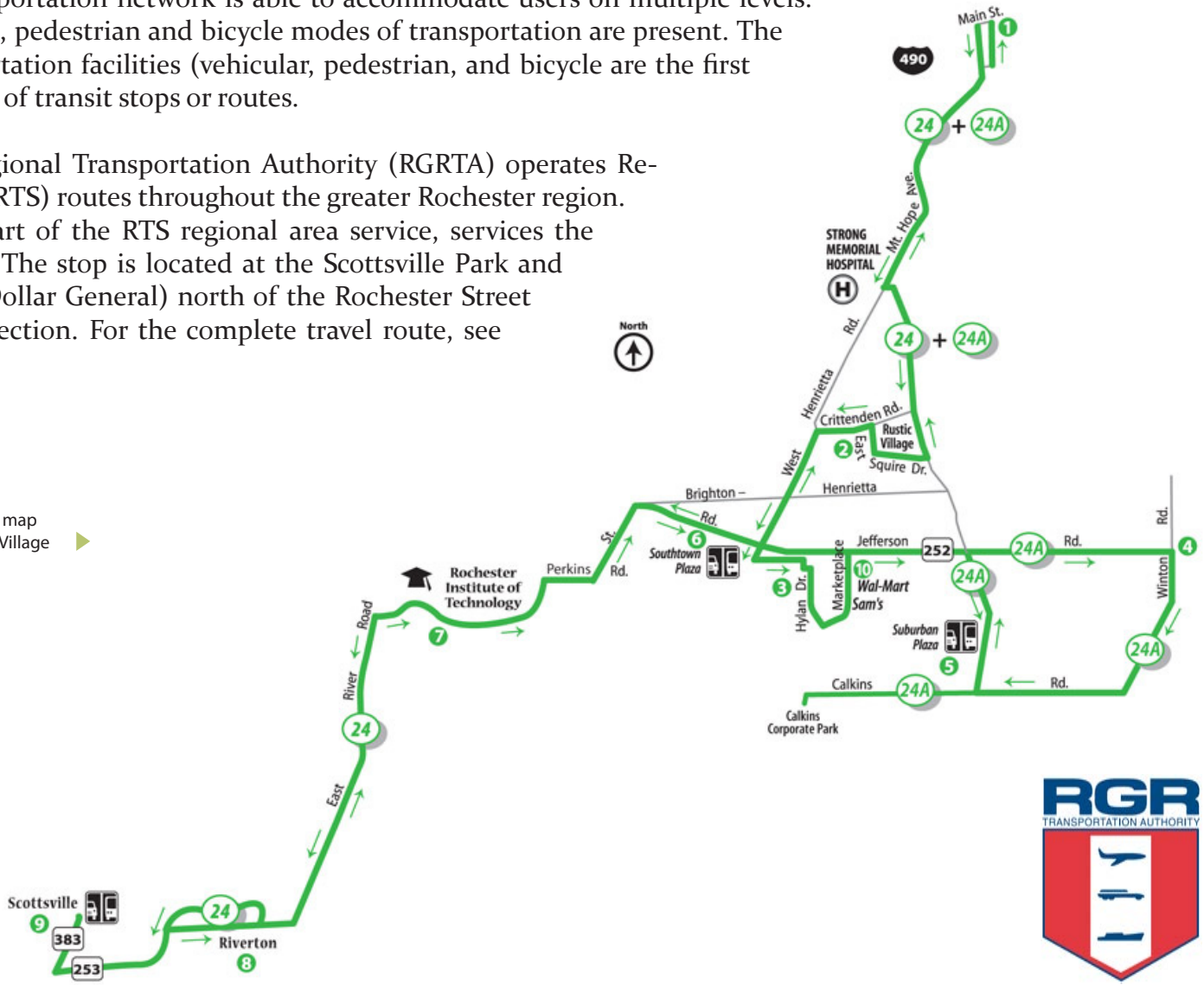

▲ Figure 10: Existing Bicycle Level of Service Results

## Transit Service

A comprehensive transportation network is able to accommodate users on multiple levels. As previously discussed, pedestrian and bicycle modes of transportation are present. The fourth level of transportation facilities (vehicular, pedestrian, and bicycle are the first three) is the availability of transit stops or routes.

Rochester Genesee Regional Transportation Authority (RGRTA) operates Regional Transit Service (RTS) routes throughout the greater Rochester region. Route number 24, a part of the RTS regional area service, services the Scottsville community. The stop is located at the Scottsville Park and Ride (adjacent to the Dollar General) north of the Rochester Street and North Road intersection. For the complete travel route, see adjacent the map.

RTS bus route map including the Village of Scottsville



## Future Traffic Volumes & Analysis

To account for normal increases in area-wide growth, including any unforeseen developments in the study area, a traffic volume growth rate of 1% per year has been applied to existing traffic volumes based upon historical traffic volume growth in the study area. A twenty (20) year traffic forecast is used for future traffic analyses. **Figures 11 through 13** illustrate the results of the levels of service for each intersection.

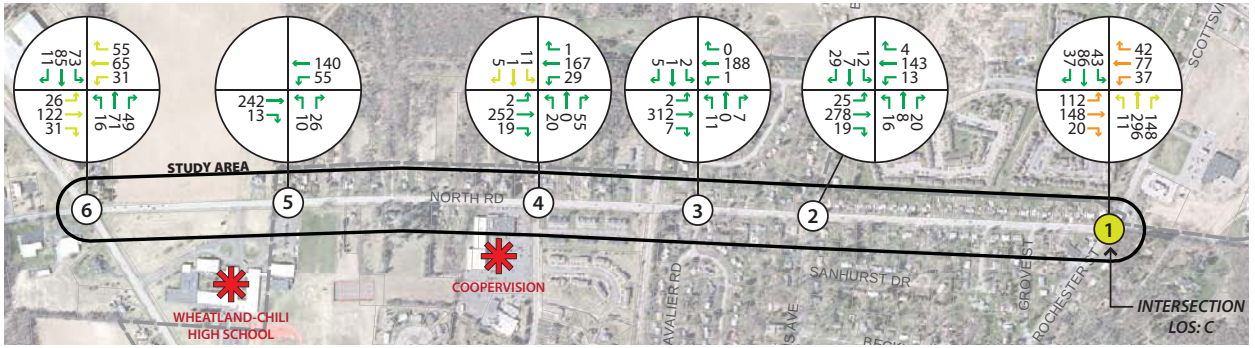



Figure 11: Future no-build AM peak hour

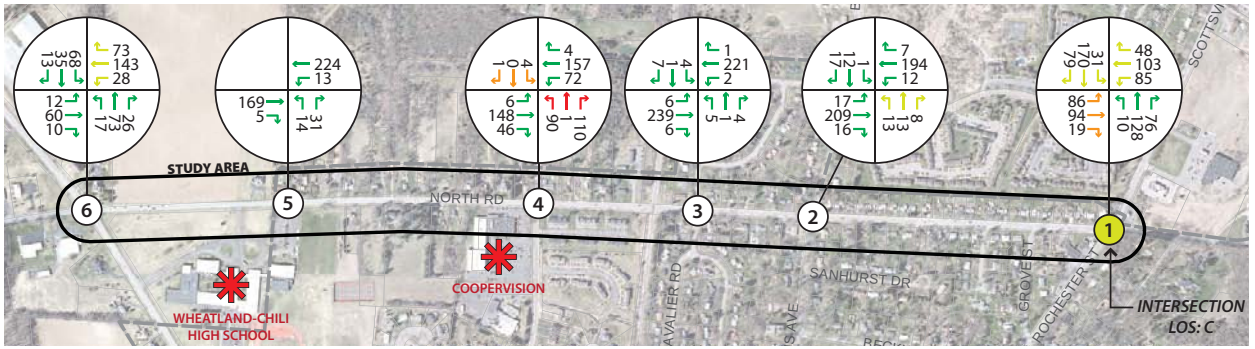



Figure 12: Future no-build school peak hour

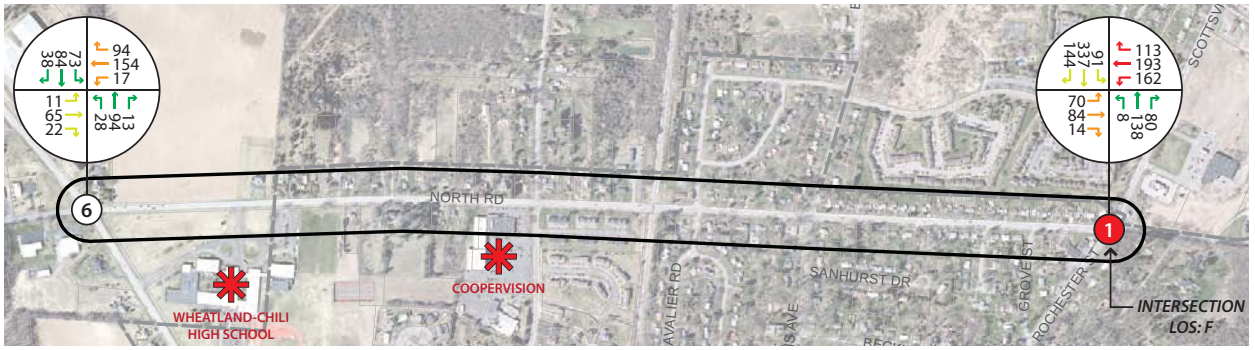



Figure 13: Future no-build PM peak hour

**LEGEND**

*INTERSECTION MOVEMENT LEVEL OF SERVICE (LOS)*

LOS A-B
LOS C
LOS D
LOS E-F

VILLAGE BOUNDARY

Note: Intersection of Rochester Street and North Road is signalized. All other intersections are unsignalized.

0 250 500 1,000

Graphic Scale (In Feet)

**INTERSECTIONS (NORTH ROAD at)**

1. Rochester Street (NY 383)
2. Browns Road/Avenue
3. Cavalier Road
4. Briarwood Lane/Fairview Road
5. WCHS Student Parking Lot
6. Chili Avenue (NY 386)

SECTION III

# Needs, Opportunities & Alternatives Assessment

# Needs, Opportunities & Alternatives Assessment

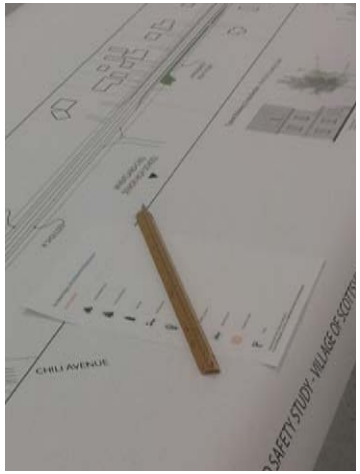
## Public Outreach Results

*Public Open House Workshop*

In order to gather meaningful public input, a Public Open House Workshop was held at the Wheatland Senior Center on December 5th, 2012. Approximately 25 knowledgeable and engaged citizens attended the workshop. The purpose of the workshop was to solicit input on the safety, operations, and appearance of North Road. Members of the community have shared valuable opinions and insights regarding: pedestrian and bicycle circulation; safety concerns; speeding issues; congestion problems; overall aesthetic appearance; the needs for gateway treatments; parking availability; and any other concerns that may affect the safety and operations of North Road. The information gathered at the workshop has proven to be instrumental in identifying circulation, accessibility, safety, and overall appearance issues, opportunities, and the potential for improvements along North Road.

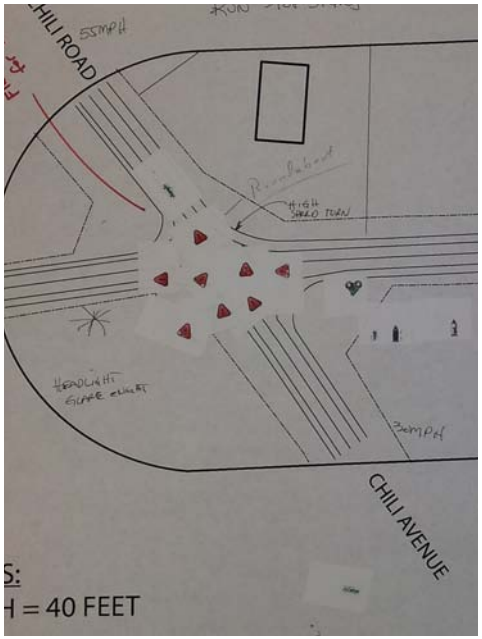

▲ Engaged citizens at the Public Open House

Summarized below are the comments received during the workshop. Two maps were provided, dividing the corridor into two sections, for citizens to mark-up and identify key issue locations. The issues are subdivided by category and reported based on the study area as a whole.



**Safety Concerns** - Locations include:

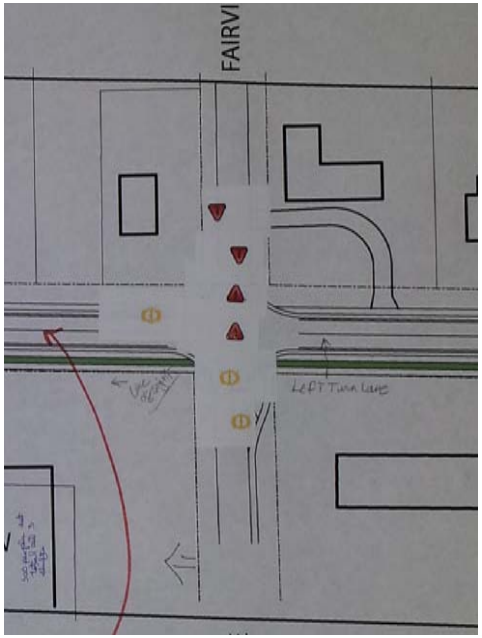
- *Rochester Street / North Road*
  - » Noted vehicle crashes.
  - » Volume of vehicles turning right onto NY 253. Residents concerned with drivers using the shoulder space as a "right turn" lane.
- *Grove Street*
  - » Noted difficulty in vehicles exiting nearby driveways.
- *Browns Avenue / Browns Road*
  - » Noted sight distance issues for vehicles exiting northbound on Browns Avenue onto North Road, as well as vehicles exiting southbound on Browns Road onto North Road.
- *Briarwood Lane / Fairview Road*
  - » Noted sight distance issues for vehicles exiting northbound on Briarwood Lane onto North Road.
  - » Noted vehicular conflicts with school dismissal periods and the shift times for CooperVision.
- *Chili Avenue / North Road*
  - » Noted speed related concerns for vehicles entering the village from the north. The posted speed limit north of North Road is 55MPH, while it decreases to 30MPH south of North Road. The lack of a transitional zone was mentioned.
  - » Vehicles travel at high speeds turning right onto Scottsville Chili Road from North Road.
  - » At the time of the workshop, a vehicular crash had occurred at the intersection a week prior to the public open house.




Public feedback regarding safety concerns at Chili Ave

**Congestion Issues** - Locations include:

- *Rochester Street / North Road*
  - » Vehicles tend to queue on the eastbound approach to the intersection.
  - » Vehicles making northbound and southbound right turns experience longer delays. The traffic signal favors northbound/southbound traffic.
- *Between Grove Street and Wheldon Street*
  - » Residents find it difficult to exit their driveways in the morning peak hours.
- *Browns Road*
- *Briarwood Lane / Fairview Road*
  - » Employees leaving CooperVision during shift change periods frequently cause congestion at the intersection. It was also mentioned that employees have been known to intentionally block traffic on Briarwood Lane so that fellow employees can exit the parking lot. Traffic will also travel southbound on Briarwood to come out on Chili Avenue and ultimately turn eastbound North Road to use the residential streets as a "cut-through."



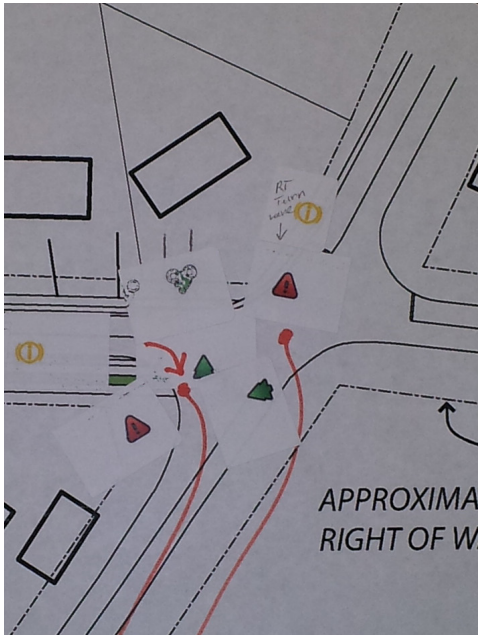

Safety and congestion concerns at Briarwood Ln

**Pedestrian Needs**: It was noted all throughout the corridor the desire for sidewalks on both sides of North Road. Currently, pedestrians are using the asphalt area on the north side to walk along North Road. Residents also made mention of 5K running events. The loop of North Road, NY 383, and NY 386 has been measured at an ideal distance for a 5K circuit. Schools and the general public were a couple mentions of groups who use the area for such events. Specific locations that were mentioned for improved pedestrian facilities were:

- *Browns Avenue / Browns Road*
  - » There used to be crossing guards for school children, but have since ceased
- *Between Browns Road and North Cavalier Road*
- *Between Fairview Road and Chili Avenue*
  - » Noted "Need sidewalks along North Side."
  - » Noted "Need pedestrian lighting."
  - » There were two notations of sidewalks needed between the WCHS and Chili Avenue.

**Desirable Bike Route**: North Road and its adjoining side streets see frequent bicycle traffic. This area is frequented by local bicycle clubs, such as the Rochester Bicycling Club. Local residents also expressed their desire to ride along the corridor and throughout the village. Bicycle lanes were noted as an item citizens would like to see along North Road. Bicyclists tend to use the asphalt areas on North Road, however, the cross-slope makes for an uncomfortable facility for riders to use. Another comment spoke of the limited space between the travel lane and gutter. The striped shoulder space is too narrow for bicyclists to comfortably ride along the entire length of the corridor; however, it should be noted that the striped shoulder space between NY Route 386 and the WCHS is nearly eight feet in width. Specific locations noted on the map were:

- *Rochester Street / North Road*
  - » Between Browns Avenue/Road and North Cavalier Road
- *The railroad tracks*
  - » Residents spoke about bicyclist accidents caused by the drainage structures near the tracks.
- *Between Briarwood Lane and the WCHS*
- *Between WCHS and Chili Avenue*



▲ Rochester St intersection concerns

**Gateway**: A gateway into the community of North Road was expressed as a desire at the intersection of Chili Avenue and North Road. This gateway could act as a traffic calming measure, as well as improvements to pedestrian and bicyclist safety depending on the application of a gateway treatment.

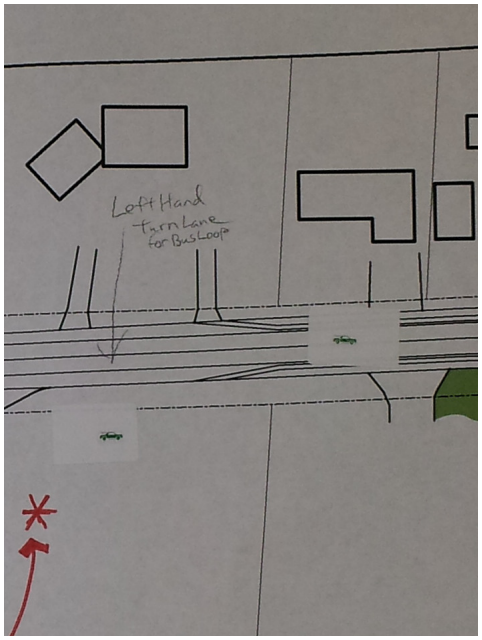
**Parking Needs**: The frequency of vehicles parking along North Road is sporadic. There are several residents who use the asphalt area as additional parking space for their vehicles year round. However, most of the feedback pointed to the lack of demand for on-street parking as driveways and garages provide the space for any parking needs. Occasionally, the Wheatland-Chili High School will host events that generate a greater need for parking. When the on-site parking lots reach capacity, attendees will park along North Road for the duration of the event. Two noted locations for parking needs were:

- *Between Wheldon Street and Browns Road*
  - » There is a need for the additional on-street parking space for larger families.
- *Between Browns Road and North Cavalier Road*

**Improved Aesthetics**: The look and feel of a corridor or neighborhood can be beneficial on several fronts: health, property values, pedestrian and bicyclist safety, traffic calming, and the environment. Currently, North Road has a wealth of mature trees which provide a sense of place and added character to the corridor. Enhancing the corridor's aesthetics can also mean improving the quality of the green buffer space that separates the sidewalk from the roadway or adding pedestrian level lighting to name two strategies. Areas for which improved aesthetics were noted:

- *Rochester Street / North Road*
- *The railroad tracks*
  - » Residents noted the possibility of shrubbery to reduce the noise from trains.

**Speeding Issues**: Another concern mentioned throughout the open house was the issue of speeding throughout the corridor. Residents have stated enforcement of the 30 MPH posted speed limit is sporadic at best. The long and open appearance of the corridor from the driver's perspective encourages higher speeds, as noted in the *Inventory and Analysis* section. Residents noted several locations as areas of concern:



▲ Speeding concerns along North Rd

- *Rochester Street / North Road*
  - » Public feedback pointed out that drivers will speed up to attempt to "beat the light" as they are approaching the intersection.
  - » Westbound motorists on North Road tend to reach higher speeds quickly due to the change in grade from the intersection, west onto North Road.
- *Between Grove Street and Wheldon Street*
- *Between Wheldon Street and Browns Avenue/Road*
- *Between Browns Avenue/Road and North Cavalier Road*
- *The railroad tracks*
  - » It was noted that although the tracks do help slow traffic, the tracks need to be smoother to cross.
- *Between the railroad tracks and Briarwood Lane*
- *Between Briarwood Lane and WCHS*
- *Chili Avenue / North Road*
  - » As mentioned earlier, motorists tend to travel at high speeds southbound into the Village as the speed limit abruptly changes from 55MPH, north of North Road, to 30MPH, south of North Road.

» Vehicles performing a rolling stop and turning right onto Scottsville Chili Road at high speeds was noted.

**Other Issues**: The issues listed above were endorsed by citizen feedback. The open house provided an invaluable venue for the public to share their concerns and support issues that have arisen from the study's discovery process. However, issues pertaining to North Road are not to be limited. Citizens shared feedback on several other issues:

- *The possibility of turning Grove Street into a one-way south route as northbound traffic has issues pertaining to sight distance turning onto North Road. The sight distance to the right is obstructed by a hill in a front yard and vegetation growth.*
- *Street trees that are right-sized and are chosen to compliment North Road's existing character.*
  - » Only trees that drop leaves – no coniferous species
  - » Trees that will grow to 20'-30' in height at full maturity
  - » Salt tolerant trees
  - » Bare rooted planted trees
- *At the WCHS, the circulation of buses and student drop-offs/student parking creates traffic related issues.*
  - » The previous circulation plan (up until five to six years ago) had buses exiting onto Chili Avenue. Under the new plan, all buses use the drop-off on North Road.

*Scribble Maps*

Another means of gathering public input was the use of interactive technologies. The study team used an online service called Scribble Maps to garner feedback in the form of online mapping. Users were able to place pre-designated markers at locations of interest or concern. The Scribble Maps method was used to collect comments from attendees of the Public Open House meeting, as well as through the local WCHS and CooperVision. Several comments are summarized below:

**CooperVision**
"Sidewalks are not plowed well or salted and [pedestrians] will walk in the road."
"Nathaniel Drive students cut through CooperVision instead of using sidewalks."
"[A possibility for] another CooperVision exit."

▲ Residents at the Public Open House

**Wheatland-Chili High School**

A series of six questions were developed for students from grades 8 to 12 including their general responses:

- How safe do you feel walking along the corridor?
  *Response: Students generally felt safe, but issues of insufficient lighting, speeding vehicles, sidewalk location, and crossing opportunities were mentioned.*
- Do you feel the pedestrian environment is sufficient or can it be improved?
  *Response: Generally felt the sidewalks needed to be widened and constructed of concrete, there should be more crossing locations, and sidewalks could be placed on both sides of North Road*
- Do vehicles travel too fast throughout the corridor?
  *Response: Opinions were evenly divided. However, several comments noted issue of abrupt speed changes on Chili Avenue and North Road, west of Chili Avenue.*
- Are sidewalks needed west of the WCHS?
  *Students typically responded with a "yes." The issue of pedestrian safety was an underlying reason for the response.*
- Are there connections to the community that can be developed or improved upon?
  *Generally students didn't feel connections needed to be developed; however, several comments were made regarding the circulation of traffic as a result of shift changes at CooperVision.*
- Are there any other comments or concerns?
  *Several students reiterated the point of sidewalk location and conditions and the safety at the intersection of Chili Avenue/North Road.*

*Confirmed Project Goals*

The goals and objects developed at the beginning of the study process and report were used as a guide to elicit feedback from engaged residents and local officials. These goals, along with invaluable citizen feedback, can provide a framework for which a carefully crafted plan can be developed.

Each issue discussed throughout the early stages of the study aligned with the project goals. The results will help provide insight to alternatives that are best suited for the North Road corridor.

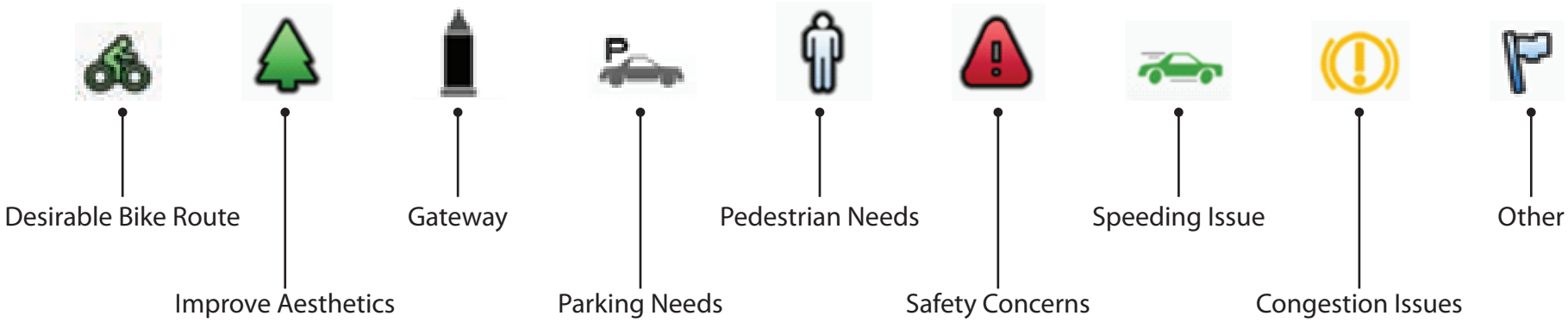
Transportation, the process of going to a place, can be wonderful if we rethink the idea of transportation itself. We must remember that transportation is the journey; enhancing the community is the goal. - PPS.org

## Response to Public Feedback

The opinions and insights provided by the public pointed out nine issues found throughout the North Road corridor. As mentioned previously, they are as follows: pedestrian and bicycle circulation; safety concerns; speeding issues; congestion problems; overall aesthetic appearance; the needs for gateway treatments; parking availability; and any other concerns that may affect the safety and operations of North Road.

Symbols representing each issue were used during the Public Workshop to identify the specific locations of the issue of focus. Each of them are illustrated and labeled below. Throughout the remainder of the report, these symbols will be used to graphically represent the specific problems that were discovered throughout the planning process and the associated alternative solution that addresses the concern. The description following each alternative gives an overview of the issue and an explanation of the benefits the proposed solution offers.

### Symbolized Issues/Concerns



## Regulatory Opportunities

The review of the Zoning Code requirements conducted as part of this study indicate that the Village and Town may want to consider the following provisions or modifications to their respective development regulations. The section references are to Chapter 170 of the Village Code and Chapter 130 of the Town Code.

- *Zoning Districts* - Sections 7 though 15 establish the residential, commercial and industrial framework for the Village. These sections lack purpose statements that serve to articulate the intent of each district and what it is trying to accomplish. Ideally, these statements should reference adopted planning efforts such as the 2004 Comprehensive Plan.

- *Permitted Uses* - Uses permitted by right, by special exception and prohibited uses within the Village are contained in attachments 1, 3, and 5. The existing use lists for the residential districts may be too permissive of non-residential uses. For example, the following uses may be allowed by special exception in the R-1-16 and R-1-12 One Family Residence Districts; colleges, hospitals, nursing homes, medical research facilities, and professional and medical offices. In addition, there are insufficient site design requirements for these non-residential uses to assist the Village in the decision making process to grant a special exception. The use lists for the Central Business and General Business Zoning Districts are identical. It may be beneficial to differentiate the types of uses that are appropriate in the CBD and the GB Districts. For example, a trucking terminal, transfer station or fuel storage facility is very likely to detract from the traditional character of the downtown area.

- *Front Yard Setbacks* - The dimensional requirements for the Village's residential, commercial, and industrial zoning districts are contained in Attachments 2, 4, and 6. The existing front yard requirements may be too large in the General Business and Industrial Districts. For example, the existing front yard setbacks for the GB District is 80 feet. This provision makes the re-development of properties within this district difficult due to the small lot size that is characteristic of many of the parcels in the GB District. In addition, this requirement virtually requires a property owner to place parking in the front yard in order to accommodate typical site elements such as a building, parking, circulation and signage. A significant reduction in the front yard setback should be considered for the GB and I District within the Village as well as the SCB District within the Town.

- *Front Yard Parking* - According to Section 16C(1), front yard parking is permitted within all non-residential districts within the Village. The Village may want to restrict front yard parking while continuing to permit parking in the side and rear yard. This will serve to provide a more aesthetically pleasing streetscape and comfortable walking environment.

- *Shared Parking* - Section 28B of the Village Code and Section 37 of the Town Code state, "The (off-street parking) requirement for a combination use made up of several component uses shall be determined by establishing the requirement for each component use and adding them together." In other words, both zoning codes does not explicitly permit uses with complimentary parking needs to share parking. A shared parking provision provides developers and business operators greater flexibility and can reduce the amount of paved area required on a given site.

- *Off-Street Parking Requirements* - A review of the requirements contained in Section 30 of Scottsville's code indicate that the spaces required for certain uses may be too high for a village setting. For example, the requirement for office related uses within the Village is nearly 8 spaces per 1,000 sq ft. Meanwhile, retail uses are required to provide 5 spaces per 1,000 sq ft. Both of these requirements could be reduced significantly. In addition, there is no requirement to provide bicycle parking facilities on site.

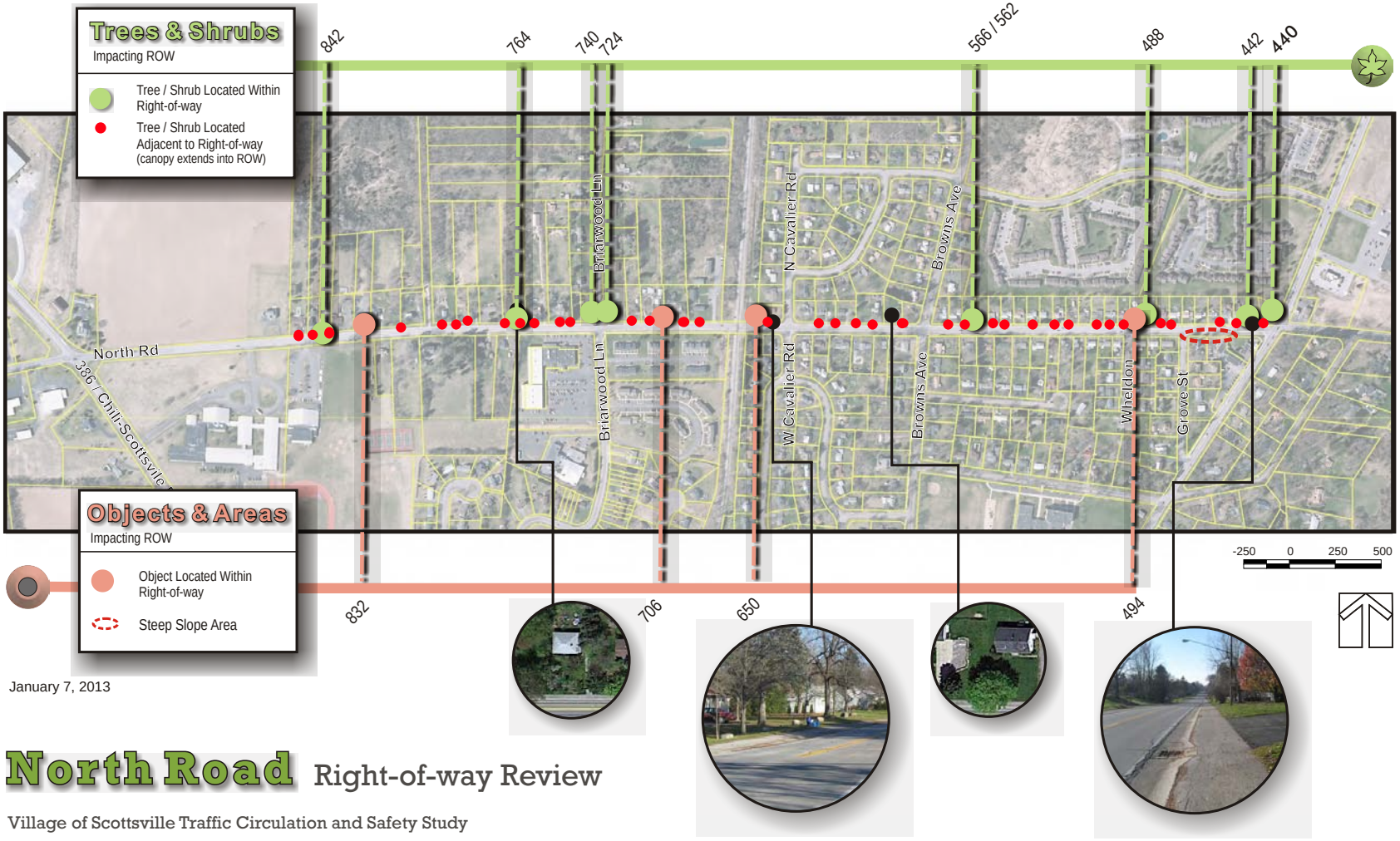
In summary, the Town and Village existing zoning codes do not place enough emphasis on land development practices that emphasize the importance of creating great streetscapes and fostering walking and biking. The next phase of this project will identify specific language that can be use to accomplish this.

## Right-of-way Review

The Consultant Team conducted a planning level review of the North Road right-of-way. The objective of the review was to document the general location of trees and shrubs as well as fences, rocks and other objects within the ROW that could impact the design and location of potential improvements. In addition, trees and shrubs located outside the ROW but overhang the ROW were also located. The results of the review are identified on the **Figure 14**.

Over many seasons, several trees and shrubs located on private land have encroached into the right-of-way. Some North Road residents may be unaware of where the ROW line is located. It might be assumed that it is located in line with the utility poles. However, according to roadway maps obtained from Monroe County, the right-of-way extends several feet north of the utility poles or approximately 33 feet from the centerline of North Road. Most public areas along the north side of North Road contain only tree limbs or crowns within the right-of-way, as denoted on the map by red dots. Implementation of a sidewalk along the north side may affect these plants through removal of select limbs or disturbing roots during the excavation for the sidewalk. Objects such as boulders, fences and private satellites should be relocated out of the ROW. This should be considered regardless of whether or not improvements are made to North Road.

According to the Monroe County roadway maps, sanitary sewer, gas and water utility lines are located throughout the North Road ROW corridor. Although these utilities will need to considered when planning for improvements it appears they do not preclude the development of a sidewalk along the north side.




▲ Figure 14: Right-of-way Review

## Alternative Cross-sections

Based on a thorough investigation of existing conditions and discussions with the local stakeholders, three alternative cross-sections were developed by the Consulting Team. These alternatives are illustrated and discussed on the following pages. The purpose of the alternatives was to explore options for improving the North Road corridor. The alternatives were presented and feedback was solicited from the Steering Committee and other community members regarding preferred treatment.

These scenarios were developed with consideration given to the guiding principles as outlined below and the opportunities that were identified through the inventory and analysis as described previously. All of the alternatives presented are consistent with the 2004 Town and Village Comprehensive Plan. An implementation plan will be developed to address the recommended phasing the preferred alternatives.

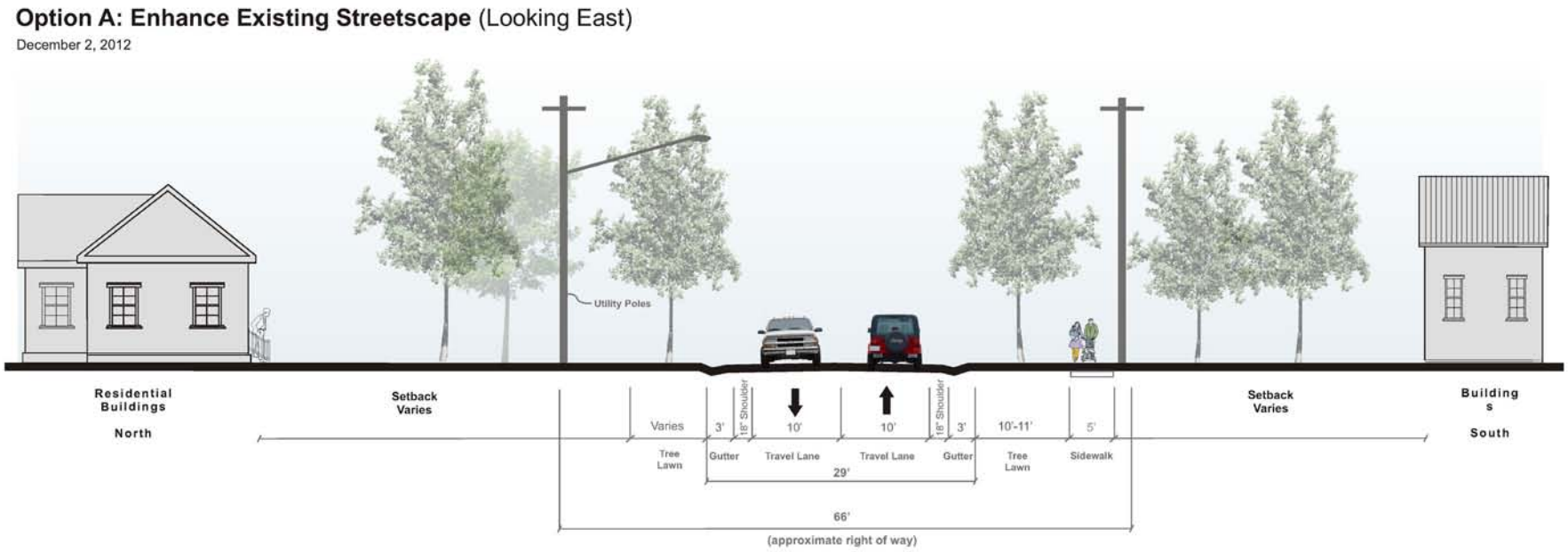
- Improve safety for all users
- Reduce vehicular speeds using traffic calming measures
- Enhance the pedestrian experience along the corridor
- Provide an integrated bicycling environment
- Improve the transportation system using innovative design
- Improve overall aesthetics and community character

*Alternative A: Enhance the Existing Streetscape*

Although doing nothing is typically an alternative in most roadway improvement studies, it was clearly stated by the Steering Committee that even if dimensional changes to North Road are not warranted, improving the visual character and aesthetic appeal is desirable. Alternative A (see **Figure 15**) does not include any dimensional or component changes to the existing roadway cross-section within the travelway (i.e. between the existing gutters). The travelway dimension remains at 29 feet. However, it does include streetscape improvements such as street trees throughout the corridor. The existing sidewalk along the south side is envisioned to be upgraded. Although this alternative does not include a sidewalk along the north side, it also does not preclude it. For challenges regarding developing a sidewalk along the north side see section on *Right-of-way Review* (previously in report) and *Streetscape Components* (later in the report).

The focus of Alternative A is streetscape enhancements, which will certainly help improve the aesthetic quality of the corridor - a stated project goal. However, streetscape improvements alone will have modest impacts on achieving several of the other project goals, such as improving safety for all users and improving the bicycling environment.

Figure 15: Alternative A

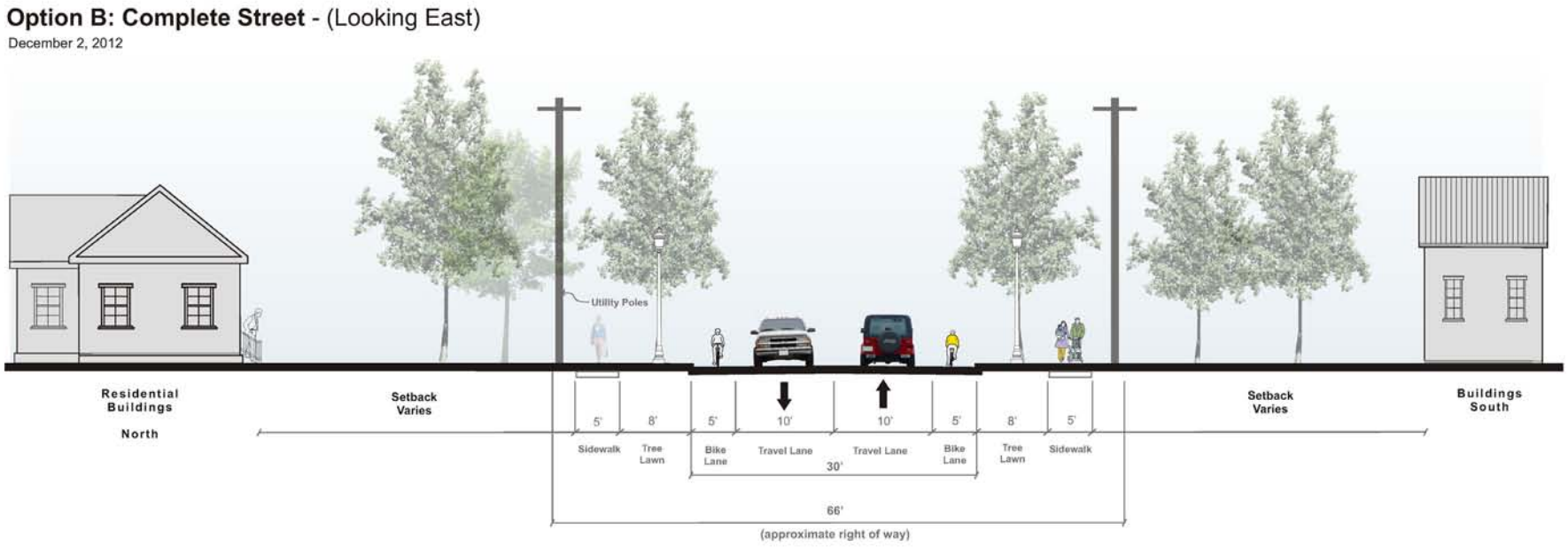


*Alternative B: Complete Street*

Alternative B includes a 10 foot travel lane in each direction, the same travel lane dimension that is out there today and is included in Alternative A. This alternative also includes a dedicated 5 foot bike lane in each direction and is envisioned to include granite curbing. The overall curb-to-curb width is 1 foot larger (30) than the existing gutter-to-gutter dimension (29) that is out there now. A 5 foot sidewalk is included on both sides of the corridor along with pedestrian level lighting. Street trees and other streetscape components are also included (see "*Streetscape Components*" for more details).

This alternative includes the most significant changes but is also most comprehensive at achieving the project goals. The bike lane will provide dedicated space for cyclists and send a clear message to motorists to be aware of cyclists. The edge line separating the travel lane and bike lane along with street trees will help to make the travel lane appear narrower to motorists, which can help slow vehicular speeds. Sidewalks on both sides of the road will improve safety for pedestrians and enhance the pedestrian experience. The inclusion of street trees, concrete sidewalks, and curbing is also consistent with what is typical of village street design.

Figure 16: Alternative B



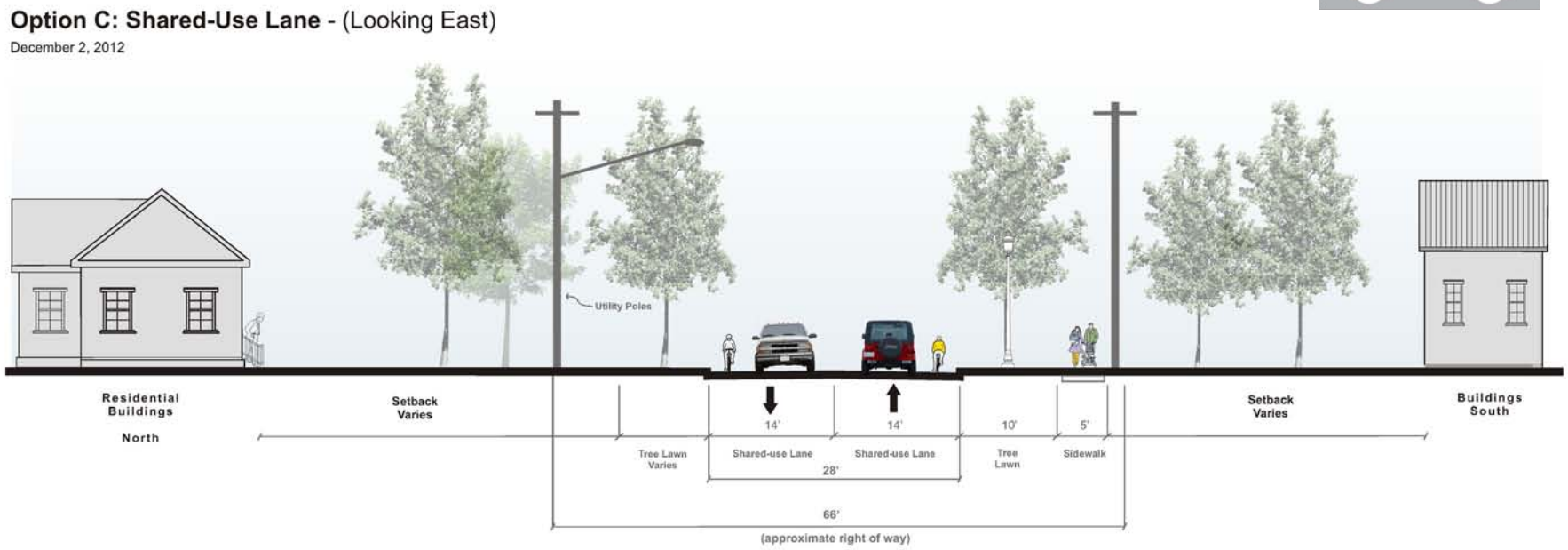
*Alternative C: Shared-use Lane*

This alternative includes a 14 foot shared-use lane in each direction, making the overall width 2 feet narrower (28) than Alternative B (30) and 1 foot less than what is out there today. A shared-use lane is one travel lane used by motorist and cyclists and includes shared-lane marking or sharrows (see image to the right). This alternative includes streetscape improvements such as street trees throughout the corridor and pedestrian level street lighting along the south side. As with all the Alternatives, the existing sidewalk along the south side is envisioned to be upgraded. Similar to Alternative A, this alternative does not include a sidewalk along the north side but does not preclude it. For details regarding developing a sidewalk along the north side see "*Streetscape Components*".

Shared-lane marking "sharrow"

Alternative C accommodates cyclists more than the Alternative A and the existing configuration. However, unlike a dedicated bike lane, a shared-use lane does not provide dedicated space for cyclists and not does help to make the travel lane appear narrower which can make motorists drive slower.

Figure 17: Alternative C



## Streetscape Components

There are several components related to streetscape improvements which can be included with any of the three above cross-section alternatives. These components will not only provide desirable aesthetic benefits but will contribute to traffic calming, provide shade for pedestrians, assist in stormwater management, and provide other functional benefits.

*Sidewalks – Along both sides of North Road?*

Sidewalks are essential in developing a complete transportation system that accommodates all users. Walking in a village, or any urban place where densities are high and a variety of uses are in close proximity to one another, is not just a convenience but, to some, a necessity. Some people choose to walk and others have to walk. In locales where the sidewalk network is incomplete people that have a choice whether or not to walk might choose to drive instead and the people that have to walk might be faced with uncomfortable or even unsafe conditions. Providing a sidewalk on one side of a road might be adequate but is certainly not ideal, especially when adjacent to residential areas and/or a school. The North Road corridor is a good example of this. A sidewalk on both sides of the corridor will help to not only make it more comfortable and safer for the people that have to walk but it will likely make it more convenient and comfortable for the people that choose to walk, which could just make them more likely to do it.

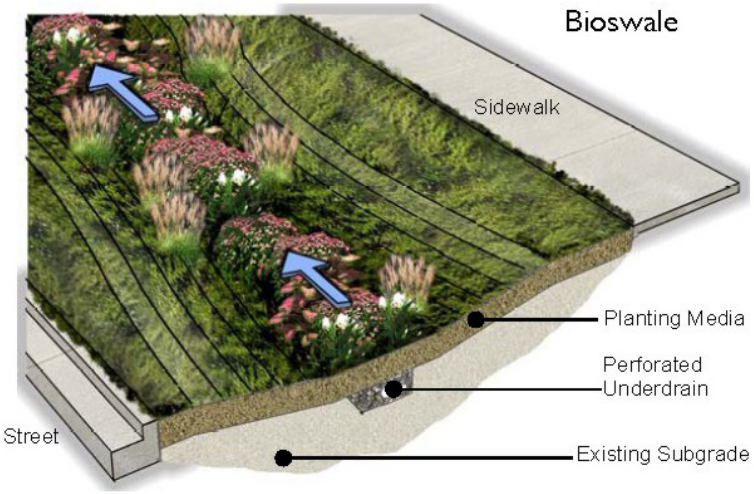

▲ Existing asphalt sidewalk along south side of North Road

As discussed previously in the *Right-of-way Review*, there is enough room within the ROW to build a sidewalk along the north side of North Road. However, acceptance by residents living adjacent to the north ROW is mixed. Some are in favor of it and some are not. Those not in favor have stated that they feel more pedestrians will bring crime and litter to their property. In addition, many residents are accustomed to utilizing the ROW space as an extension of their front yards. The Village and the County will have to consider both the public benefit and safety as well as concerns by residents when deciding to develop a sidewalk along the north side.

*Bioswales*

Biofiltration is a system and process which uses living material to capture and degrade pollutants carried by stormwater runoff. These facilities are often used to improve stormwater quality before it enters retention or infiltration facilities. Bioswales are a type of biofiltration system that utilizes landscape elements to remove silt and pollution from surface runoff water. They are designed as long, shallow earthen channels with gently sloped sides (typically less than six percent) and planted with native plant material such as wildflowers, grasses, shrubs and trees. The vegetation is intended to slow and filter stormwater runoff. As stormwater flows slowly along the swale, plants take up various pollutants while water infiltrates through the soil. Bioswales should generally be between 200' and 250' long in order to retain water long enough to allow filtration to occur. Underdrains placed below the planting soil prevent standing water from occurring. Bioswales can be stand alone stormwater facilities or pretreatment devices for stormwater being conveyed to larger downstream facilities. They are particularly useful for streetscaping as pretreatment for pollution and are typically located between the street and the sidewalk or in center medians. The physical design is typically narrow and linear allowing them to fit within street right-of-way spaces.

There is often confusion between bioswales and rain gardens. Both are stormwater management facilities but are two different systems. Unlike bioswales, rain gardens are bio-retention facilities that are established by creating a depression or shallow pond used for storage and infiltration of relatively small volumes of stormwater. Rain Gardens are not well suited in dense urban conditions where there is an abundance of impervious surfaces generating large volumes of stormwater. They are most useful in residential settings.




Example illustration of a bioswale

Bioswales could be included within the tree lawn areas of North Road on either or both sides. It is certainly possible to include bioswales throughout the entire corridor but driveway curb cuts would require piping which will certainly drive costs higher. West of the tracks there are long stretches of ROW without curb cuts making it more conducive to this treatment. Although there is an existing storm sewer system along North Road, it is said to be in need of repair and/or upgrade. Bioswales or other green street stormwater management techniques should be considered and could prove to be an effective way to supplement the existing system.

*Street Trees*

Research has shown that street trees provide valuable benefits; from providing shade for pedestrians to improving peoples' perception of an area. Street trees are also capable of significantly lowering urban air temperatures on the street as well as in adjacent buildings. Where street trees create a continuous overhead canopy, temperature can differentiate between 5-15 degrees, which can make pedestrians more comfortable during hot days and assist in extending the life of pavement. However, human comfort is not the only benefit of shady streets. Trees can improve the function and feel on the street by creating enclosure which makes the street feel narrower, therefore slowing traffic and enhancing pedestrian friendliness.


Street trees should be included in planned improvement to North Road. The selection and placement of trees should be consistent with the *2011 Village of Scottsville Tree Inventory Report*. Trees should generally be placed at in a tree lawn between the curb or gutter and the sidewalk and spaced 40 feet apart.

*Street Lighting*

One streetscape element that was discussed at the community open house as well with Steering Committee and Technical Advisory Committee members was pedestrian level street lighting. All stakeholders stated both aesthetic and pedestrian safety as reasons to include this type of lighting. Consideration should be given to replacing the existing highway style poles and fixtures currently on North Road with decorative pedestrian level poles and fixtures. Coordination with the existing pole and light fixture elsewhere in the Village of Scottsville should be also considered.

*Gateways*

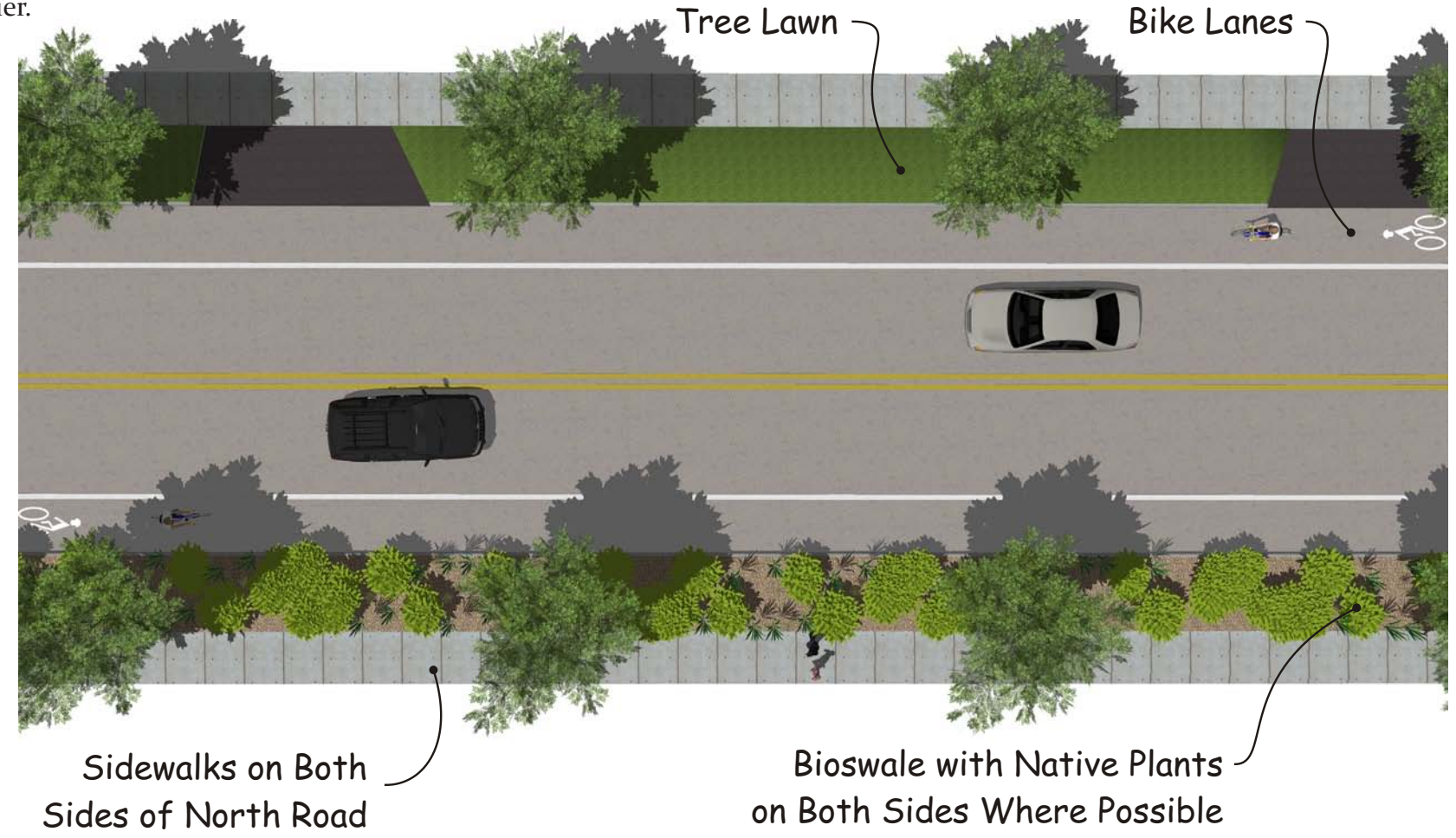
Gateways are points-of-entry designed in such a way that provide visual cues that you are entering a place of significance. Special attention must be paid to these areas because they provide a first impression to an area. They should bring a sense-of-arrival and add character to the area. They are typically identified at points of transition such as intersections, bridges or other edges and nodes.

Participants at the community open house identified the North Road intersections at Scottsville-Chili Road and at Rochester

Street as significant areas that need improvements both from a traffic safety standpoint and an aesthetic standpoint. These two locations could be improved to not only function better but also as "gateways" or "points-of-entry" to the Village of Scottsville. These points should be enhanced with prominent buildings, plantings, art, signs, and/or other special features which will celebrate and heighten the sense of arrival.

## Conceptual Streetscape / Roadway Improvements

The graphic below illustrates a complete street concept (Option B) with many of the streetscape improvements as described earlier.



## Intersections

*North Road & Rochester Street*

Three alternatives have been developed for the intersection of North Road & Rochester Street. The alternatives are described below and **Table 6** compares the level of service results for the three alternatives.

Existing Rochester St. intersection

*Alternative 1 -*
The inventory and analysis of traffic operations on North Road identified less than optimal signal operations at the Rochester Street intersection. Signal timing currently favors the northbound/southbound movement of traffic along Route 383. The split phase operation of North Road and NY Route 253 causes increased queuing of traffic and long wait times.

In order to effectively improve traffic flow conditions at the intersection in the short-term, the existing signal timing settings could be modified to balance operations on all approaches. As a result of modifications, reductions in queuing and delay can be achieved. This will improve overall congestion and traffic flow, as well as have cost benefits to motorists as idling time will be reduced. This in turn can reduce emissions of greenhouses gases attributed to intersection delays.

*Alternative 2 -*
Alternative 2 involves installation of northbound and southbound right turn lanes on Scottsville Road and Rochester Street. Removal of the right turn movements from the northbound and southbound through traffic would improve the flow of northbound and southbound through traffic. However, this improvement has minimal benefit for the eastbound and westbound traffic due to the offset alignment and necessary split phasing of the signal. The westbound approach currently experiences extensive queuing during the PM peak hour as a result of this signal phasing. The capacity analysis results indicate a LOS "F" for westbound traffic with delays exceeding four minutes. While the delays would be reduced to slightly more than two minutes, this remains a levels of service. Given the existing right of way constraints and lack of significant improvement in eastbound and westbound operating conditions, this alternative will not be advanced.

*Alternative 3 -*
Re-alignment of the intersection including installation of eastbound and westbound left turn lanes will greatly improve traffic operations for eastbound and westbound traffic as well as the northbound and southbound traffic. The existing split phased

operation can then be changed to a more traditional two-phase operation, reducing delay to all movements at the intersection. The previous westbound level of service "F" is improved to LOS "C" during the PM peak hour. See **Figure 18** for a detailed plan.

| *INTERSECTION* | *2032 FUTURE NO-BUILD CONDITIONS* | | | *2032 FUTURE CONDITIONS - MODIFY SIGNAL TIMING* | *2032 FUTURE CONDITIONS - ALT 2* | | | *2032 FUTURE CONDITIONS - ALT 3* | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AM* | *MD* | *PM* | *PM ONLY* | *AM* | *MD* | *PM* | *AM* | *MD* | *PM* |
| ***North Road / Rochester Street*** | | | | | | | | | | |
| Eastbound - North Road | D (37.1) | D (35.1) | D (49.7) | D (52.5) | C (27.9) | C (30.1) | D (37.3) | N/A | | |
| Eastbound Left - North Road | N/A | | | N/A | N/A | | | B (16.7) | B (12.2) | C (22.0) |
| Eastbound Thru/Right - North Road | | | | | | | | B (14.3) | A (9.9) | B (15.8) |
| Westbound - North Road | D (39.9) | C (30.2) | F (244.0) | F (92.4) | C (31.2) | C (26.5) | F (163.0) | N/A | | |
| Westbound Left - NY Route 253 | N/A | | | N/A | N/A | | | B (12.9) | B (11.0) | C (22.8) |
| Westbound Thru/Right - NY Route 253 | | | | | | | | B (11.2) | A (9.2) | C (23.3) |
| Northbound - Rochester Street | C (28.1) | B (18.6) | B (11.1) | B (17.4) | N/A | | | B (11.3) | A (6.6) | A (5.7) |
| Northbound Left/Thru - Rochester Street | N/A | | | N/A | C (27.6) | C (21.7) | B (14.8) | N/A | | |
| Northbound Right - Rochester Street | | | | | A (1.8) | A (1.6) | A (1.0) | | | |
| Southbound - Scottsville Road | B (17.6) | C (26.8) | C (28.6) | D (38.4) | N/A | | | A (7.0) | A (9.1) | B (15.9) |
| Southbound Left/Thru - Scottsville Road | N/A | | | N/A | C (23.8) | C (27.4) | C (28.0) | N/A | | |
| Southbound Right - Scottsville Road | | | | | A (1.4) | A (1.8) | A (1.3) | | | |
| *Overall LOS/Delay in sec/veh* | *C (30.8)* | *C (28.1)* | *F (100.0)* | *E (58.6)* | *C (23.5)* | *C (23.1)* | *E (68.6)* | *B (11.8)* | *A (9.3)* | *B (17.0)* |

Table 6: Rochester Street level of service

Existing intersection aerial

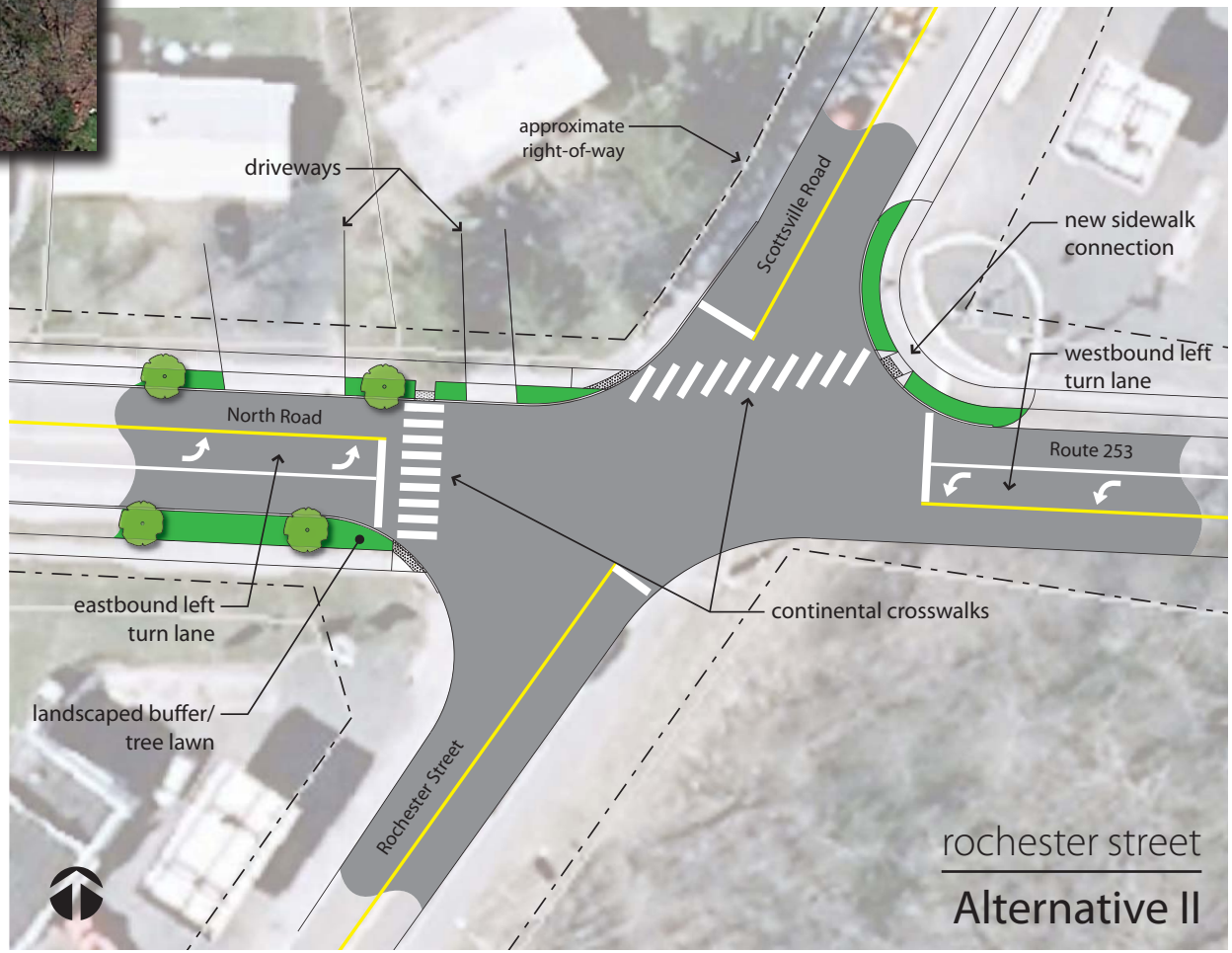



Figure 18: Proposed Rochester Alternative III

## *North Road & Chili Avenue*

Two alternatives have been explored for the North Road & Chili Avenue intersection. The two alternatives include changing the intersection control to an all-way stop (AWSC) or installing a modern roundabout at the intersection. Warrants for AWSC were explored and are not met at this time. Additionally, traffic volume and safety warrants that would indicate a need for either signalization or installation of a roundabout are not met. However, there are other reasons to consider installing a roundabout at this locaiton such as the desire of the community to create a gateway and to control speeds of vehicles as they approach the Village on Chili Avenue. **Table 7** summarizes the capacity analysis results for the future no-build and alternative conditions.


Existing Chili Ave. intersection

| ***Safety*** | ***Environment*** |
|---|---|
| • Fewer conflict points<br>• Lower speeds<br>• Easier decision making | • Less cars waiting/idling<br>• Reduced fuel consumption<br>• Less air pollution |
| ***Capacity*** | ***Aesthetics*** |
| • Less delay<br>• Higher capacity thresholds<br>• More efficient in off-peak hours | • Creates a gateway that provides a sense of place<br>• Can be used to celebrate local culture and heritage |

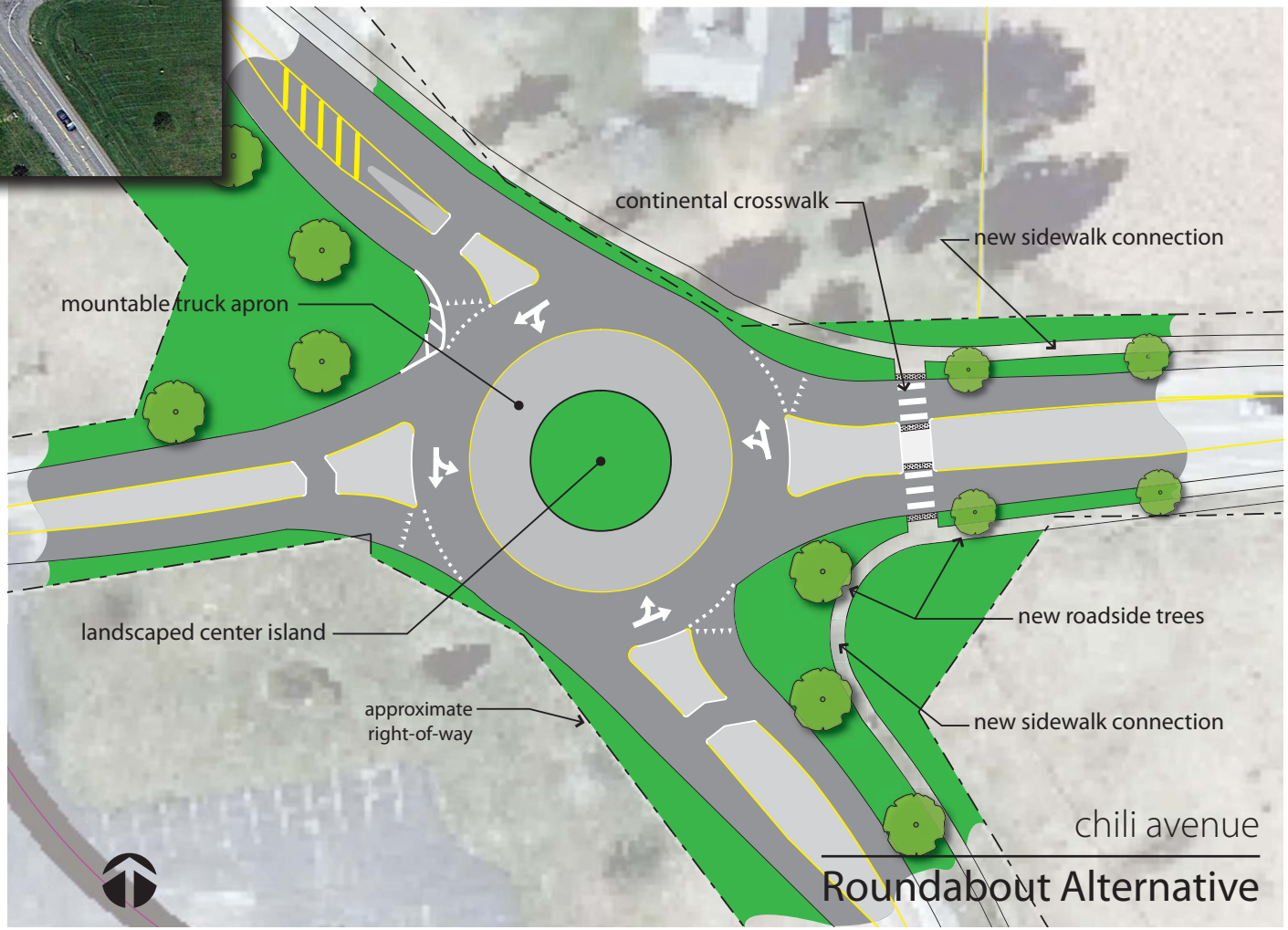
Benefits of Roundabouts vs. Traffic Signals

| INTERSECTION | 2032 FUTURE NO-BUILD CONDITIONS | | | 2032FUTURE CONDITIONS - AWSC | | | 2032FUTURE CONDITIONS - ROUNDABOUT | | |
|---|---|---|---|---|---|---|---|---|---|
| | AM | MD | PM | AM | MD | PM | AM | MD | PM |
| ***North Road / Chili Avenue*** | | | | | | | | | |
| Eastbound - North Road | C (18.3) | B (14.9) | C (19.8) | B (10.3) | A (9.0) | B (10.3) | A (6.4) | A (4.8) | A (5.8) |
| Westbound - North Road | C (16.4) | C (20.0) | D (25.5) | B (10.0) | B (11.5) | B (12.5) | A (5.7) | A (7.5) | A (7.7) |
| Northbound - Chili Avenue | A (1.0) | A (1.2) | A (1.8) | A (9.8) | A (9.4) | B (11.1) | A (6.3) | A (5.3) | A (6.3) |
| Southbond - Chili-Scottsville Road | A (3.5) | A (4.7) | A (3.2) | B (10.5) | A (9.8) | B (11.9) | A (5.7) | A (6.1) | A (7.3) |

Table 7: Chili Avenue Level of Service

Existing intersection aerial

Figure 19: Proposed Chili Avenue Roundabout



## Mini Roundabouts

In addition to the intersections at the east and west ends of the study area, alternatives have been developed for two intersections within the study area: **1) Browns Avenue/Road** and **2) Briarwood Lane/Fairview Road**. These two intersections have been noted through public feedback as areas of focus based on their current operations and the role they play within the community. For instance, the intersection of Browns Avenue/Road is the only intersection along the corridor that has a marked crosswalk across North Road. School advance warning signage indicate this is a focus area for crossing school children. As Connor Elementary School is located less than ¼ mile south of the corridor, the intersection experiences higher volumes of school children using the intersection for school purposes.

Likewise, the intersection of Briarwood Lane has a multitude of land uses nearby. CooperVision employees frequently use this intersection for the main entrance and exit to work, single family and multi-family residences are located to the immediate east and north of the intersection, as well as the intersection experiencing higher volumes of students walking to and from WCHS.

The alternative developed for the two intersections is a variation of a modern roundabout, simply put, a mini roundabout. Benefits are likened to that of a modern roundabout. The focus is to improve safety for all users, enhance the visibility of pedestrians, reduce traffic speeds, and improve the efficiency of traffic flow.

**Figure 20** illustrates the alternative at Browns Avenue/Road. The alternative for Briarwood Lane/Fairview Road is illustrated in **Figure 21** with the level of service results for both intersections described below in **Tables 8 and 9**. It is noted that the levels of service calculated for the roundabout alternatives were generated using SYNCHRO ver. 8.

| INTERSECTION | 2032 FUTURE NO-BUILD CONDITIONS | | 2032FUTURE CONDITIONS - ROUNDABOUT | |
|---|---|---|---|---|
| | AM | MD | AM | MD |
| ***North Road / Browns Avenue*** | | | | |
| Eastbound - North Road | A (0.8) | A (0.7) | A (7.9) | A (6.5) |
| Westbound - North Road | A (0.8) | A (0.6) | A (5.0) | A (6.1) |
| Northbound - Browns Avenue | B (14.7) | C (15.8) | A (5.8) | A (5.5) |
| Southbond - Browns Road | B (12.7) | B (12.4) | A (4.6) | A (4.8) |

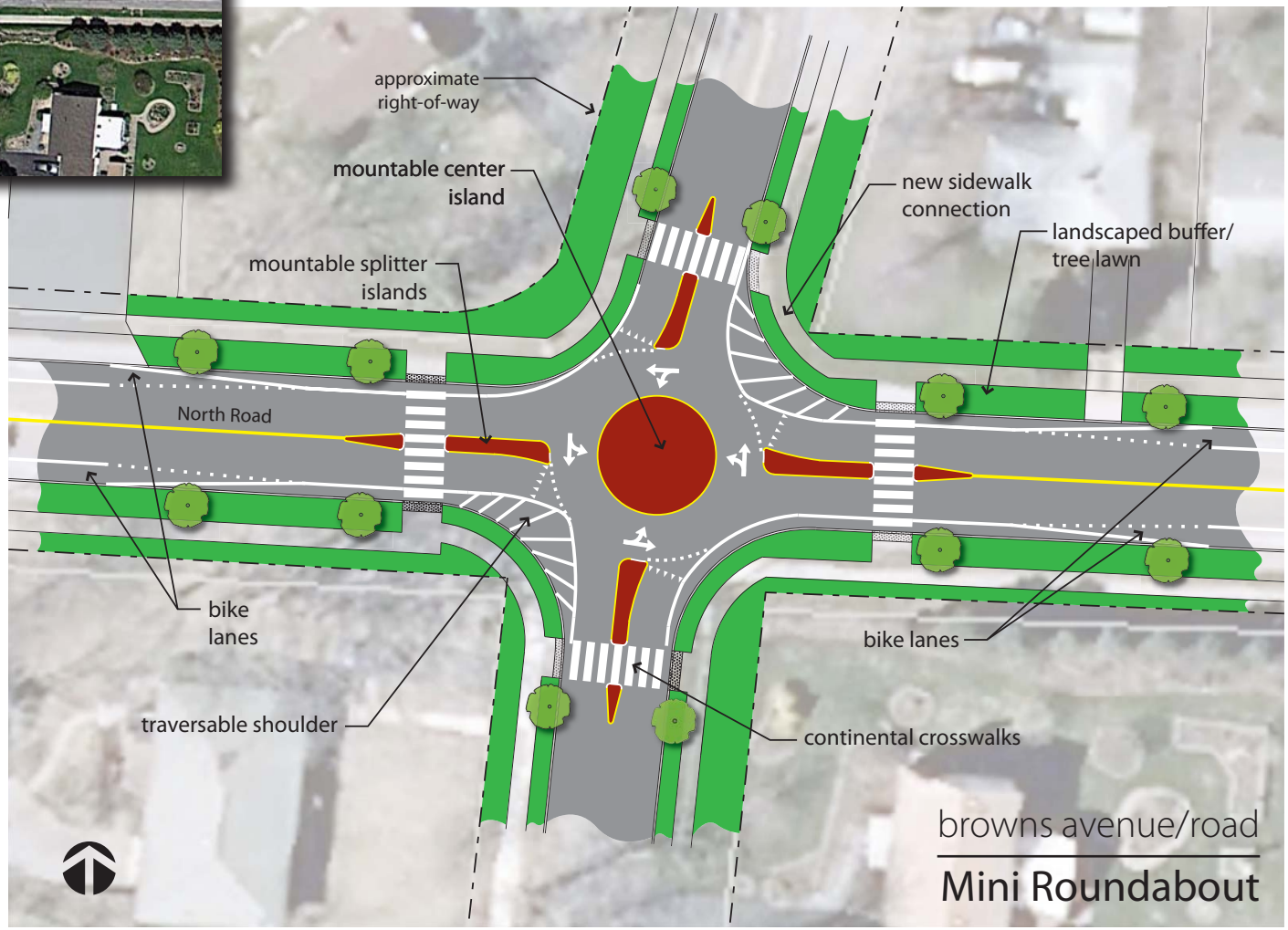
Table 8: Browns Avenue/Road Level of Service

| INTERSECTION | 2032 FUTURE NO-BUILD CONDITIONS | | 2032FUTURE CONDITIONS - ROUNDABOUT | |
|---|---|---|---|---|
| | AM | MD | AM | MD |
| ***North Road / Briarwood Lane / Fairview Road*** | | | | |
| Eastbound - North Road | A (0.1) | A (0.3) | A (6.9) | A (6.5) |
| Westbound - North Road | A (1.5) | A (3.0) | A (5.7) | A (8.4) |
| Northbound -Briarwood Lane | B (13.0) | F (70.1) | A (5.9) | B (11.9) |
| Southbond - Fairview Road | C (15.7) | D (26.9) | A (4.6) | A (5.7) |

Table 9: Briarwood Lane Level of Service

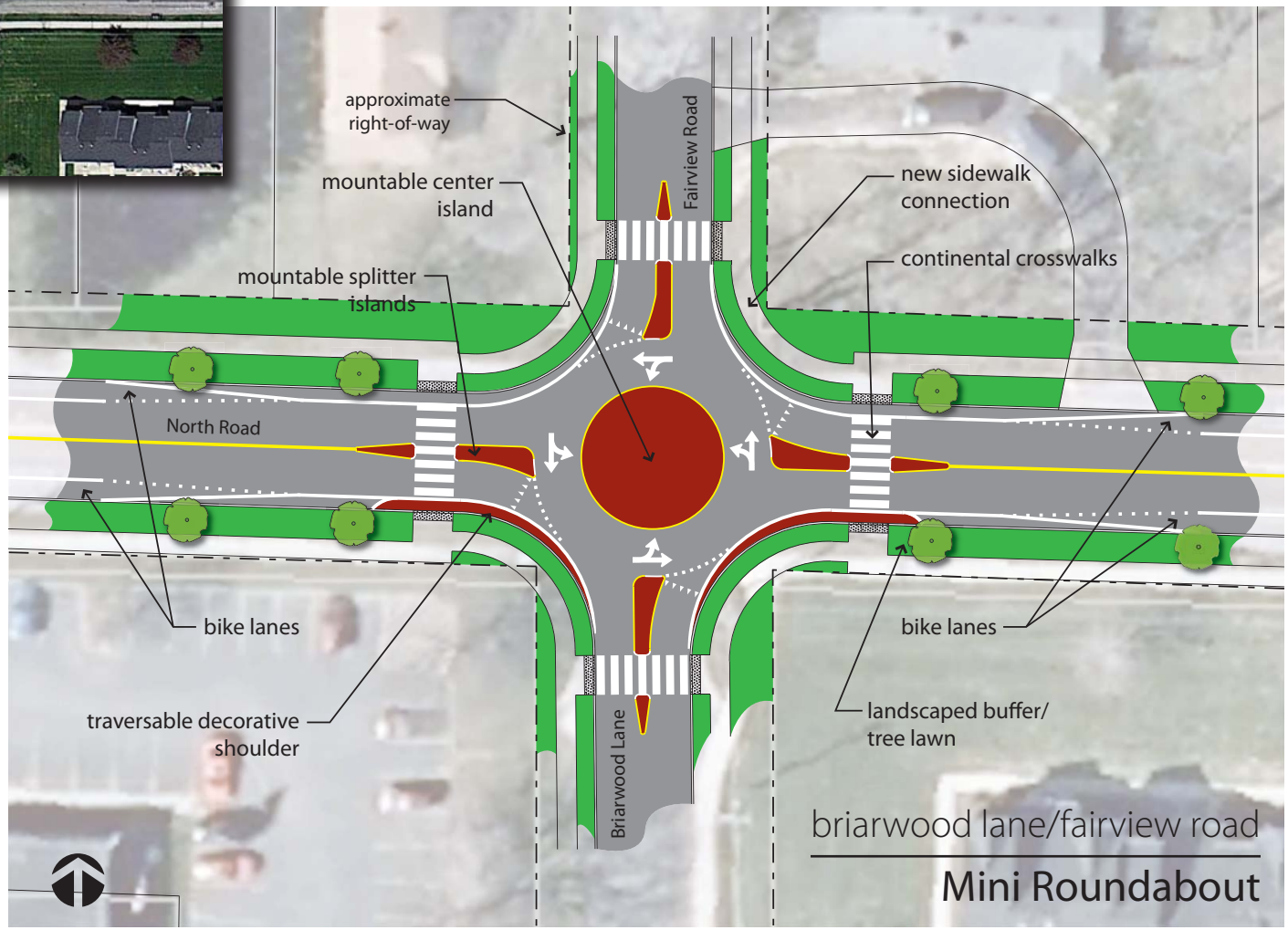
Existing intersection aerial

Figure 20: Proposed Browns Avenue/Road Mini Roundabout



Existing intersection aerial

Figure 21: Proposed Briarwood Lane/Fairview Road Mini Roundabout



SECTION IV

# Recommendations

# Recommendations

As a result of the existing conditions analysis, public feedback on existing issues and concerns, and input from the study's steering and technical adivsory committees, a list of recommendations have been developed for North Road. These recommendations take into account the alternatives presented in the previous section and provide specific strategies and guidance for consideration under an incremental timeline approach. The timelines used range from immediate to near-term (0-5 years) to medium-term (5-10 years) and ultimately long-term (10-20 years). Immediate to near-term recommendations focus on high-impact, low-cost solutions for the Village and Town. These short-term strategies can range from updates to the regulatory language found within the Zoning Code and Village/Town Codes to the installation of pedestrian signage.

## Immediate to Near-Term (0-5 years)

*Regulatory Recommendations* 

The proposed zoning and regulatory modifications are based upon the recommendations contained in the Town and Village Comprehensive Plan, feedback provided by the public and the Steering Committee as well as best practices from across the State and Nation. It should be noted that these code recommendations are to be considered a starting point for a future re-zoning discussion. The exact language and level of flexibility that is appropriate for Wheatland and Scottsville will need to be determined through a process that would involve elected officials, Planning and Zoning Board members, and property owners within the various zoning districts.

One-Family Residence Districts - The Village code does not include purpose statements for the various zoning districts. In addition, the R-1-16 and R-1-12 One-Family Residence Districts within the Village's code are nearly identical to the R-16 and R-12 Single Family Residence District contained in the Town's Code. At a minimum, the Village could adopt the following purpose statements from the Town's Code for these two districts:

- R-16: The purpose of the R-16 Single-Family Residence District is to permit, where appropriate, the construction and development of single-family dwelling units on small lots in areas where municipal water and sewer services are available. The intended pattern of development in this district resembles a village-type setting, with adjacent neighborhood development, sidewalks, streetlighting, street trees and garages located at the side or rear portions of the lots.

- R-12: The purpose of the R-12 Single-Family Residence District is to permit, where appropriate, the construction and development of single-family dwelling units on the smallest lots allowed within the Town where municipal water and sewer services are available. The intended pattern of development in this district resembles a village-type setting, with adjacent neighborhood development, sidewalks, streetlighting, street trees and garages located at the side or rear portion of the lots.

A second option is to amend these statements as follows prior to adoption by the Village:

- R-1-16: The purpose of the R-1-16 One Family District is to support the goals and policies contained in the Comprehensive Plan while permitting the construction of single-family dwelling units on small lots. The intended pattern of development in this district shall create a village-type setting, with sidewalks, streetlighting, street trees and garages located at the side or rear portions of the lots. In areas where there are established neighborhoods, the intent of this district is to preserve the traditional village settlement pattern which generally consists of owner-occupied, single family, detached homes unobstructed front yards and pedestrian-scaled streetscapes. The R-1-16 District is intended for areas with access to public water and sanitary sewer service.

- R-1-12: The purpose of the R-1-12 One Family District is to support the goals and policies contained in the Comprehensive Plan while permitting the construction of single-family dwelling units on the smallest lots allowed in the Village. The intended pattern of development in this district shall create a village-type setting, with sidewalks, streetlighting, street trees and garages located at the side or rear portions of the lots. In areas where there are established neighborhoods, the intent of this district is to preserve the traditional village settlement pattern which generally consists of owner-occupied, single family, detached homes unobstructed front yards and pedestrian-scaled streetscapes. The R-1-12 District is intended for areas with access to public water and sanitary sewer service.

The Village should consider modifying the list of uses allowed by special exception in these two residential districts in an effort to preserve the residential character of North Road. The following uses should be prohibited in the R-1-16 and the R-1-12 Districts; colleges, hospitals, nursing homes, medical research facilities and funeral homes. In addition, professional and medical offices should only be considered for a special exception in these districts when they are proposed in an existing structure originally built for a nonresidential use. It is also recommended that the Village articulate dimensional and specific building and site design requirements for non-residential uses in residential districts as discussed in the *Inventory and Analysis* section.

General Business (GB) District - The following regulatory recommendations for the GB District within the Village are presented in a format that can be easily crafted into an amendment to the Village code. The Village Board, the Advisory Boards, and the

Village Attorney should review the following code elements and determine which are most appropriate to achieve its community vision and the goals of this study prior to adoption.

*Proposed Purpose Statement:* The purpose of the General Business District is to encourage commercial development and to support the goals and policies contained in the Comprehensive Plan and the Village of Scottsville Traffic Circulation and Safety Study. The GB District is established to provide areas for commercial activities that balance the economic opportunities associated with commuter traffic with the daily needs of the community at large. This District encourages the application of site design and buffering techniques to mitigate the impacts of commercial operations and traffic on adjacent uses and the traveling public. Development in this district should also promote the health, safety, and general welfare of residents by fostering physical activity, alternative transportation choices, and greater social interaction.

*Proposed Use Lists:* The following list details the recommended modifications to the permitted uses and uses allowed by special exception in the General Business District. Any use that is not shown below remains unchanged. In order to clarify the roles of the General Business District and the Central Business (CB) District, recommended use changes for the CB District are also included.

| | **Existing Code Requirement For the GB and CB Districts** | **Proposed Requirement For the GB District** | **Proposed Code Requirement For the CB District** |
|---|---|---|---|
| **Residential Uses** | | | |
| 1. Dwelling unit above commercial | SE | P | P |
| 2. Attached Single Family Units | NA | X | SE |
| 3. Multi-Family Units | NA | X | SE |
| **General Commercial Facilities** | | | |
| 4. Automobile Laundry | SE | SE | X |
| 5. Bowling Alley | X | SE | SE |
| 6. Dance Hall | X | SE | SE |
| 7. Filling Station | SE | SE | X |
| 8. Repair Garage | SE | SE | X |
| **Industrial Uses** | | | |
| 9. Truck Terminal, Transfer Station | SE | X | X |

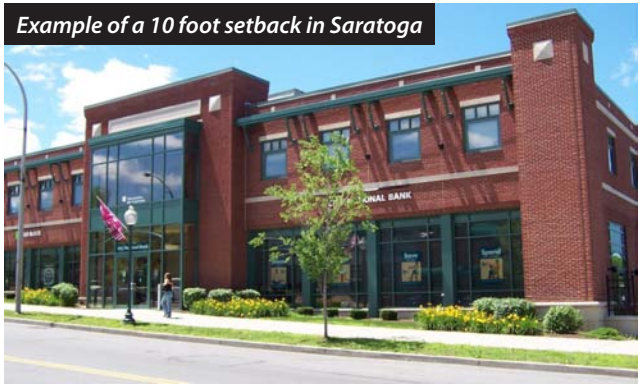
Notes:
X = Prohibited Use
SE = Special Exception
P = Permitted

The Village currently relies on the Special Exception process to trigger the site plan review process by the Planning Board. It is recommended that the Village separate the special permit process from the site plan review process. This would allow the Planning Board to ensure that the physical development of permitted uses such as banks, restaurants, retail stores, and taverns are consistent with the community vision in the GB District.

*Proposed Dimensional Requirements:* The minimum front yard requirement in the GB District is currently 80 feet. As previously stated, this provision makes the re-development of properties within this district difficult due to the small lot size that is characteristic of many of the parcels in the GB District. In addition, this requirement virtually requires a property owner to place parking in the front yard in order to accommodate typical site elements such as a building, parking, circulation and signage. It is recommended that this requirement be reduced to as little as 10 feet. The images below compare three different front setbacks and their impact on the overall site design. The remaining dimensional standards for the GB District are appropriate as written.

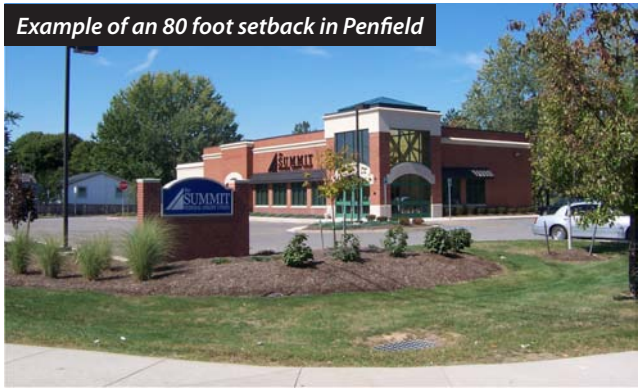
*Example of a 30 foot setback in Scottsville*

*Example of a 10 foot setback in Saratoga*



*Example of a 30 foot setback in Penfield*


*Example of an 80 foot setback in Penfield*




A review of the Town's Shopping Center (SCB) District indicates that the required 70 foot front yard could be reduced to as little as 10 feet as well. In addition, the dimensional standards in the SCB could be modified to be more consistent with the Village's GB District. For example, the lot size and remaining yard requirements can be significantly reduced in the SCB District while the lot coverage could be increased. This will serve to create a more uniform appearance of the North Avenue/NYS Route 383 gateway.

Non-Residential Building & Site Design Standards: The following recommendations provide the minimum zoning language necessary to achieve a higher level of design, connectivity and to upgrade the streetscapes within the study area. These standards should be used to guide the design of any building or site that is developed for non-residential uses regardless of the zoning district. For example, if a civic building was proposed in a residential district, these requirements would apply. Where it is applicable, the language from the Village's Main Street Central Business District Design Guidelines are used for consistency.

*Building Orientation & Composition*

1. To the maximum extent practicable, buildings shall be arranged to orient to the street and to frame the corner at the intersection of two streets where applicable.
2. Street Frontage - a minimum of 50 percent of the street frontage shall be occupied by the site design elements described below.
   - Building frontage;
   - Decorative architectural walls no higher than 3 ft in height;
   - Landscaped entryway signage or features; and/or
   - Site amenities including, but not limited, to public space, art, clocks, etc.
3. Buildings shall exhibit a clearly defined base, mid-section, and crown. This can be accomplished using a combination of architectural details, materials and colors.
4. Architectural details or features such as dormers, masonry chimneys, cupolas, clock towers, and other similar elements are encouraged.

*Façade Composition*

1. All buildings shall have a prominent street level entrance visible and accessible from the public sidewalk.
2. Buildings situated on corners should "wrap" the corner by continuing certain façade elements (such as the cornice or horizontal accent bands) on all street elevations.
3. New construction should be sympathetic to the proportions of the surrounding buildings.
4. Varied building designs that avoid long, flat facades are required.
   - The vertical plane of the building facade shall be broken up with a high level of articulation (e.g., projecting entry or window features, recessed elements, transparent storefronts, identifiable retail spaces, and awning/entrance canopies) especially at ground level.
   - No facade shall exceed 60 ft. in horizontal length without a change in facade plane. Changes in facade planes shall be no less than 1.5 ft. in depth and 8 ft. in length.
   - Any changes in exterior building material shall occur at interior corners.

5. All facades shall be designed to be consistent in regard to architectural style, materials, and details.
6. Along street facades, all new industrial construction shall provide areas of transparency equal to 20% of the wall area and all new commercial and civic construction shall provide areas of transparency equal to 60% of the wall area. The use of mirrored or tinted glass with less than 40% light transmittance is prohibited.
7. Ground floor transparency shall be measured between 2 ft. and 10 ft. above the adjacent sidewalk.
8. Renovations of the first floor of existing buildings shall not decrease the area of transparency. Where feasible, renovations shall increase the area of transparency to that required for new construction unless the original historic character of the building requires less transparency area.

*Other Building Design Considerations*

1. All primary buildings shall be constructed or clad with materials that are durable, economically-maintained, and of a quality that will retain their appearance over time, including, but not limited to, painted wood; natural or synthetic stone; brick; stucco; integrally-colored, textured, or glazed concrete masonry units; high-quality pre-stressed concrete systems; Exterior Insulation Finish Systems (EIFS); or glass. Prohibited materials include:
   - Smooth-faced gray concrete block, smooth-faced painted or stained concrete block, smooth-faced concrete panels;
   - Unfinished wood; and
   - Corrugated metal siding.
2. To the extent practicable, air conditioning units, HVAC systems, exhaust pipes or stacks, elevator housing, and other similar mechanical equipment shall be thoroughly screened from view from the public right-of-way and from adjacent properties. Screening shall be architecturally compatible with the style, materials, colors, and details of the building.
3. Alternative energy sources, such as solar panels or shingles, are encouraged and should be incorporated into the design of the building so as not to detract from the overall appearance.
4. Developers and builders are encouraged to utilize roofing materials that reflect sunlight (i.e. lighter colors) or incorporate vegetated roofing on at least 50% of the roof area. Methods such as these decrease heating and cooling needs on a building by reflecting sunlight rather than absorbing it.

*Pedestrian & Bicycle Accommodations*

1. Bicycle parking requirements shall apply to new development, building expansions or occupancy changes requiring a zoning permit where motor vehicle parking is required.
2. Bicycle parking shall be provided at 10 percent of the motorized vehicle parking requirements but not less than 2 bicycle spaces and not more than 20 bicycle spaces for any use.
3. Bicycle parking shall be located and clearly designated in a safe and convenient location. Bicycle parking sign shall be visible

from the main entrance of the structure or facility.

4. An on-site system of pedestrian walkways shall be designed to provide direct access and connections to and between the following:
   - The primary entrance or entrances to each commercial building, outparcels;
   - Any sidewalks or walkways on adjacent properties that extend to the boundaries shared with non-residential development;
   - The public sidewalk system along the perimeter streets adjacent to the commercial development;
   - Where practicable and appropriate, adjacent land uses and developments, including but not limited to adjacent residential developments, retail shopping centers, office buildings, or restaurants; and
   - Where practicable and appropriate, any adjacent public park, greenway, or other public or civic use including but not limited to schools, places of worship, public recreational facilities, or government offices.
5. Sidewalks and/or plazas shall be provided with weather protection (e.g., shade trees, awnings/canopies) and appropriate pedestrian amenities (e.g., street tree grates, outdoor seating, trash cans, sidewalk displays, public art, etc.).

*Vehicular Access & Circulation*

1. To the extent practicable, non-residential and mixed-use sites shall be designed to provide cross access and a unified circulation pattern with adjacent sites.
2. Techniques to achieve this include but are not limited to, shared driveways, shared access roads and cross access easements.
3. To the extent practicable, common or shared service and delivery access shall be provided between adjacent parcels and/or buildings.
4. Access easements may be required so that pad sites or adjacent parcels have adequate access if ownership patterns change.

*Off-Street Parking Requirements*

1. The parking requirement for retail businesses and office uses can be reduced to as low as 3 spaces per 1,000 sq. ft. of gross floor area.
2. All other uses shall be subject to the existing parking requirements.
3. The maximum number of off-street parking spaces for any building or use shall not exceed 150 percent of the minimum parking requirement.
4. Shared parking is encouraged to promote efficient use of land and resources by allowing users to share off-street parking facilities for uses located within close proximity to one another with different peak parking demands or different operating hours. The Planning Board may approve shared use of parking facilities located on the same property or on separate properties if, in the opinion of the Board:

- A convenient pedestrian connection between the properties exists; and
- The properties are within 1,000 ft. of each other on the same side of the street or within 500 ft. of each other on opposite sides of the street; and
- The availability of parking for all affected properties is indicated by approved directional signs.

5. Where the uses to be served by shared parking do not overlap their hours of operation, the property owner or owners shall provide parking stalls equal to the greater of the applicable individual parking requirements.
6. Where the uses to be served by shared parking have overlapping hours of operations, the property owner or owners shall provide parking stalls equal to the total of the individual parking requirements. If the following criteria are met, that total may be reduced by 10 percent:
   - The parking areas share a property line; and
   - A vehicular connection between the lots exists; and
   - A convenient, visible pedestrian connection between the lots exists; and
   - The availability of parking for all affected properties is indicated by approved directional signs.

*Off-Street Parking Placement & Design*

1. Parking in the front yard should be limited or prohibited. Side yard parking shall be located a minimum of 10 ft. behind the front facade.
2. Parking, or access to parking, shall not exceed 40 percent of the lot frontage.
3. In order to reduce the scale of parking areas, the total amount of parking provided shall be broken up into parking blocks containing not more than 40 spaces.
   - Each parking block shall be separated from other parking blocks by buildings, access drives with adjacent landscaped areas at least 10 ft. wide, a landscaped median or berm at least 10 ft. wide, or by a pedestrian walkway or sidewalk within a landscaped median at least 10 ft. wide.
   - Each parking block or pod shall have consistent design angles for all parking within the block.
   - Parking blocks should be oriented to buildings to allow pedestrian movement down and not across rows (typically with parking drive aisles perpendicular to customer entrances).
4. All parking blocks which contain more than 25 stalls, including access lanes and driveways, must include clearly identified pedestrian routes from the parking stalls to the main building entrance and the public sidewalk along the street. At a minimum, walkways shall be provided between every parking block and meet the following standards:
   - Shall be designed and built in accordance to the municipality's specifications for construction of utilities and roadways;
   - Shall be distinguishable from vehicular ways by pavement material, texture, or raised in elevation;
   - Shall have adequate lighting for security and safety. Lights shall be non-glare and mounted no more than 20 feet above

the ground;
- Shall comply with the American with Disabilities Act (ADA).

*Landscaping*

1. Building setback areas along streets, access ways, or along private drives, shall be landscaped with a minimum of 1 shade tree per 40 ft. of linear frontage.
2. The total amount of shrubs to be used to landscape the building setbacks and building foundations shall be a minimum of 1 shrub for each 10 linear feet of the perimeter of the lot.
3. Building setback areas shall include compact massings of ornamental plant material, such as ornamental trees, flowering shrubs, perennials, and ground covers.
4. Building foundations shall be planted with ornamental plant material, such as ornamental trees, flowering shrubs, perennials, and ground covers.
5. Parking lot landscaping. The interior of all uncovered parking blocks containing 10 or more spaces shall be landscaped according to the provisions in this subsection.
   - The primary landscaping materials used in parking lots shall be trees, which provide shade or are capable of providing shade at maturity. Shrubbery, hedges and other planting materials may be used to complement the tree landscaping, but shall not be the sole means of landscaping. Effective use of earth berms and existing topography is also encouraged as a component of the landscaping plan.
   - One shade tree shall be planted for every 5 parking spaces.
   - Landscaped berms shall be at least 10 ft. wide and a maximum of 3 ft. high.

*Complete Streets Policy*

According to the National Complete Street Coalition, "Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.

National Complete Streets Coalition

Creating Complete Streets means transportation agencies must change their approach to community roads. By adopting a Complete Streets policy, communities direct their transportation planners and engineers to routinely design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation. This means that every transportation project will make the street network better and safer for drivers, transit users, pedestrians, and bicyclists – making your community a better place to live."

The development of a Complete Streets Policy is beyond the scope of this study but there are many examples on which the Village can draw from. The following links provide examples of policies that Scottsville could use as a starting point in developing their own policy.

- Village of Pittsford - http://www.villageofpittsford.org/documents/StreetsPolicyApril2011.pdf
- City of Rochester - http://www.cityofrochester.gov/CompleteStreets
- National Complete Streets Coalition - http://www.smartgrowthamerica.org/complete-streets/changing-policy

Based on discussions with the NYSDOT and MCDOT, complete roadway reconstruction or even extensive enhancements along North Road before it is absolutely necessary is highly unlikely. The funding will not be available. The exception might be if federal enhancement funds become available, assuming the Village has successful grant application. Therefore, the following recommended enhancements to North Road have been organized for phased implementation.

The recommendations for enhancements below have been phased according to immediate to near-term (0-5 years) and medium-term (5-10 years) increments.

The near-term recommendations below are aimed at quickly improving the character of the street with low cost enhancements. These provide a solid foundation for the future transformation of North Road into an attractive public realm that will accommodate all users.

*Tradeoff of Installing Street Trees and Other Streetscape Components*

North Road currently lacks street trees and the dedicated space within the right-of-way to plant them. The asphalt areas extending beyond each side of the gutter could provide the space necessary to plant trees. However, after discussions with the Monroe County DOT, it is believed that this space provides much needed space for bicyclists and would not be worth the associated costs in the short-term. In addition, this asphalt area is used by pedestrians along the north side where a sidewalk is not available. In the short-term this creates a tradeoff between the benefits that street trees provide (e.g. shade, traffic calming, improved aesthetics, etc.) and the benefits provided by having a "multi-use" space adjacent to the travelway (e.g. cycling, walking/running, parking, etc). The feasibility of planting trees in the existing strip between the asphalt area and the sidewalk was considered but is deemed too narrow. Planting trees on the backside of the sidewalk near the edge of the right-of-way was also considered. However, trees would be too far back from the roadway and would not provide the intended benefits. They would also interfere with the overhead utilities.

The existing asphalt area adjacent to the gutter could provide a tree lawn if removed. However, it currently is used by pedestrians, cyclists and for parking.

The Village, Monroe County DOT, and local stakeholders should continue to evaluate this tradeoff and be watchful of grants that might allow for planting street trees and, at the same time, provide dedicated space for cyclists and pedestrians. When/if trees are to be planted they should be selected and planted based on the guidelines in the Scottsville Tree Inventory Report. Pedestrians, bicyclists, and drivers alike will benefit from trees. They will greatly enhance the human experience on North Road, provide shade from excessive summer heat, help to slow traffic, and

greatly enhance aesthetics. As an alternative to traditional stormwater management practices, the tree lawn area can also harbor bio-swales, which are green and innovative stormwater management facilities. A few benches and trash receptacles should also be installed. The corridor is used by a variety of users of all ages including runners and walkers. These new amenities will provide resting points and promote the overall wellbeing along North Road. Generally, public trash receptacles facilitate responsible litter habits among users and comfortable well-placed benches will encourage community interaction.

*Install Gateway Signs / Improvements*

Gateway Signs should be considered near the intersection of Scottsville Road (NY Route 383) and North Road and just east of the Wheatland Chili High School. Although there is currently highway type signs in these locations they are non-descript and do little to showcase the Village. In addition to decorative Village of Scottsville signs, landscaping should also be included around the signs. As a gateway intersection, special attention should be paid to the area around Scottsville Road and North Road. Enhanced crosswalks should be considered and buildings should be attractive and well maintained. With attention to detail and quality, these areas will provide a sense of arrival to the Village of Scottsville.


The existing village entrance sign is nondescript and does not provide a sense-of-arrival to the village.

*Share the Road Signage*

Currently, North Road has earned a rating of "good", the highest possible, on a roadway rating scale developed by The Genesee Transportation Council based on opinions expressed by experienced bicyclists for roadways in the Greater Rochester Area. North Road experiences frequent bicyclists as it is a popular route amongst local bicycling clubs. It is important for bicyclists to feel they have a right to share the roadway with passing motorists. Likewise, it is equally important from an observation and safety standpoint that drivers are aware of the frequency of bicyclists along North Road.


Share the Road signage. W11-1 and W16-1, MUTCD

It is recommended that "Share the Road" signs be installed along North Road to alert drivers to the presence of bicyclists. Demographic trends show a decreased dependency on motor vehicles and an greater reliance on bicycles as a primary form of transportation. Therefore, it is important to indicate to motorists that they must share the travel lanes with bicyclists. Additionally, installment of bicycle signage could encourage a wider range of individuals to take up cycling if they have not already done so, as a bicycle-friendly environment could have health, economic, and environmental benefits.

*Speed Enforcement*

Examples of speed feedback devices



The issue of high vehicle speeds along North Road came about after early discussions with members of the steering committee. During the inventory and analysis phase of the study, vehicle speeds were documented and found to be higher than the posted 30 MPH speed limit (see Pg. 17). Members of the community agreed with this sentiment as numerous comments were made regarding speeding and the lack of speed enforcement throughout the corridor. High vehicle speeds can result in an unsafe environment for all users.

The introduction of speed monitoring or feedback devices will make motorists aware of their speeds, especially in the area of WCHS and Connor Elementary School. These devices can be mounted on existing speed limit signs as a permanent fixture to indicate real-time speed feedback as drivers pass. Otherwise, temporary portable speed trailers can provide the same level of feedback for motorists and can be transported to key locations, such as locations near schools.

*Modify Signal Timings at NY Route 383 (Rochester Street/Scottsville Road)*

Short-term improvements in the PM peak hour traffic flow can be acheived by modifying the existing signal timings to balance operations on all approaches. As a result of modifications, reductions in queuing and delay can be achieved. This will improve overall congestion and traffic flow, as well as have cost benefits to motorists as idling time will be reduced. This in turn can reduce emissions of greenhouses gases attributed to intersection delays. Refer to the *Needs, Opportunities, & Alternatives Assessment* section and Table 6 for further detail on the level of service results.

*High Visibility Crosswalks & Signage*

One key feature of a safe and comfortable pedestrian environment is the quality and visibility of crossings. The existing marked pedestrian crosswalks are faded and show signs of wear and tear. This can have a negative effect on the ability of drivers to clearly see the where they should expect pedestrians to cross the roadway.

It is recommended that high visibility crosswalks be installed at the existing marked locations and refreshed on a regular basis. They provide an improved indication to motorists that the travel-way is for pedestrians, along with vehicles. Increasingly, upgrading pedestrian crossings can change the perception and behaviors people traveling along the corridor to promote a more walkable environment.

Moreover, to further enhance pedestrian crossings, pedestrian warning signage may be used to provide an extra level of visibility on approaches that are not controlled by stop signs. Enhanced crosswalks, ADA compliant ramps, and new or updated signage should be installed at the following intersections as appropriate:

- Browns Avenue/Road
- Briarwood Lane
- Chili Avenue
- Scottsville Road/Rochester Street (crosswalks only)

Existing crosswalks at Browns Avenue/Road


Enhanced crosswalks at Browns Avenue/Road

An enhancement to the traditional pedestrian crossing signage is using a Rectangular Rapid Flashing Beacon (RRFB). The RRFB is user-actuated that can be activated manually through a push-button or a passive pedestrian detection system. Amber light emitting diodes (LEDs) flash in an irregular manner to signal drivers of a crossing pedestrian. Findings show they can increase driver yielding behavior. Units can be self-powered via a solar panel mounted on top of the sign. Signs should be installed in units of two, one for each direction of traffic. Browns Avenue/Road is an ideal location for an RRFB.

Rectangular Rapid Flashing Beacon

Pedestrian warning sign with downward pointing arrow W11-2 and W16-1, MUTCD

*Develop a Safe Routes to School Plan for Connor Elementary School*

Safe Routes to School (SRTS) is a national program that helps create safe, convenient and fun opportunities for children to walk and bike to and from their schools. SRTS programs require collaborative partnerships amongst local stakeholders with interests to improve safety, promote healthy lifestyles, and improve environmental quality around schools. To accomplish this, a comprehensive program must be established to create an environment that enhances, supports and sustains walking and cycling as viable options for travel. With this in mind, SRTS emphasizes a holistic approach to create change that encompasses the five (5) E approach; Engineering, Enforcement, Encouragement, Education and Evaluation.

SRTS programs are available to schools with grade levels from K-8. Connor Elementary School provides a key opportunity to build such a program around. Infrastructure (i.e., sidewalks, crosswalks, signage, multi-use paths, bike storage) and non-infrastructure improvements (i.e., encouragement programs such as Walk/Bike to School Day programs, bicycle rodeos, Walking School Bus) are benefits that can result from a comprehensive SRTS plan.


*Walking School Bus*

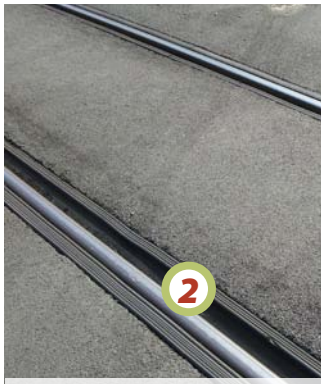
With low-cost, high-impact solutions in mind, communities such as the Village of Scottsville and the Town of Wheatland may look to implement certain aspects of a Safe Routes to School plan without developing a full-scale program. A walking school bus program can be quick and simple to implement.

Generally it requires one or several adults volunteering their time to walk a group of children to school. A timetable can be developed, along with meeting points for children to know when and where the "bus" will be. Routes should be tested based on thoughtful and thorough examinations to ensure the safest environment possible. To determine the level of interest and ensure the effectiveness of such a program, teachers may choose to take a survey of the number of children already walking to school. Once the program has been in place for several months or a full school year, a re-count can be done to determine if there are any differences in the numbers of children taking part in the program. Additionally, feedback can be given to determine if improvements are needed or further outreach is needed to expand the promotion of the program. For more information on SRTS plans and specific programs, visit www.saferoutespartnership.org and/or www.saferoutesinfo.org.

### *Shift Change at CooperVision*

A concern mentioned early in the study's discovery process and reiterated amongst citizen feedback was the frequent occurrence of congestion at Briarwood Lane as it relates to shifts changes at CooperVision and nearby dismissal times of WCHS and Connor Elementary School. Traffic data collected at the study intersections and specifically in the area of the high school show that peak hour conditions of the roadway coincide with afternoon shift change times at CooperVision. A traffic study was performed in 2007[1] by MCDOT that evaluated this exact issue. The study recommended that the school or CooperVision should adjust their peak times to alleviate congestion. It appears no alteration in shift change times have been undertaken. Based on the Consultant Teams' analysis and feedback, shift change times are recommended to be moved back by one half hour to ease congestion and safety concerns found at the intersection, if feasible. Moving the shift change times forward would cause a conflict with morning school traffic.

Existing view facing east



Existing view of rail tracks

Existing view facing west

### *Improve Pedestrian Crossing at the Railroad Tracks*

The pedestrian crossing conditions at the railroad tracks pose safety concerns that were brought up during the Public Open House. Residents stated there have been accidents caused by the condition of the pavement and drainage inlets found around the tracks. The pavement condition is worn and shows signs of aging while the use of different asphalt materials can make crossing the tracks challenging for individuals using wheeled devices for mobility.

It is recommended that imperfections in the pavement contributing to challenging conditions for all users be repaired. Vegetaion may be used to dampen the noise from passing trains. In time, a rubber crossing surface that is friendlier to pedestrians and bicyclists, versus an asphalt surface, should be considered by the rail line operator.


Rubber crossing pad

1. Uneven crossing surface for pedestrians
2. Wide flangeway may be problematic for wheelchair users
3. Deep drainage inlets pose safety issues for bicyclists

1 North Road at Briarwood Lane/Fairview Road Traffic Study. McComb, Paul. Traffic Eng. Tech. MCDOT. February 6, 2007.

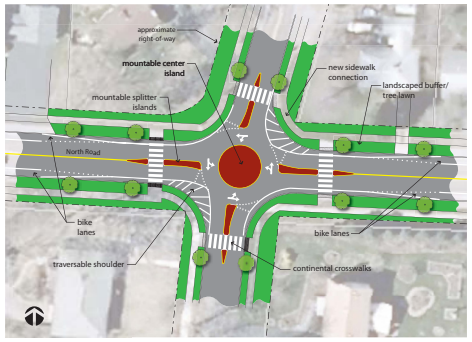
## Medium-Term (5-10 years)

Medium-term enhancements will enable North Road to approach its full potential as a community transportation corridor. Medium-term goals include removal of the existing asphalt sidewalk along the south side, installation of 5' concrete sidewalks on both sides, and pedestrian-scaled lighting.

*Resurface North Road*

Currently, North Road shows signs of time, traffic, and weather related degradation. One negative effect can be the detraction of potential bicyclists from using the roadway. It is recommended that North Road be resurfaced to provide a more aesthetically appealing, durable, and safer operating environment for all users. Other benefits can be reduced road noise and a smoother riding surface. In addition to resurfacing, the Village can puruse the installation of sharrows, as mentioned previously. This will enhance the appearance of North Road as a bicycle friendly road and provide a traffic calming effect.

Shared-lane marking "sharrow"



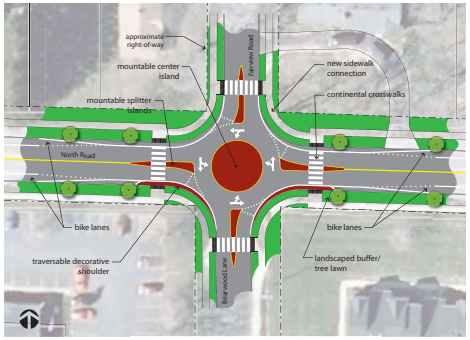

Browns Avenue/Road Mini Roundabout

*Mini Roundabout at Browns Avenue/Road*

As was discussed in the *Needs and Opportunities* section of this report, it is recommended that a mini roundabout be installed at the intersection of Browns Avenue/Road and North Road. Benefits to the surrounding area could be improved traffic flow; slower vehicle speeds; enhanced pedestrian safety; and an overall sense of place. Additionally, given the proximity of this intersection to nearby Connor Elementary, school children will have a safer walking environment thereby potentially encouraging greater volumes of children to walk to school.

*Mini Roundabout at Briarwood Lane*

The installation of a mini roundabout is also recommended at the intersection of Briarwood Lane and North Road. This intersection experiences higher volumes of vehicle traffic due to its location in relation to CooperVision. During shift change times and school dismissal times, traffic congestion can cause frequent delays. Safety issues have been raised as a result of the movement of traffic and presence of pedestrians such as students walking to and from school. As with the Browns Avenue/Road mini roundabout, Briarwood Lane could see improved traffic flow and a safer environment for pedestrians, bicyclists, and motorists.



Briarwood Lane Mini Roundabout

*Replace Existing Asphalt Southern Sidewalk*

Currently, the southern side of North Road has a 5' sidewalk. Although some brief sections are concrete, the sidewalk is overwhelmingly an aging asphalt path. The asphalt sidewalk has large cracks, ripples, and excessive puddles form on its surface, which creates problems in both spring and winter seasons. Generally, asphalt material is less expensive, yet requires more maintenance. While concrete sidewalks are more expensive they perform far better over time. The existing sidewalk should be removed and replaced with a new 5' concrete sidewalk.

*Install Sidewalk Along North Side*

Currently, the north side of North Road lacks a sidewalk. Pedestrians and bicyclists walk on the asphalt area outside the travels ways or in the gutter. Installing a new sidewalk will greatly increase pedestrian access and circulation along the corridor and improve safety. According to PedSafe, a Pedestrian Safety Guide and Countermeasure Selection System sponsored by the US Federal Highway Administration, sidewalk design guidelines state "continuous sidewalks should be placed along both sides of all fully improved arterial, collector, and local streets...in suburban areas."

*Install Pedestrian Scaled Lighting*

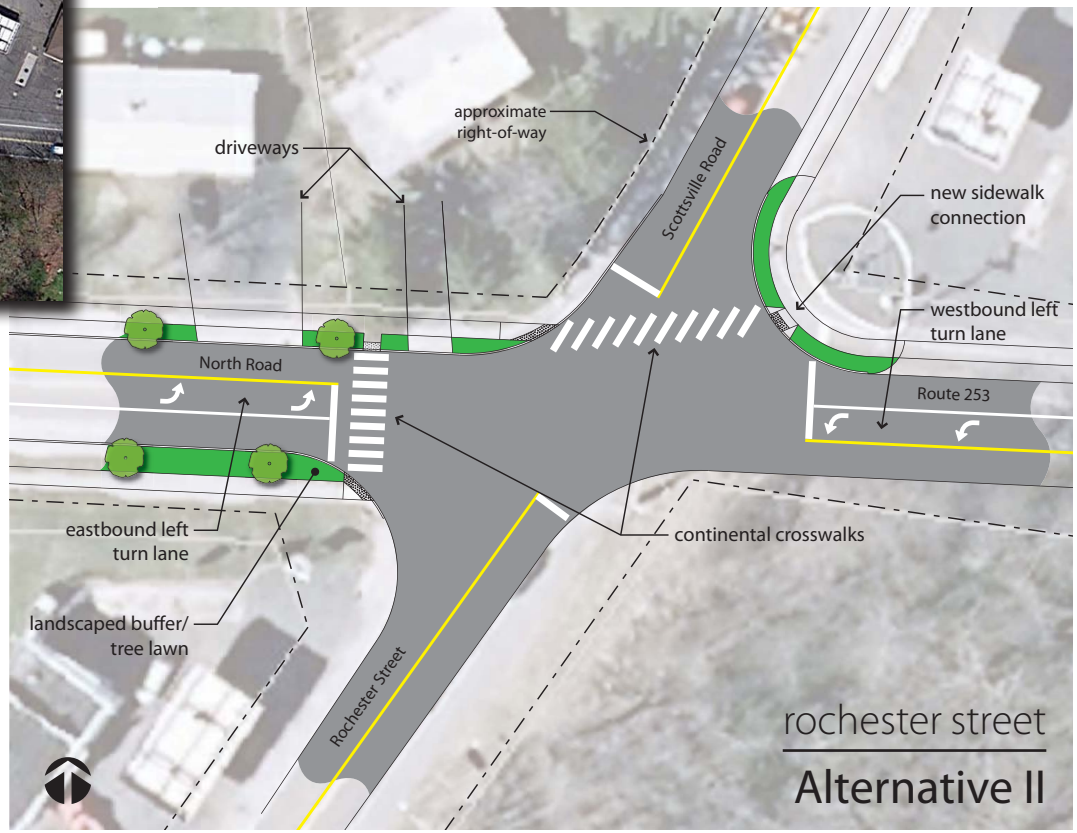
Pedestrian scaled lighting should be installed along the corridor. As was stated earlier, the corridor is utilized by walkers, runners, and cyclists and the added visibility of North Road at night will promote transportation safety, dissuade potential criminal activity, and promote a sense-of-place. Rather than using standard highway davit pole design, North Road will stand out with unique pedestrian scaled lighting consistent with village design character.

## Long-Term (10-20 years)

*Realignment of North Road & Rochester Street*

It is recommended that the intersection be re-aligned to include eastbound and westbound left turn lanes. The re-alignment will greatly improve traffic operations for eastbound and westbound traffic as well as the northbound and southbound traffic. Pedestrian safety will be greatly improved with the introduction of sidewalks and ADA compliant curb ramps. Pedestrian actuated countdown signals should be installed on all appropriate pedestrian crossings. Aesthetically, the intersection can function as a gateway into the North Road corridor, as discussed previously. The following graphic illustrates the recommended plan.

Existing intersection aerial




Proposed Rochester Alternative III

*Rebuild North Road as a Complete Street*

In August 2011 New York State and Governor Andrew Cuomo signed and passed complete streets legislation. Simply put, planning and designing for all users of a roadway - pedestrians, motorists, and bicyclists - will need to be considered under any NYSDOT, county, or local projects which received federal and state funding. These streets are designed for everyone from young to old, regardless of age or ability.

Complete Street design principles include sidewalks, crosswalks, curb extensions, traffic calming measures, transit facilities, and bike lanes to name a few. Roadways using complete street design elements can reduce fatalities and injuries, promote a healthier lifestyle, enhance the liveability and viability of a community, and provide an overall sense of place. They give people a choice of how they want to travel and use the roadway. This freedom allows greater flexibility into how citizens use and shape their environments. Those groups of individuals whom lack access to motorized vehicles, such as school children, do not have to rely on their parents to provide transportation. A Complete Street can reignite or create connections and modes of travel within a community that were once only given to those operating a motor vehicle.

> "Complete Streets" principles facilitate improved joint use of roadways by all users, including pedestrians, motorists, and bicyclists as well as promote a cleaner, greener transportation system with reduced traffic congestion and the resultant air pollution.
>
> – governor.ny.gov

It is recommended as a long-term solution to rebuild North Road to incorporate all elements of a Complete Street. **Figure 22** on the following page illustrates the Complete Street recommendation taking into account enhancements proposed prior to the long-term strategy for North Road (i.e., pedestrian scaled lighting, rebuilt sidewalk on south side, new sidewalk on the north side, street trees and lanscaping elements, other streetscape components).

Existing North Road view looking east

Figure 22: Proposed Complete Street Long-term Enhancement - Option B (Looking East)

SECTION V

# Cost Estimates, Implementation & Funding

# Cost Estimates, Implementation & Funding

## Cost Estimates

The costs associated with many of the immediate to near-term recommended improvements are relatively low and inexpensive. A number can be implemented with little or no cost, (e.g. signal timing modifications, enhanced crosswalk striping, signage, landscaping, furnishings), while other recommendations require a more significant infrastructure investment. The cost for these as well as for the more substantial improvements such as the rebuilding of North Road as a Complete Street were estimated based upon recent bid prices for comparable elements.

It should be noted that there is significant variability in the degree to which improvements can be implemented and the costs associated with the improvements. For example, the streetscape enhancements can include sidewalk replacement and pedestrian scaled lighting or other less expensive treatments with only plantings and less expensive crosswalk treatments. Other improvements in the transportation system, such as the mini roundabouts, may likely evolve over an extended time through a combination of private/public partnerships.

| RECOMMENDATIONS | PLANNING LEVEL COST ESTIMATE |
|---|---|
| *Immediate to Near-term (0-5 years)* | |
| Develop Regulatory Code Language | $ 3,000 - $ 20,000 |
| Develop Complete Streets Code Language | $ 0 - $ 5,000 |
| Street Trees, Landscaping, other Streetscape Components | $ 133,400 |
| Gateway Signage | $ 3,000 |
| Share the Road Signage | $ 2,700 |
| Speed Trailers or Permanent Speed Feedback Devices | $ 15,000 |
| Modify Signal Timings at Route 383 to Improve Traffic Flow | Routine Maintenance Cost |
| High Visibility Crosswalks & Signage at Browns Road/Avenue | $ 3,300 (crosswalks) |
| *Rectangular Rapid Flashing Beacons* | $ 15,000 (signage) |
| HIgh Visibility Crosswalks, Signage, and ADA Curb Ramps at Briarwood Lane | $ 6,300 |
| High Visibility Crosswalks & Signage at Chili Avenue | $ 5,450 |
| High Visibility Crosswalks and ADA Curb Ramp at Scottsville Road/Rochester Street | $ 4,900 |
| Develop a Walking School Bus Program | $ 500 |
| Shift Change at CooperVision | no cost |
| Improvements to the Pedestrian Crossing at the Railroad Tracks | $ 3,200 |
| Develop Safe Routes to School Plan for Connor Elementary School | $ 10,000 |
| *Medium-term (5-10 years)* | |
| Replace Existing Sidewalk Along South Side with New Concrete Sidewalk | $ 256,000 |
| Re-surface North Road[1] | $ 559,000 |
| Mini-roundabout at Browns Road/Avenue[1] | $ 83,000 |
| Mini-roundabout at Briarwood Lane[1] | $ 90,000 |
| Install North Side Sidewalk[1] | $ 326,000 |
| Install Pedestrian Level Lighting | $ 1,000,000 |
| *Long-term (10-20 years)* | |
| Realignment of North Road/Rochester Street Intersection | $ 420,000 |
| Road Re-construction to Install Option B (Complete Street) | $ 6,660,000 |

▲ Table 10: Cost Estimates

Notes:
1. Costs include MPT, design, survey, construction inspection.
2. Schematic cost estimates have been prepared using a 40% contigency.
3. Costs are provided in 2012 dollars.
4. Costs do not include right-of-way.

## Implementation and Funding

Recommendations for implementation of the proposed improvements are outlined on the following pages. They are subdivided into three categories: Immediate to Near-Term (0-5 years), Medium-Term (5-10 years), and Long-Term (10-20 years). Many of the Immediate to Near-Term recommendations can be implemented as part of ongoing maintenance. Meanwhile, others items in this phase of implementation are either relatively low cost modifications or funding for these improvements may be more readily available. Medium-Term recommendations require more planning and funding to implement and can likely be accomplished in the 5 to 10 year timeframe. The Long-Term recommendations are generally more expensive and are likely to require significant planning to implement. It is noted that the longer timeframes may more closely align with typical NYSDOT timeframes used for programming funding. Specific long term improvements may be made sooner if funding becomes available. Opportunities for funding and a description of the funding sources that are available are included on the following pages.

On July 6, 2012, President Obama signed the Moving Ahead for Progress in the 21st Century Act, commonly referred to as MAP-21. This act provides over $105 billion in funding for surface transportation programs for fiscal years 2013 and 2014. MAP-21 is the first long-term highway authorization enacted since 2005. According to the Federal Highway Administration, "MAP-21 provides needed funds and, more importantly, it transforms the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure."

The specific programs affecting local governments under the previous funding authorization bill (SAFETEA-LU) are now largely gone, including the Safe Routes to Schools Program, the Recreational Trails and Scenic Byways Programs, and the Transportation Enhancements Program. MAP-21 transforms those into eligible activities within the existing Highway Safety Improvement Program and a new Transportation Alternatives category. While MAP-21 requires states to spend at least 2 percent of their federal highway funds on Transportation Alternatives, the total is about $300 million less per year than the total for those programs under SAFETEA-LU. At this time it appears that there will be a one more round of Transportation Enhancement Funding in 2013 to spend the funds remaining under the SAFETEA-LU bill. It is anticipated that there will be a call for projects under the Transportation Alternatives Program of MAP-21 in 2014.

On the local level, the Village should consider establishing a Capital Improvement Program (CIP) as part of its regular operations. A CIP is an ongoing financial planning tool which identifies capital projects and equipment purchases to be completed over a five year period and identifies options for financing the projects and purchases. The CIP can provide a link between the municipality, its various departments, other governmental entities (NYSDOT, MCDOT, etc), the recommendations contained in local plans and studies and the municipality's annual budget. This process may include setting aside financial resources into

reserve accounts in order to help fund necessary projects in the future. The use of reserve accounts combined with municipal bonds and outside grant funding constitutes an effective mechanism for funding capital projects in New York State.

## FUNDING OPPORTUNITIES

Table 11: Implementation and Funding

| ITEM # | RECOMMENDATIONS | CHIP | TAP | TEP | CDBG | STIP | MISC |
|---|---|---|---|---|---|---|---|
| IMMEDIATE TO NEAR-TERM (0-5 YEARS) | | | | | | | |
| 1 | Refine & adopt zoning & regulatory recommendations | | | | | | 1 |
| 2 | Develop & adopt a Complete Streets Policy | | | | | | 1 |
| 3 | Plant landscaping & street trees | | ● | ● | | | 1,2,3 |
| 4 | Design & install gateway signs | | | ● | | | 1,2,3 |
| 5 | Install "Share The Road" signs | ● | | | | | 1,2,3 |
| 6 | Use speed trailers or permanent devices to monitor & regulate speeding | | ● | | | | 1 |
| 7 | Modify signal timings at Route 383 to improve traffic flow | | | | | ● | 3 |
| 8 | Install high visibility crosswalks & signage at Browns Road | ● | ● | ● | | | 1,2 |
| 9 | Install high visibility crosswalk & signage on Briarwood Lane | ● | ● | ● | | | 1,2 |
| 10 | Install high visibility crosswalks & signage at Chili Avenue | | ● | ● | | ● | 1,2,3 |
| 11 | Install high visibility crosswalks at Scottsville Road | | ● | ● | | ● | 1,2,3 |
| 12 | Initiate a "Walking School Bus" | | | | | | 5 |
| 13 | Implement a shift change at Coopervision | | | | | | 6 |
| 14 | Improve pedestrian crossing at railroad tracks | | ● | ● | | | 1,2,4 |
| 15 | Develop Safe Routes to School plan for Scottsville Elementary School | | | | | | 1,7 |

CHIP - New York State Consolidate Local Street & Highway Improvement Program; TAP - Transportation Alternatives Program; TEP - Transportation Enhancement Program; CDBG - Community Development Block Grant; STIP - Statewide Transportation Improvement Program

## FUNDING OPPORTUNITIES

Table 12 con't: Implementation and Funding

| ITEM # | RECOMMENDATIONS | CHIP | TAP* | TEP* | CDBG | STIP | MISC |
|---|---|---|---|---|---|---|---|
| MEDIUM-TERM (5-10 YEARS) | | | | | | | |
| 16 | Install mini-roundabout at Browns Road | ● | ● | ● | | | 1,2 |
| 17 | Install mini-roundabout at Briarwood Lane | ● | ● | ● | | | 1,2 |
| 18 | Re-surface North Road | ● | | | | | 2 |
| 19 | Install pedestrian scale lighting | | ● | ● | | | |
| LONG-TERM (10-20 YEARS) | | | | | | | |
| 20 | Re-construct North Road to install Option B | ● | ● | ● | ● | | 2 |

**NOTES:** * indicates that these specific programs will not be available in the medium and long term but it is likely that a similar funding program will take their place. The exact nature of future funding programs is impossible to determine at this time. For the purposes of this table, it is assumed that the types of eligible projects in the future will be similar to those eligible under the current Transportation Alternatives Program.

**MISC Funding Sources**

1. Village Budget
2. MCDOT
3. NYSDOT
4. CSX Railroad
5. Community Group
6. Private Sector
7. School District

## GRANT FUNDING OPPORTUNITIES

Table 13: Grant Funding Opportunities

| NAME OF FUNDING SOURCE | DESCRIPTION | WEB SITE | APPLICATION DEADLINE | FUNDING AMOUNT AVAILABLE |
|---|---|---|---|---|
| NYS Grant Action News | Listing of Grants and Financial Assistance for NYS | http://assembly.state.ny.us/gan/ | | |
| New York State Consolidated Local Street & Highway Improvement Program (CHIP) | The objective of the New York State Consolidated Local Street & Highway Improvement Program (CHIP) is to assist localities in financing the construction, reconstruction, or improvement of local highways, bridges, sidewalks, or other facilities that are not on the State highway system. Projects must have a useful life of at least 10 years and be located in the public right-of-way. | https://www.dot.ny.gov/programs/chips | Municipalities are typically notified of their allotment in June | The annual allocation is calculated according to the formula specified in Section 10-c of the Highway Law. |
| Transportation Alternatives Program (TAP) | The TAP provides funding for programs and projects, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; and safe routes to school projects. | http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm | Anticipated for 2014 | Unknown, it is anticipated that a 20% local match will be required |
| Transportation Enhancement Program (TEP) | In recognition that transportation systems are influenced and impacted by more than the condition of the traditional highway and bridge infrastructure, this program enables funding for transportation projects of cultural, aesthetic, historic and environmental significance. | https://www.dot.ny.gov/programs/tep | Tentatively scheduled for 2013 | Varies, 20% local match typically required |
| Community Development Block Grant (CDBG) | Monroe County's CDBG funds are intended to be used in the suburban towns and villages that comprise the Community Development Consortium. Each Activity must meet one of the three broad national objectives: 1) To benefit low to moderate-income persons; 2) To aid in the prevention or elimination of slums or blight, and 3) To meet community development needs having a particular urgency (such as compliance with the American with Disabilities Act). | http://www2.monroecounty.gov/planning-community.php | Most recent deadline was February 15, 2013 | Not set limit but the awards are typically $25K-$50K depending on the nature of the project |
| Statewide Transportation Improvement Program (STIP) | The STIP includes both highway and transit projects as well as urban and rural projects on both State and local facilities. NOTE: STIP funds cannot be used for improvements to North Road but can assist with improvements along NYS Routes 383 and Route 386. | http://www.gtcmpo.org/Docs/TIP.htm | Most recent application deadline was January 23, 2013. Next deadline anticipated in the Fall of 2014 | Varies |

# TRAFFIC CIRCULATION & SAFETY STUDY

North Road from NY Route 383 to NY Route 386

## APPENDICES

Village of Scottsville, New York
Town of Wheatland, New York

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

ingalls planning & design

Steinmetz Planning Group

May 2013

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY383.AM.Peak
Site Code : 11111111
Start Date : 10/31/2012
Page No : 1

**Groups Printed- Unshifted - Bank 1**

| | NY Route 383 Southbound | | | | NY Route 253 Westbound | | | | NY Route 383 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 06:00 AM | 11 | 6 | 3 | 0 | 3 | 9 | 2 | 0 | 10 | 25 | 3 | 0 | 0 | 13 | 7 | 0 | 92 |
| 06:15 AM | 17 | 7 | 6 | 0 | 6 | 14 | 6 | 0 | 17 | 39 | 0 | 0 | 6 | 21 | 31 | 0 | 170 |
| 06:30 AM | 4 | 9 | 3 | 0 | 1 | 10 | 3 | 0 | 36 | 30 | 3 | 0 | 0 | 23 | 25 | 0 | 147 |
| 06:45 AM | 7 | 13 | 5 | 0 | 4 | 10 | 6 | 0 | 29 | 43 | 1 | 0 | 2 | 27 | 23 | 0 | 170 |
| Total | 39 | 35 | 17 | 0 | 14 | 43 | 17 | 0 | 92 | 137 | 7 | 0 | 8 | 84 | 86 | 0 | 579 |
| 07:00 AM | 9 | 12 | 5 | 0 | 5 | 18 | 10 | 0 | 20 | 63 | 3 | 0 | 5 | 24 | 17 | 0 | 191 |
| 07:15 AM | 6 | 26 | 6 | 0 | 8 | 10 | 3 | 0 | 35 | 61 | 3 | 0 | 4 | 30 | 20 | 0 | 212 |
| 07:30 AM | 9 | 14 | 9 | 0 | 13 | 19 | 11 | 0 | 36 | 52 | 0 | 0 | 4 | 32 | 40 | 0 | 239 |
| 07:45 AM | 7 | 20 | 16 | 0 | 9 | 17 | 7 | 0 | 32 | 71 | 3 | 0 | 4 | 37 | 16 | 0 | 239 |
| Total | 31 | 72 | 36 | 0 | 35 | 64 | 31 | 0 | 123 | 247 | 9 | 0 | 17 | 123 | 93 | 0 | 881 |
| Grand Total | 70 | 107 | 53 | 0 | 49 | 107 | 48 | 0 | 215 | 384 | 16 | 0 | 25 | 207 | 179 | 0 | 1460 |
| Apprch % | 30.4 | 46.5 | 23 | 0 | 24 | 52.5 | 23.5 | 0 | 35 | 62.4 | 2.6 | 0 | 6.1 | 50.4 | 43.6 | 0 | |
| Total % | 4.8 | 7.3 | 3.6 | 0 | 3.4 | 7.3 | 3.3 | 0 | 14.7 | 26.3 | 1.1 | 0 | 1.7 | 14.2 | 12.3 | 0 | |
| Unshifted | 70 | 105 | 51 | 0 | 48 | 107 | 47 | 0 | 214 | 376 | 16 | 0 | 25 | 206 | 179 | 0 | 1444 |
| % Unshifted | 100 | 98.1 | 96.2 | 0 | 98 | 100 | 97.9 | 0 | 99.5 | 97.9 | 100 | 0 | 100 | 99.5 | 100 | 0 | 98.9 |
| Bank 1 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 16 |
| % Bank 1 | 0 | 1.9 | 3.8 | 0 | 2 | 0 | 2.1 | 0 | 0.5 | 2.1 | 0 | 0 | 0 | 0.5 | 0 | 0 | 1.1 |

**SRF & Associates**
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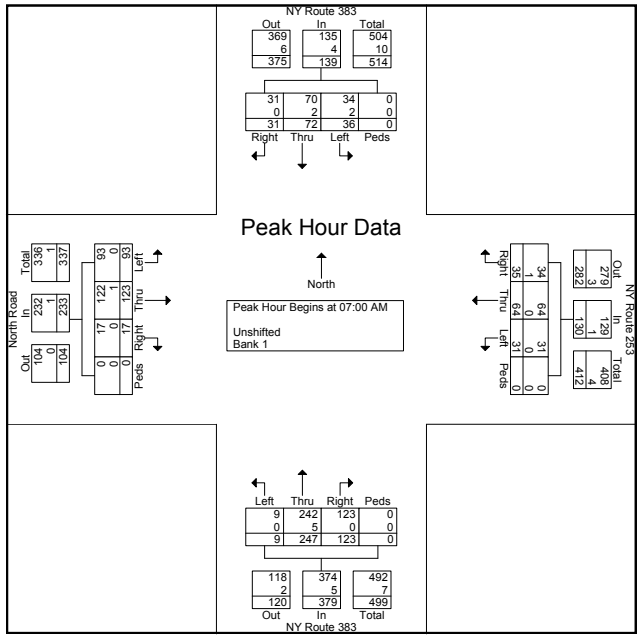
Site Code : 11111111
Start Date : 10/31/2012
Page No : 2

| | NY Route 383 Southbound | | | | | NY Route 253 Westbound | | | | | NY Route 383 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | **9** | | | | | | | | | | | | **3** | | | **5** | | | | | |
| **07:15 AM** | **6** | **26** | 6 | 0 | 38 | 8 | 10 | 3 | 0 | 21 | 35 | 61 | 3 | 0 | 99 | 4 | 30 | 20 | 0 | 54 | 212 |
| 07:30 AM | 9 | 14 | 9 | 0 | 32 | **13** | **19** | **11** | | **43** | **36** | | | | | | | **40** | | **76** | **239** |
| 07:45 AM | 7 | 20 | **16** | | **43** | 9 | 17 | 7 | 0 | 33 | 32 | **71** | 3 | 0 | **106** | 4 | **37** | 16 | 0 | 57 | 239 |
| Total Volume | 31 | 72 | 36 | 0 | 139 | 35 | 64 | 31 | 0 | 130 | 123 | 247 | 9 | 0 | 379 | 17 | 123 | 93 | 0 | 233 | 881 |
| % App. Total | 22.3 | 51.8 | 25.9 | 0 | | 26.9 | 49.2 | 23.8 | 0 | | 32.5 | 65.2 | 2.4 | 0 | | 7.3 | 52.8 | 39.9 | 0 | | |
| PHF | .861 | .692 | .563 | .000 | .808 | .673 | .842 | .705 | .000 | .756 | .854 | .870 | .750 | .000 | .894 | .850 | .831 | .581 | .000 | .766 | .922 |
| Unshifted | 31 | 70 | 34 | 0 | 135 | 34 | 64 | 31 | 0 | 129 | 123 | 242 | 9 | 0 | 374 | 17 | 122 | 93 | 0 | 232 | 870 |
| % Unshifted | | 97.2 | 94.4 | 0 | 97.1 | 97.1 | 100 | 100 | 0 | 99.2 | 100 | 98.0 | | | | | 99.2 | | | | |
| Bank 1 | 0 | 2 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 1 | 11 |
| % Bank 1 | 0 | 2.8 | 5.6 | 0 | 2.9 | 2.9 | 0 | 0 | 0 | 0.8 | 0 | 2.0 | 0 | 0 | 1.3 | 0 | 0.8 | 0 | 0 | 0.4 | 1.2 |



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**Rochester, NY 14623**

File Name : NorthRd.NY383.MD.Peak
Site Code : 22222222
Start Date : 10/31/2012
Page No : 1

**Groups Printed- Unshifted - Bank 1**

| | NY Route 383 Southbound | | | | NY Route 253 Westbound | | | | NY Route 383 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 01:45 PM | 8 | 26 | 5 | 0 | 2 | 15 | 11 | 0 | 14 | 18 | 2 | 0 | 2 | 10 | 14 | 0 | 127 |
| Total | 8 | 26 | 5 | 0 | 2 | 15 | 11 | 0 | 14 | 18 | 2 | 0 | 2 | 10 | 14 | 0 | 127 |
| 02:00 PM | 17 | 25 | 7 | 0 | 9 | 18 | 9 | 0 | 14 | 26 | 1 | 0 | 1 | 17 | 9 | 0 | 153 |
| 02:15 PM | 20 | 28 | 7 | 0 | 5 | 26 | 12 | 0 | 18 | 31 | 3 | 0 | 2 | 32 | 33 | 0 | 217 |
| 02:30 PM | 11 | 38 | 8 | 0 | 13 | 19 | 21 | 0 | 16 | 20 | 2 | 0 | 1 | 19 | 11 | 0 | 179 |
| 02:45 PM | 13 | 31 | 5 | 0 | 11 | 14 | 19 | 0 | 14 | 26 | 2 | 0 | 5 | 13 | 14 | 0 | 167 |
| Total | 61 | 122 | 27 | 0 | 38 | 77 | 61 | 0 | 62 | 103 | 8 | 0 | 9 | 81 | 67 | 0 | 716 |
| 03:00 PM | 22 | 45 | 6 | 0 | 11 | 27 | 19 | 0 | 15 | 30 | 1 | 0 | 8 | 14 | 14 | 0 | 212 |
| 03:15 PM | 19 | 33 | 14 | 0 | 7 | 25 | 22 | 0 | 10 | 21 | 2 | 0 | 5 | 9 | 18 | 0 | 185 |
| 03:30 PM | 19 | 44 | 9 | 0 | 13 | 28 | 23 | 0 | 16 | 19 | 2 | 0 | 1 | 12 | 16 | 0 | 202 |
| Grand Total | 129 | 270 | 61 | 0 | 71 | 172 | 136 | 0 | 117 | 191 | 15 | 0 | 25 | 126 | 129 | 0 | 1442 |
| Apprch % | 28 | 58.7 | 13.3 | 0 | 18.7 | 45.4 | 35.9 | 0 | 36.2 | 59.1 | 4.6 | 0 | 8.9 | 45 | 46.1 | 0 | |
| Total % | 8.9 | 18.7 | 4.2 | 0 | 4.9 | 11.9 | 9.4 | 0 | 8.1 | 13.2 | 1 | 0 | 1.7 | 8.7 | 8.9 | 0 | |
| Unshifted | 125 | 255 | 60 | 0 | 71 | 169 | 134 | 0 | 113 | 173 | 14 | 0 | 24 | 122 | 129 | 0 | 1389 |
| % Unshifted | 96.9 | 94.4 | 98.4 | 0 | 100 | 98.3 | 98.5 | 0 | 96.6 | 90.6 | 93.3 | 0 | 96 | 96.8 | 100 | 0 | 96.3 |
| Bank 1 | 4 | 15 | 1 | 0 | 0 | 3 | 2 | 0 | 4 | 18 | 1 | 0 | 1 | 4 | 0 | 0 | 53 |
| % Bank 1 | 3.1 | 5.6 | 1.6 | 0 | 0 | 1.7 | 1.5 | 0 | 3.4 | 9.4 | 6.7 | 0 | 4 | 3.2 | 0 | 0 | 3.7 |

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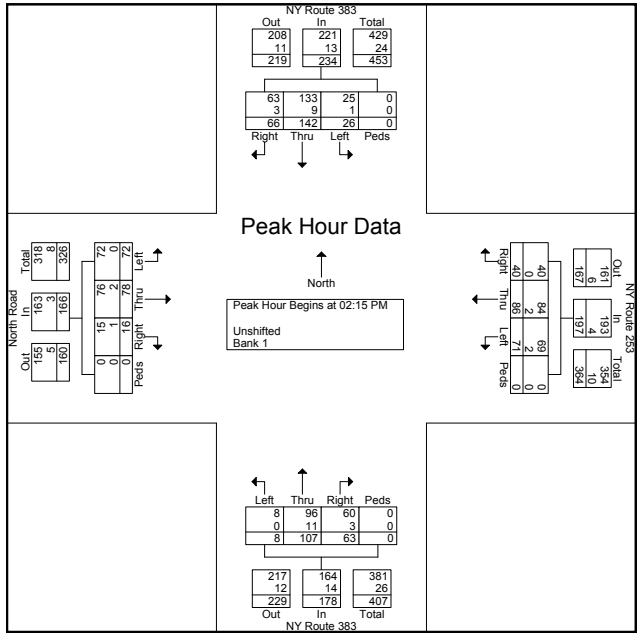
File Name : NorthRd.NY383.MD.Peak
Site Code : 22222222
Start Date : 10/31/2012
Page No : 2

| | NY Route 383 Southbound | | | | | NY Route 253 Westbound | | | | | NY Route 383 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 01:45 PM to 03:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 20 | 28 | 7 | 0 | 55 | 5 | 26 | 12 | 0 | 43 | **18** | **31** | **3** | | **52** | 2 | **32** | **33** | | **67** | **217** |
| 02:30 PM | 11 | 38 | **8** | | | **13** | | **21** | | | | | | | | | | | | | |
| **02:45 PM** | **13** | **31** | **5** | **0** | **49** | **11** | **14** | **19** | **0** | **44** | **14** | **26** | **2** | **0** | **42** | **5** | **13** | **14** | **0** | **32** | **167** |
| **03:00 PM** | **22** | **45** | 6 | 0 | **73** | 11 | **27** | 19 | 0 | **57** | 15 | 30 | 1 | 0 | 46 | **8** | **14** | **14** | **0** | **36** | **212** |
| Total Volume | 66 | 142 | 26 | 0 | 234 | 40 | 86 | 71 | 0 | 197 | 63 | 107 | 8 | 0 | 178 | 16 | 78 | 72 | 0 | 166 | 775 |
| % App. Total | 28.2 | 60.7 | 11.1 | 0 | | 20.3 | 43.7 | 36 | 0 | | 35.4 | 60.1 | 4.5 | 0 | | 9.6 | 47 | 43.4 | 0 | | |
| PHF | .750 | .789 | .813 | .000 | .801 | .769 | .796 | .845 | .000 | .864 | .875 | .863 | .667 | .000 | .856 | .500 | .609 | .545 | .000 | .619 | .893 |
| Unshifted | 63 | 133 | 25 | 0 | 221 | 40 | 84 | 69 | 0 | 193 | 60 | 96 | 8 | 0 | 164 | 15 | 76 | 72 | 0 | 163 | 741 |
| % Unshifted | 95.5 | 93.7 | 96.2 | 0 | 94.4 | 100 | 97.7 | 97.2 | 0 | 98.0 | 95.2 | 89.7 | | | | 93.8 | 97.4 | | | | |
| Bank 1 | 3 | 9 | 1 | 0 | 13 | 0 | 2 | 2 | 0 | 4 | 3 | 11 | 0 | 0 | 14 | 1 | 2 | 0 | 0 | 3 | 34 |
| % Bank 1 | 4.5 | 6.3 | 3.8 | 0 | 5.6 | 0 | 2.3 | 2.8 | 0 | 2.0 | 4.8 | 10.3 | 0 | 0 | 7.9 | 6.3 | 2.6 | 0 | 0 | 1.8 | 4.4 |



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File Name : NorthRd.NY383.PM.Peak
Site Code : 33333333
Start Date : 10/31/2012
Page No : 1

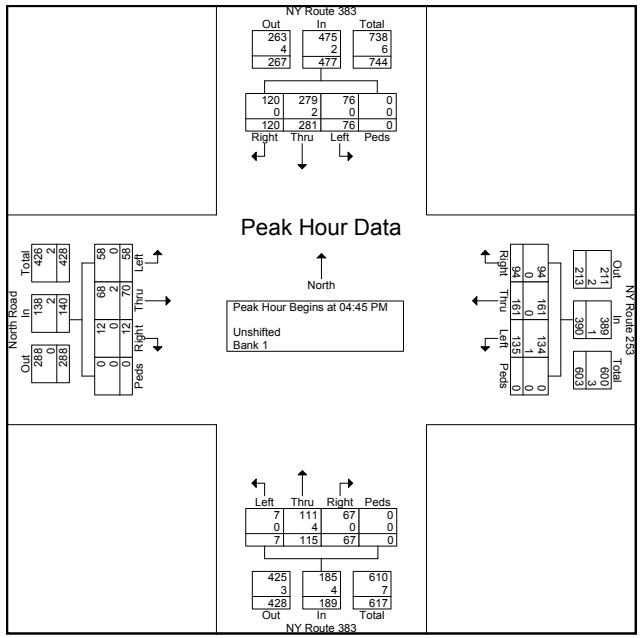
**Groups Printed- Unshifted - Bank 1**

| | NY Route 383 Southbound | | | | NY Route 253 Westbound | | | | NY Route 383 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 04:30 PM | 24 | 58 | 18 | 0 | 19 | 29 | 33 | 0 | 18 | 27 | 4 | 0 | 0 | 22 | 13 | 0 | 265 |
| 04:45 PM | 24 | 73 | 14 | 0 | 23 | 40 | 37 | 0 | 18 | 32 | 1 | 0 | 3 | 10 | 12 | 0 | 287 |
| Total | 48 | 131 | 32 | 0 | 42 | 69 | 70 | 0 | 36 | 59 | 5 | 0 | 3 | 32 | 25 | 0 | 552 |
| 05:00 PM | 28 | 73 | 18 | 0 | 19 | 39 | 32 | 0 | 18 | 25 | 2 | 0 | 2 | 22 | 16 | 0 | 294 |
| 05:15 PM | 34 | 72 | 25 | 0 | 25 | 54 | 33 | 0 | 15 | 38 | 1 | 0 | 3 | 17 | 17 | 0 | 334 |
| 05:30 PM | 34 | 63 | 19 | 0 | 27 | 28 | 33 | 0 | 16 | 20 | 3 | 0 | 4 | 21 | 13 | 0 | 281 |
| 05:45 PM | 24 | 48 | 30 | 0 | 19 | 19 | 24 | 0 | 10 | 17 | 2 | 0 | 2 | 13 | 12 | 0 | 220 |
| Total | 120 | 256 | 92 | 0 | 90 | 140 | 122 | 0 | 59 | 100 | 8 | 0 | 11 | 73 | 58 | 0 | 1129 |
| Grand Total | 168 | 387 | 124 | 0 | 132 | 209 | 192 | 0 | 95 | 159 | 13 | 0 | 14 | 105 | 83 | 0 | 1681 |
| Apprch % | 24.7 | 57 | 18.3 | 0 | 24.8 | 39.2 | 36 | 0 | 35.6 | 59.6 | 4.9 | 0 | 6.9 | 52 | 41.1 | 0 | |
| Total % | 10 | 23 | 7.4 | 0 | 7.9 | 12.4 | 11.4 | 0 | 5.7 | 9.5 | 0.8 | 0 | 0.8 | 6.2 | 4.9 | 0 | |
| Unshifted | 168 | 384 | 123 | 0 | 132 | 209 | 191 | 0 | 94 | 153 | 13 | 0 | 14 | 103 | 83 | 0 | 1667 |
| % Unshifted | 100 | 99.2 | 99.2 | 0 | 100 | 100 | 99.5 | 0 | 98.9 | 96.2 | 100 | 0 | 100 | 98.1 | 100 | 0 | 99.2 |
| Bank 1 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 14 |
| % Bank 1 | 0 | 0.8 | 0.8 | 0 | 0 | 0 | 0.5 | 0 | 1.1 | 3.8 | 0 | 0 | 0 | 1.9 | 0 | 0 | 0.8 |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY383.PM.Peak
Site Code : 33333333
Start Date : 10/31/2012
Page No : 2

| | NY Route 383 Southbound | | | | | NY Route 253 Westbound | | | | | NY Route 383 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:30 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 24 | **73** | 14 | 0 | 111 | 23 | 40 | **37** | | | **18** | | | | | | | | | | |
| **05:00 PM** | **28** | **73** | **18** | **0** | **119** | **19** | **39** | **32** | **0** | **90** | **18** | **25** | **2** | **0** | **45** | **2** | **22** | 16 | 0 | **40** | 294 |
| 05:15 PM | **34** | | **25** | | **131** | 25 | **54** | 33 | 0 | **112** | 15 | **38** | 1 | 0 | **54** | 3 | 17 | **17** | | | **334** |
| 05:30 PM | 34 | 63 | 19 | 0 | 116 | **27** | | | | | | | **3** | | | **4** | | | | | |
| Total Volume | 120 | 281 | 76 | 0 | 477 | 94 | 161 | 135 | 0 | 390 | 67 | 115 | 7 | 0 | 189 | 12 | 70 | 58 | 0 | 140 | 1196 |
| % App. Total | 25.2 | 58.9 | 15.9 | 0 | | 24.1 | 41.3 | 34.6 | 0 | | 35.4 | 60.8 | 3.7 | 0 | | 8.6 | 50 | 41.4 | 0 | | |
| PHF | .882 | .962 | .760 | .000 | .910 | .870 | .745 | .912 | .000 | .871 | .931 | .757 | .583 | .000 | .875 | .750 | .795 | .853 | .000 | .875 | .895 |
| Unshifted | 120 | 279 | 76 | 0 | 475 | 94 | 161 | 134 | 0 | 389 | 67 | 111 | 7 | 0 | 185 | 12 | 68 | 58 | 0 | 138 | 1187 |
| % Unshifted | | 99.3 | | | | | | 99.3 | 0 | 99.7 | 100 | 96.5 | | | | | 97.1 | | | | |
| Bank 1 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 2 | 9 |
| % Bank 1 | 0 | 0.7 | 0 | 0 | 0.4 | 0 | 0 | 0.7 | 0 | 0.3 | 0 | 3.5 | 0 | 0 | 2.1 | 0 | 2.9 | 0 | 0 | 1.4 | 0.8 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BrownsAve.AM.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 1

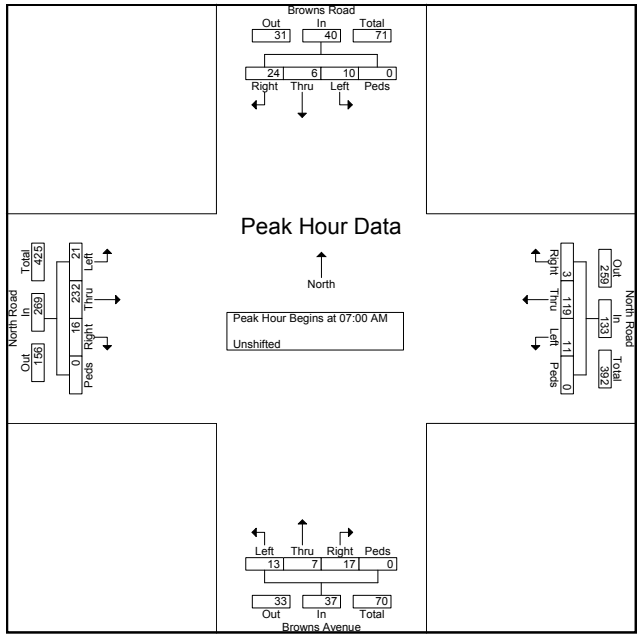
**Groups Printed- Unshifted**

| | Browns Road Southbound | | | | North Road Westbound | | | | Browns Avenue Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 06:00 AM | 2 | 1 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 0 | 0 | 48 |
| 06:15 AM | 2 | 0 | 3 | 0 | 1 | 47 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 63 | 2 | 0 | 122 |
| 06:30 AM | 3 | 1 | 0 | 0 | 0 | 27 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 52 | 2 | 0 | 90 |
| 06:45 AM | 4 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 51 | 5 | 0 | 83 |
| Total | 11 | 2 | 3 | 0 | 1 | 120 | 0 | 0 | 6 | 2 | 3 | 0 | 1 | 185 | 9 | 0 | 343 |
| 07:00 AM | 8 | 0 | 1 | 0 | 0 | 31 | 3 | 0 | 5 | 2 | 0 | 0 | 4 | 37 | 3 | 0 | 94 |
| 07:15 AM | 8 | 2 | 4 | 0 | 2 | 33 | 1 | 0 | 5 | 1 | 4 | 0 | 1 | 52 | 7 | 0 | 120 |
| 07:30 AM | 6 | 1 | 4 | 0 | 0 | 35 | 3 | 0 | 3 | 4 | 4 | 0 | 8 | 79 | 7 | 0 | 154 |
| 07:45 AM | 2 | 3 | 1 | 0 | 1 | 20 | 4 | 0 | 4 | 0 | 5 | 0 | 3 | 64 | 4 | 0 | 111 |
| Total | 24 | 6 | 10 | 0 | 3 | 119 | 11 | 0 | 17 | 7 | 13 | 0 | 16 | 232 | 21 | 0 | 479 |
| Grand Total | 35 | 8 | 13 | 0 | 4 | 239 | 11 | 0 | 23 | 9 | 16 | 0 | 17 | 417 | 30 | 0 | 822 |
| Apprch % | 62.5 | 14.3 | 23.2 | 0 | 1.6 | 94.1 | 4.3 | 0 | 47.9 | 18.8 | 33.3 | 0 | 3.7 | 89.9 | 6.5 | 0 | |
| Total % | 4.3 | 1 | 1.6 | 0 | 0.5 | 29.1 | 1.3 | 0 | 2.8 | 1.1 | 1.9 | 0 | 2.1 | 50.7 | 3.6 | 0 | |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BrownsAve.AM.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 2

| | Browns Road Southbound | | | | | North Road Westbound | | | | | Browns Avenue Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | **8** | | | | | | | | | | **5** | | | | | | | | | | |
| **07:15 AM** | **8** | **2** | **4** | **0** | **14** | **2** | **33** | **1** | **0** | **36** | **5** | **1** | **4** | **0** | **10** | **1** | **52** | **7** | **0** | **60** | **120** |
| **07:30 AM** | **6** | **1** | **4** | **0** | **11** | **0** | **35** | 3 | 0 | **38** | 3 | **4** | 4 | 0 | **11** | **8** | **79** | 7 | 0 | **94** | **154** |
| 07:45 AM | 2 | **3** | 1 | 0 | 6 | 1 | 20 | **4** | | | | | **5** | | | | | | | | |
| Total Volume | 24 | 6 | 10 | 0 | 40 | 3 | 119 | 11 | 0 | 133 | 17 | 7 | 13 | 0 | 37 | 16 | 232 | 21 | 0 | 269 | 479 |
| % App. Total | 60 | 15 | 25 | 0 | | 2.3 | 89.5 | 8.3 | 0 | | 45.9 | 18.9 | 35.1 | 0 | | 5.9 | 86.2 | 7.8 | 0 | | |
| PHF | .750 | .500 | .625 | .000 | .714 | .375 | .850 | .688 | .000 | .875 | .850 | .438 | .650 | .000 | .841 | .500 | .734 | .750 | .000 | .715 | .778 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BrownsAve.MD.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 1

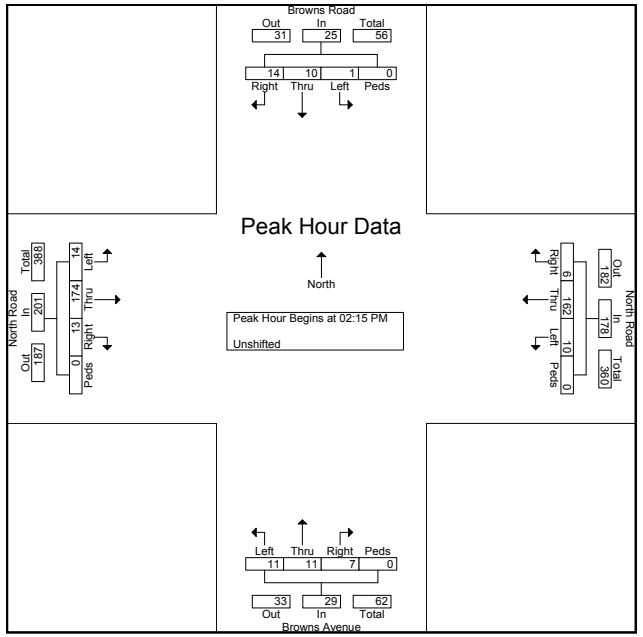
**Groups Printed- Unshifted**

| | Browns Road Southbound | | | | North Road Westbound | | | | Browns Avenue Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 01:45 PM | 1 | 1 | 0 | 0 | 0 | 29 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 23 | 1 | 0 | 60 |
| Total | 1 | 1 | 0 | 0 | 0 | 29 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 23 | 1 | 0 | 60 |
| 02:00 PM | 1 | 2 | 0 | 0 | 1 | 40 | 1 | 0 | 0 | 1 | 7 | 0 | 0 | 52 | 2 | 0 | 107 |
| 02:15 PM | 1 | 2 | 0 | 0 | 1 | 48 | 2 | 0 | 2 | 1 | 3 | 0 | 2 | 66 | 4 | 0 | 132 |
| 02:30 PM | 3 | 1 | 1 | 0 | 1 | 27 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 41 | 3 | 0 | 81 |
| 02:45 PM | 8 | 1 | 0 | 0 | 2 | 38 | 0 | 0 | 1 | 3 | 2 | 0 | 4 | 28 | 3 | 0 | 90 |
| Total | 13 | 6 | 1 | 0 | 5 | 153 | 6 | 0 | 3 | 5 | 13 | 0 | 6 | 187 | 12 | 0 | 410 |
| 03:00 PM | 2 | 6 | 0 | 0 | 2 | 49 | 5 | 0 | 4 | 7 | 5 | 0 | 7 | 39 | 4 | 0 | 130 |
| 03:15 PM | 2 | 2 | 0 | 0 | 3 | 38 | 2 | 0 | 4 | 3 | 6 | 0 | 3 | 42 | 2 | 0 | 107 |
| 03:30 PM | 4 | 2 | 1 | 0 | 1 | 56 | 2 | 0 | 9 | 1 | 7 | 0 | 2 | 31 | 3 | 0 | 119 |
| Grand Total | 22 | 17 | 2 | 0 | 11 | 325 | 15 | 0 | 22 | 17 | 32 | 0 | 19 | 322 | 22 | 0 | 826 |
| Apprch % | 53.7 | 41.5 | 4.9 | 0 | 3.1 | 92.6 | 4.3 | 0 | 31 | 23.9 | 45.1 | 0 | 5.2 | 88.7 | 6.1 | 0 | |
| Total % | 2.7 | 2.1 | 0.2 | 0 | 1.3 | 39.3 | 1.8 | 0 | 2.7 | 2.1 | 3.9 | 0 | 2.3 | 39 | 2.7 | 0 | |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BrownsAve.MD.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 2

| | Browns Road Southbound | | | | | North Road Westbound | | | | | Browns Avenue Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:15 PM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 1 | 2 | 0 | 0 | 3 | 1 | 48 | 2 | 0 | 51 | 2 | 1 | 3 | 0 | 6 | 2 | **66** | **4** | | **72** | **132** |
| 02:30 PM | 3 | 1 | **1** | | | | | | | | | | | | | | | | | | |
| **02:45 PM** | **8** | **1** | **0** | **0** | **9** | **2** | **38** | **0** | **0** | **40** | **1** | **3** | **2** | **0** | **6** | **4** | **28** | **3** | **0** | **35** | **90** |
| **03:00 PM** | **2** | **6** | 0 | 0 | 8 | 2 | **49** | **5** | **0** | **56** | **4** | **7** | **5** | **0** | **16** | **7** | **39** | **4** | **0** | **50** | **130** |
| Total Volume | 14 | 10 | 1 | 0 | 25 | 6 | 162 | 10 | 0 | 178 | 7 | 11 | 11 | 0 | 29 | 13 | 174 | 14 | 0 | 201 | 433 |
| % App. Total | 56 | 40 | 4 | 0 | | 3.4 | 91 | 5.6 | 0 | | 24.1 | 37.9 | 37.9 | 0 | | 6.5 | 86.6 | 7 | 0 | | |
| PHF | .438 | .417 | .250 | .000 | .694 | .750 | .827 | .500 | .000 | .795 | .438 | .393 | .550 | .000 | .453 | .464 | .659 | .875 | .000 | .698 | .820 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.Cavalier.AM.Peak
Site Code : 11111111
Start Date : 10/31/2012
Page No : 1

**Groups Printed- Unshifted - Bank 1 - Bank 2**

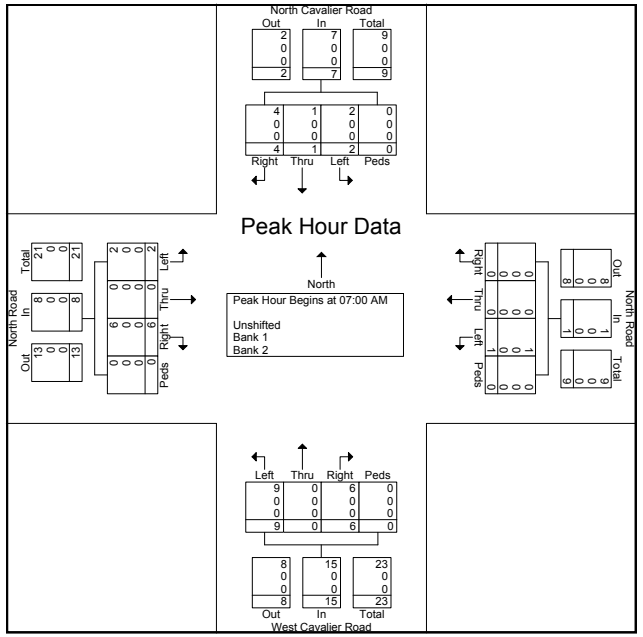
| | North Cavalier Road Southbound | | | | North Road Westbound | | | | West Cavalier Road Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 07:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:15 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 1 | 0 | 10 |
| 07:30 AM | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 14 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Total | 4 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 9 | 0 | 6 | 0 | 2 | 0 | 31 |
| Grand Total | 4 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 9 | 0 | 6 | 0 | 2 | 0 | 31 |
| Apprch % | 57.1 | 14.3 | 28.6 | 0 | 0 | 0 | 100 | 0 | 40 | 0 | 60 | 0 | 75 | 0 | 25 | 0 | |
| Total % | 12.9 | 3.2 | 6.5 | 0 | 0 | 0 | 3.2 | 0 | 19.4 | 0 | 29 | 0 | 19.4 | 0 | 6.5 | 0 | |
| Unshifted | 4 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 9 | 0 | 6 | 0 | 2 | 0 | 31 |
| % Unshifted | 100 | 100 | 100 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 0 | 100 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.Cavalier.AM.Peak
Site Code : 11111111
Start Date : 10/31/2012
Page No : 2

| | North Cavalier Road Southbound | | | | | North Road Westbound | | | | | West Cavalier Road Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 1 | 0 | **1** | | | | | | | | | | **3** | | | | | | | | |
| **07:15 AM** | **1** | **0** | **1** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **2** | **0** | **3** | **0** | **5** | **2** | **0** | **1** | **0** | **3** | **10** |
| **07:30 AM** | **2** | **1** | 0 | 0 | **3** | 0 | 0 | **1** | **0** | **1** | **3** | **0** | **3** | **0** | **6** | **3** | **0** | **1** | **0** | **4** | **14** |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 2 |
| Total Volume | 4 | 1 | 2 | 0 | 7 | 0 | 0 | 1 | 0 | 1 | 6 | 0 | 9 | 0 | 15 | 6 | 0 | 2 | 0 | 8 | 31 |
| % App. Total | 57.1 | 14.3 | 28.6 | 0 | | 0 | 0 | 100 | 0 | | 40 | 0 | 60 | 0 | | 75 | 0 | 25 | 0 | | |
| PHF | .500 | .250 | .500 | .000 | .583 | .000 | .000 | .250 | .000 | .250 | .500 | .000 | .750 | .000 | .625 | .500 | .000 | .500 | .000 | .500 | .554 |
| Unshifted | 4 | 1 | 2 | 0 | 7 | 0 | 0 | 1 | 0 | 1 | 6 | 0 | 9 | 0 | 15 | 6 | 0 | 2 | 0 | 8 | 31 |
| % Unshifted | | | | | | | | | | | | | | | | | | | | | |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.Cavalier.MD.Peak
Site Code : 22222222
Start Date : 11/5/2012
Page No : 1

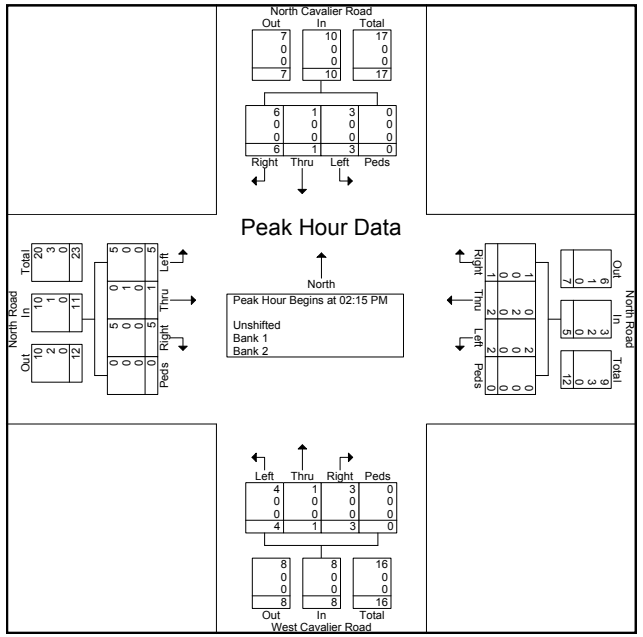
**Groups Printed- Unshifted - Bank 1 - Bank 2**

| | North Cavalier Road Southbound | | | | North Road Westbound | | | | West Cavalier Road Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 02:15 PM | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 3 | 1 | 1 | 0 | 13 |
| 02:30 PM | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 7 |
| 02:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 6 |
| Total | 4 | 1 | 3 | 0 | 1 | 1 | 0 | 0 | 3 | 1 | 2 | 0 | 4 | 1 | 5 | 0 | 26 |
| | | | | | | | | | | | | | | | | | |
| 03:00 PM | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 8 |
| Grand Total | 6 | 1 | 3 | 0 | 1 | 2 | 2 | 0 | 3 | 1 | 4 | 0 | 5 | 1 | 5 | 0 | 34 |
| Apprch % | 60 | 10 | 30 | 0 | 20 | 40 | 40 | 0 | 37.5 | 12.5 | 50 | 0 | 45.5 | 9.1 | 45.5 | 0 | |
| Total % | 17.6 | 2.9 | 8.8 | 0 | 2.9 | 5.9 | 5.9 | 0 | 8.8 | 2.9 | 11.8 | 0 | 14.7 | 2.9 | 14.7 | 0 | |
| Unshifted | 6 | 1 | 3 | 0 | 1 | 0 | 2 | 0 | 3 | 1 | 4 | 0 | 5 | 0 | 5 | 0 | 31 |
| % Unshifted | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 0 | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 0 | 91.2 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 8.8 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.Cavalier.MD.Peak
Site Code : 22222222
Start Date : 11/5/2012
Page No : 2

| | North Cavalier Road Southbound | | | | | North Road Westbound | | | | | West Cavalier Road Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 02:15 PM to 03:00 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 1 | 0 | **2** | | | **1** | | | | | **2** | | **2** | | **4** | **3** | **1** | 1 | 0 | **5** | **13** |
| 02:30 PM | **2** | **1** | 1 | 0 | **4** | 0 | **1** | 0 | 0 | 1 | 0 | **1** | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 7 |
| 02:45 PM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | **3** | | | |
| **03:00 PM** | **2** | **0** | **0** | **0** | **2** | **0** | **1** | **2** | **0** | **3** | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 8 |
| Total Volume | 6 | 1 | 3 | 0 | 10 | 1 | 2 | 2 | 0 | 5 | 3 | 1 | 4 | 0 | 8 | 5 | 1 | 5 | 0 | 11 | 34 |
| % App. Total | 60 | 10 | 30 | 0 | | 20 | 40 | 40 | 0 | | 37.5 | 12.5 | 50 | 0 | | 45.5 | 9.1 | 45.5 | 0 | | |
| PHF | .750 | .250 | .375 | .000 | .625 | .250 | .500 | .250 | .000 | .417 | .375 | .250 | .500 | .000 | .500 | .417 | .250 | .417 | .000 | .550 | .654 |
| Unshifted | 6 | 1 | 3 | 0 | 10 | 1 | 0 | 2 | 0 | 3 | 3 | 1 | 4 | 0 | 8 | 5 | 0 | 5 | 0 | 10 | 31 |
| % Unshifted | | | | | | | | | | | | | | | | | | | | | |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 40.0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 9.1 | 8.8 |
| Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Bank 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BriarwoodLn.AM.Peak
Site Code : 00320361
Start Date : 10/31/2012
Page No : 1

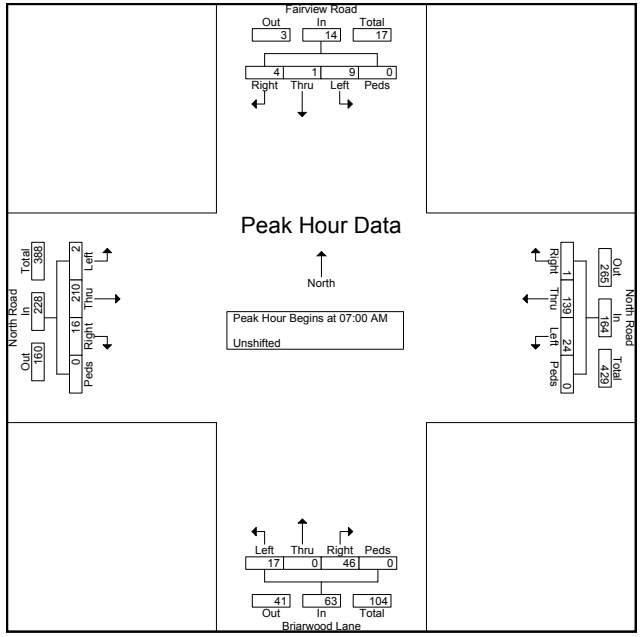
**Groups Printed- Unshifted**

| | Fairview Road Southbound | | | | North Road Westbound | | | | Briarwood Lane Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 06:00 AM | 0 | 0 | 1 | 0 | 0 | 8 | 15 | 0 | 6 | 0 | 1 | 0 | 16 | 14 | 0 | 0 | 61 |
| 06:15 AM | 1 | 0 | 1 | 0 | 2 | 5 | 47 | 0 | 48 | 0 | 24 | 0 | 43 | 9 | 0 | 0 | 180 |
| 06:30 AM | 1 | 0 | 1 | 0 | 0 | 14 | 25 | 0 | 21 | 0 | 11 | 0 | 16 | 28 | 0 | 0 | 117 |
| 06:45 AM | 0 | 0 | 2 | 0 | 2 | 13 | 10 | 0 | 12 | 0 | 5 | 0 | 5 | 44 | 0 | 0 | 93 |
| Total | 2 | 0 | 5 | 0 | 4 | 40 | 97 | 0 | 87 | 0 | 41 | 0 | 80 | 95 | 0 | 0 | 451 |
| 07:00 AM | 1 | 0 | 3 | 0 | 1 | 19 | 5 | 0 | 10 | 0 | 7 | 0 | 5 | 35 | 1 | 0 | 87 |
| 07:15 AM | 3 | 0 | 2 | 0 | 0 | 47 | 10 | 0 | 9 | 0 | 5 | 0 | 4 | 45 | 1 | 0 | 126 |
| 07:30 AM | 0 | 0 | 2 | 0 | 0 | 52 | 3 | 0 | 17 | 0 | 4 | 0 | 4 | 72 | 0 | 0 | 154 |
| 07:45 AM | 0 | 1 | 2 | 0 | 0 | 21 | 6 | 0 | 10 | 0 | 1 | 0 | 3 | 58 | 0 | 0 | 102 |
| Total | 4 | 1 | 9 | 0 | 1 | 139 | 24 | 0 | 46 | 0 | 17 | 0 | 16 | 210 | 2 | 0 | 469 |
| Grand Total | 6 | 1 | 14 | 0 | 5 | 179 | 121 | 0 | 133 | 0 | 58 | 0 | 96 | 305 | 2 | 0 | 920 |
| Apprch % | 28.6 | 4.8 | 66.7 | 0 | 1.6 | 58.7 | 39.7 | 0 | 69.6 | 0 | 30.4 | 0 | 23.8 | 75.7 | 0.5 | 0 | |
| Total % | 0.7 | 0.1 | 1.5 | 0 | 0.5 | 19.5 | 13.2 | 0 | 14.5 | 0 | 6.3 | 0 | 10.4 | 33.2 | 0.2 | 0 | |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BriarwoodLn.AM.Peak
Site Code : 00320361
Start Date : 10/31/2012
Page No : 2

| | Fairview Road Southbound | | | | | North Road Westbound | | | | | Briarwood Lane Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 1 | 0 | **3** | | | **1** | | | | | | | **7** | | | **5** | | **1** | | | |
| **07:15 AM** | **3** | **0** | **2** | **0** | **5** | 0 | 47 | **10** | **0** | **57** | 9 | 0 | 5 | 0 | 14 | 4 | 45 | 1 | 0 | 50 | 126 |
| 07:30 AM | 0 | 0 | 2 | 0 | 2 | 0 | **52** | 3 | 0 | 55 | **17** | | | | **21** | 4 | **72** | 0 | 0 | **76** | **154** |
| 07:45 AM | 0 | **1** | 2 | 0 | 3 | 0 | 21 | 6 | 0 | 27 | 10 | 0 | 1 | 0 | 11 | 3 | 58 | 0 | 0 | 61 | 102 |
| Total Volume | 4 | 1 | 9 | 0 | 14 | 1 | 139 | 24 | 0 | 164 | 46 | 0 | 17 | 0 | 63 | 16 | 210 | 2 | 0 | 228 | 469 |
| % App. Total | 28.6 | 7.1 | 64.3 | 0 | | 0.6 | 84.8 | 14.6 | 0 | | 73 | 0 | 27 | 0 | | 7 | 92.1 | 0.9 | 0 | | |
| PHF | .333 | .250 | .750 | .000 | .700 | .250 | .668 | .600 | .000 | .719 | .676 | .000 | .607 | .000 | .750 | .800 | .729 | .500 | .000 | .750 | .761 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.BriarwoodLn.MD.Peak
Site Code : 00320362
Start Date : 10/31/2012
Page No : 1

**Groups Printed- Unshifted**

| | Fairview Road Southbound | | | | North Road Westbound | | | | Briarwood Lane Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 01:45 PM | 0 | 0 | 1 | 0 | 1 | 18 | 10 | 0 | 6 | 0 | 3 | 0 | 6 | 17 | 0 | 0 | 62 |
| Total | 0 | 0 | 1 | 0 | 1 | 18 | 10 | 0 | 6 | 0 | 3 | 0 | 6 | 17 | 0 | 0 | 62 |
| 02:00 PM | 1 | 0 | 0 | 0 | 0 | 18 | 11 | 0 | 7 | 0 | 3 | 0 | 10 | 25 | 1 | 0 | 76 |
| 02:15 PM | 0 | 0 | 1 | 0 | 0 | 30 | 38 | 0 | 53 | 0 | 49 | 0 | 27 | 31 | 1 | 0 | 230 |
| 02:30 PM | 0 | 0 | 0 | 0 | 1 | 29 | 10 | 0 | 22 | 1 | 16 | 0 | 8 | 30 | 3 | 0 | 120 |
| 02:45 PM | 1 | 0 | 1 | 0 | 1 | 26 | 3 | 0 | 13 | 0 | 6 | 0 | 1 | 25 | 0 | 0 | 77 |
| Total | 2 | 0 | 2 | 0 | 2 | 103 | 62 | 0 | 95 | 1 | 74 | 0 | 46 | 111 | 5 | 0 | 503 |
| 03:00 PM | 0 | 0 | 2 | 0 | 1 | 46 | 9 | 0 | 4 | 0 | 4 | 0 | 2 | 37 | 1 | 0 | 106 |
| 03:15 PM | 0 | 0 | 2 | 0 | 1 | 48 | 11 | 0 | 19 | 0 | 9 | 0 | 4 | 31 | 0 | 0 | 125 |
| 03:30 PM | 0 | 1 | 2 | 0 | 2 | 40 | 10 | 0 | 12 | 1 | 4 | 0 | 4 | 24 | 1 | 0 | 101 |
| Grand Total | 2 | 1 | 9 | 0 | 7 | 255 | 102 | 0 | 136 | 2 | 94 | 0 | 62 | 220 | 7 | 0 | 897 |
| Apprch % | 16.7 | 8.3 | 75 | 0 | 1.9 | 70.1 | 28 | 0 | 58.6 | 0.9 | 40.5 | 0 | 21.5 | 76.1 | 2.4 | 0 | |
| Total % | 0.2 | 0.1 | 1 | 0 | 0.8 | 28.4 | 11.4 | 0 | 15.2 | 0.2 | 10.5 | 0 | 6.9 | 24.5 | 0.8 | 0 | |

**SRF & Associates**
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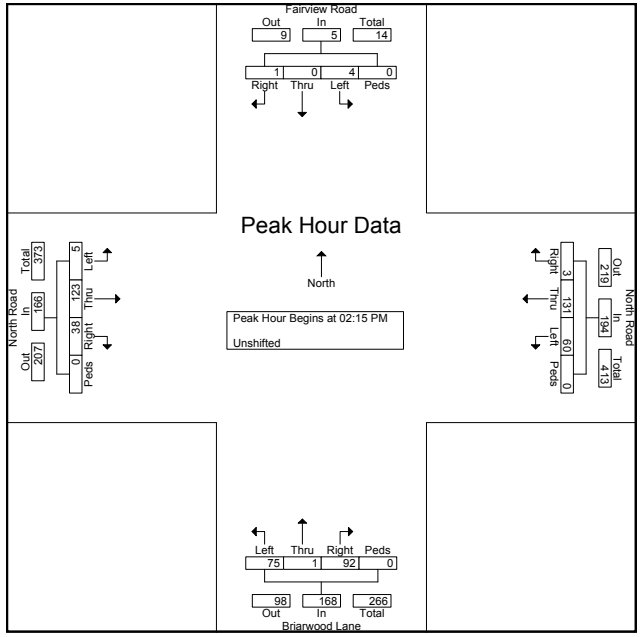
**Rochester, NY 14623**

File Name : NorthRd.BriarwoodLn.MD.Peak
Site Code : 00320362
Start Date : 10/31/2012
Page No : 2

| | Fairview Road Southbound | | | | | North Road Westbound | | | | | Briarwood Lane Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 01:45 PM to 03:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 0 | 0 | 1 | 0 | 1 | 0 | 30 | **38** | | **68** | **53** | | **49** | | **102** | **27** | | | | **59** | **230** |
| 02:30 PM | 0 | 0 | 0 | 0 | 0 | **1** | | | | | | **1** | 16 | 0 | 39 | 8 | 30 | **3** | | | |
| **02:45 PM** | **1** | **0** | **1** | **0** | **2** | 1 | 26 | 3 | 0 | 30 | 13 | 0 | 6 | 0 | 19 | 1 | 25 | 0 | 0 | 26 | 77 |
| 03:00 PM | 0 | 0 | **2** | | | | **46** | 9 | 0 | 56 | 4 | 0 | 4 | 0 | 8 | 2 | **37** | 1 | 0 | 40 | 106 |
| Total Volume | 1 | 0 | 4 | 0 | 5 | 3 | 131 | 60 | 0 | 194 | 92 | 1 | 75 | 0 | 168 | 38 | 123 | 5 | 0 | 166 | 533 |
| % App. Total | 20 | 0 | 80 | 0 | | 1.5 | 67.5 | 30.9 | 0 | | 54.8 | 0.6 | 44.6 | 0 | | 22.9 | 74.1 | 3 | 0 | | |
| PHF | .250 | .000 | .500 | .000 | .625 | .750 | .712 | .395 | .000 | .713 | .434 | .250 | .383 | .000 | .412 | .352 | .831 | .417 | .000 | .703 | .579 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.AM.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 1

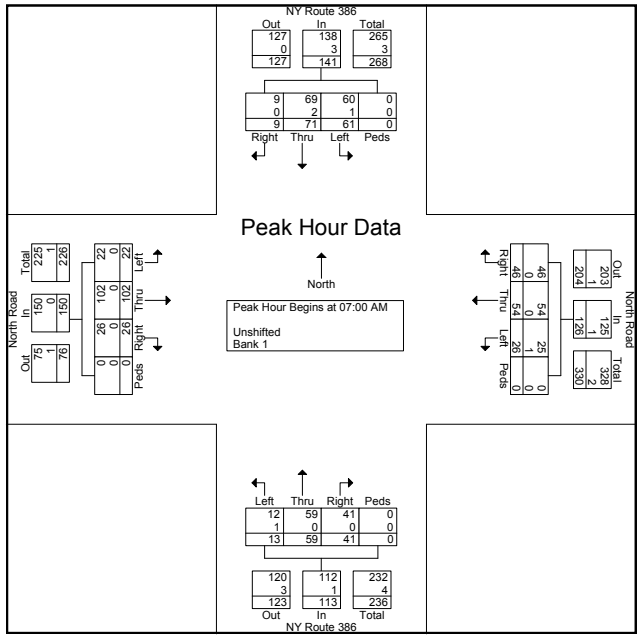
**Groups Printed- Unshifted - Bank 1**

| | NY Route 386 Southbound | | | | North Road Westbound | | | | NY Route 386 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 06:00 AM | 1 | 7 | 9 | 0 | 6 | 6 | 2 | 0 | 2 | 4 | 2 | 0 | 2 | 25 | 5 | 0 | 71 |
| 06:15 AM | 1 | 14 | 13 | 0 | 9 | 20 | 2 | 0 | 3 | 6 | 2 | 0 | 2 | 41 | 2 | 0 | 115 |
| 06:30 AM | 0 | 10 | 12 | 0 | 9 | 13 | 0 | 0 | 3 | 8 | 1 | 0 | 1 | 31 | 2 | 0 | 90 |
| 06:45 AM | 3 | 15 | 8 | 0 | 7 | 12 | 0 | 0 | 7 | 14 | 0 | 0 | 2 | 24 | 0 | 0 | 92 |
| Total | 5 | 46 | 42 | 0 | 31 | 51 | 4 | 0 | 15 | 32 | 5 | 0 | 7 | 121 | 9 | 0 | 368 |
| 07:00 AM | 2 | 14 | 10 | 0 | 14 | 22 | 6 | 0 | 3 | 9 | 3 | 0 | 8 | 27 | 5 | 0 | 123 |
| 07:15 AM | 1 | 24 | 15 | 0 | 10 | 8 | 16 | 0 | 18 | 14 | 4 | 0 | 4 | 23 | 7 | 0 | 144 |
| 07:30 AM | 2 | 15 | 19 | 0 | 15 | 7 | 3 | 0 | 14 | 17 | 5 | 0 | 8 | 29 | 7 | 0 | 141 |
| 07:45 AM | 4 | 18 | 17 | 0 | 7 | 17 | 1 | 0 | 6 | 19 | 1 | 0 | 6 | 23 | 3 | 0 | 122 |
| Total | 9 | 71 | 61 | 0 | 46 | 54 | 26 | 0 | 41 | 59 | 13 | 0 | 26 | 102 | 22 | 0 | 530 |
| Grand Total | 14 | 117 | 103 | 0 | 77 | 105 | 30 | 0 | 56 | 91 | 18 | 0 | 33 | 223 | 31 | 0 | 898 |
| Apprch % | 6 | 50 | 44 | 0 | 36.3 | 49.5 | 14.2 | 0 | 33.9 | 55.2 | 10.9 | 0 | 11.5 | 77.7 | 10.8 | 0 | |
| Total % | 1.6 | 13 | 11.5 | 0 | 8.6 | 11.7 | 3.3 | 0 | 6.2 | 10.1 | 2 | 0 | 3.7 | 24.8 | 3.5 | 0 | |
| Unshifted | 14 | 115 | 102 | 0 | 77 | 105 | 29 | 0 | 56 | 90 | 17 | 0 | 33 | 222 | 31 | 0 | 891 |
| % Unshifted | 100 | 98.3 | 99 | 0 | 100 | 100 | 96.7 | 0 | 100 | 98.9 | 94.4 | 0 | 100 | 99.6 | 100 | 0 | 99.2 |
| Bank 1 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 7 |
| % Bank 1 | 0 | 1.7 | 1 | 0 | 0 | 0 | 3.3 | 0 | 0 | 1.1 | 5.6 | 0 | 0 | 0.4 | 0 | 0 | 0.8 |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.AM.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 2

| | NY Route 386 Southbound | | | | | North Road Westbound | | | | | NY Route 386 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 2 | 14 | 10 | 0 | 26 | 14 | **22** | 6 | 0 | **42** | 3 | 9 | 3 | 0 | 15 | **8** | | | | | |
| **07:15 AM** | **1** | **24** | 15 | 0 | **40** | 10 | 8 | **16** | **0** | **34** | **18** | **14** | **4** | **0** | **36** | 4 | 23 | **7** | **0** | **34** | **144** |
| 07:30 AM | 2 | 15 | **19** | | | **15** | | | | | | | **5** | | | | **29** | 7 | 0 | **44** | 141 |
| 07:45 AM | **4** | | | | | | | | | | | | **19** | 1 | 0 | 26 | 6 | 23 | 3 | 0 | 32 | 122 |
| Total Volume | 9 | 71 | 61 | 0 | 141 | 46 | 54 | 26 | 0 | 126 | 41 | 59 | 13 | 0 | 113 | 26 | 102 | 22 | 0 | 150 | 530 |
| % App. Total | 6.4 | 50.4 | 43.3 | 0 | | 36.5 | 42.9 | 20.6 | 0 | | 36.3 | 52.2 | 11.5 | 0 | | 17.3 | 68 | 14.7 | 0 | | |
| PHF | .563 | .740 | .803 | .000 | .881 | .767 | .614 | .406 | .000 | .750 | .569 | .776 | .650 | .000 | .785 | .813 | .879 | .786 | .000 | .852 | .920 |
| Unshifted | 9 | 69 | 60 | 0 | 138 | 46 | 54 | 25 | 0 | 125 | 41 | 59 | 12 | 0 | 112 | 26 | 102 | 22 | 0 | 150 | 525 |
| % Unshifted | | 97.2 | 98.4 | 0 | 97.9 | 100 | 100 | 96.2 | 0 | 99.2 | 100 | 100 | 92.3 | 0 | 99.1 | 100 | 100 | 100 | 0 | 100 | 99.1 |
| Bank 1 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| % Bank 1 | 0 | 2.8 | 1.6 | 0 | 2.1 | 0 | 0 | 3.8 | 0 | 0.8 | 0 | 0 | 7.7 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0.9 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.MD.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 1

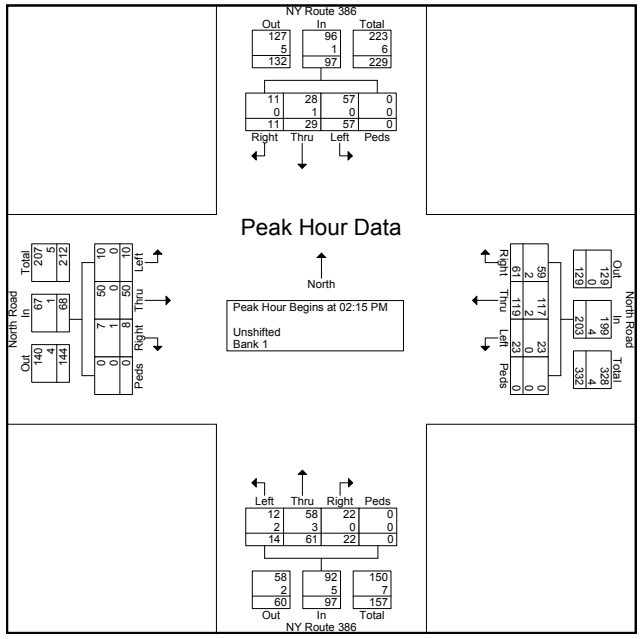
**Groups Printed- Unshifted - Bank 1**

| | NY Route 386 Southbound | | | | North Road Westbound | | | | NY Route 386 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 01:45 PM | 4 | 8 | 8 | 0 | 11 | 7 | 1 | 0 | 4 | 12 | 0 | 0 | 5 | 19 | 2 | 0 | 81 |
| Total | 4 | 8 | 8 | 0 | 11 | 7 | 1 | 0 | 4 | 12 | 0 | 0 | 5 | 19 | 2 | 0 | 81 |
| 02:00 PM | 5 | 11 | 13 | 0 | 15 | 14 | 6 | 0 | 11 | 13 | 2 | 0 | 3 | 22 | 1 | 0 | 116 |
| 02:15 PM | 2 | 8 | 22 | 0 | 21 | 43 | 8 | 0 | 8 | 12 | 7 | 0 | 2 | 15 | 2 | 0 | 150 |
| 02:30 PM | 1 | 4 | 12 | 0 | 17 | 22 | 4 | 0 | 4 | 14 | 3 | 0 | 2 | 8 | 2 | 0 | 93 |
| 02:45 PM | 5 | 10 | 8 | 0 | 9 | 25 | 8 | 0 | 4 | 14 | 2 | 0 | 1 | 14 | 5 | 0 | 105 |
| Total | 13 | 33 | 55 | 0 | 62 | 104 | 26 | 0 | 27 | 53 | 14 | 0 | 8 | 59 | 10 | 0 | 464 |
| 03:00 PM | 3 | 7 | 15 | 0 | 14 | 29 | 3 | 0 | 6 | 21 | 2 | 0 | 3 | 13 | 1 | 0 | 117 |
| 03:15 PM | 3 | 12 | 11 | 0 | 17 | 29 | 2 | 0 | 4 | 6 | 5 | 0 | 4 | 8 | 2 | 0 | 103 |
| 03:30 PM | 4 | 9 | 12 | 0 | 20 | 27 | 5 | 0 | 7 | 19 | 3 | 0 | 1 | 8 | 3 | 0 | 118 |
| Grand Total | 27 | 69 | 101 | 0 | 124 | 196 | 37 | 0 | 48 | 111 | 24 | 0 | 21 | 107 | 18 | 0 | 883 |
| Apprch % | 13.7 | 35 | 51.3 | 0 | 34.7 | 54.9 | 10.4 | 0 | 26.2 | 60.7 | 13.1 | 0 | 14.4 | 73.3 | 12.3 | 0 | |
| Total % | 3.1 | 7.8 | 11.4 | 0 | 14 | 22.2 | 4.2 | 0 | 5.4 | 12.6 | 2.7 | 0 | 2.4 | 12.1 | 2 | 0 | |
| Unshifted | 27 | 67 | 101 | 0 | 119 | 192 | 37 | 0 | 48 | 108 | 22 | 0 | 20 | 105 | 18 | 0 | 864 |
| % Unshifted | 100 | 97.1 | 100 | 0 | 96 | 98 | 100 | 0 | 100 | 97.3 | 91.7 | 0 | 95.2 | 98.1 | 100 | 0 | 97.8 |
| Bank 1 | 0 | 2 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 2 | 0 | 0 | 19 |
| % Bank 1 | 0 | 2.9 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 2.7 | 8.3 | 0 | 4.8 | 1.9 | 0 | 0 | 2.2 |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.MD.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 2

| | NY Route 386 Southbound | | | | | North Road Westbound | | | | | NY Route 386 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 01:45 PM to 03:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 2 | 8 | **22** | | **32** | **21** | **43** | **8** | | **72** | **8** | | **7** | | | | **15** | 2 | 0 | 19 | **150** |
| 02:30 PM | 1 | 4 | 12 | 0 | 17 | 17 | 22 | 4 | 0 | 43 | 4 | 14 | 3 | 0 | 21 | 2 | 8 | 2 | 0 | 12 | 93 |
| 02:45 PM | **5** | **10** | 8 | 0 | 23 | 9 | 25 | 8 | 0 | 42 | 4 | 14 | 2 | 0 | 20 | 1 | 14 | **5** | | **20** | 105 |
| 03:00 PM | 3 | 7 | 15 | 0 | 25 | 14 | 29 | 3 | 0 | 46 | 6 | **21** | 2 | 0 | **29** | **3** | | | | | |
| Total Volume | 11 | 29 | 57 | 0 | 97 | 61 | 119 | 23 | 0 | 203 | 22 | 61 | 14 | 0 | 97 | 8 | 50 | 10 | 0 | 68 | 465 |
| % App. Total | 11.3 | 29.9 | 58.8 | 0 | | 30 | 58.6 | 11.3 | 0 | | 22.7 | 62.9 | 14.4 | 0 | | 11.8 | 73.5 | 14.7 | 0 | | |
| PHF | .550 | .725 | .648 | .000 | .758 | .726 | .692 | .719 | .000 | .705 | .688 | .726 | .500 | .000 | .836 | .667 | .833 | .500 | .000 | .850 | .775 |
| Unshifted | 11 | 28 | 57 | 0 | 96 | 59 | 117 | 23 | 0 | 199 | 22 | 58 | 12 | 0 | 92 | 7 | 50 | 10 | 0 | 67 | 454 |
| % Unshifted | | 96.6 | | | | 96.7 | 98.3 | | | | | 95.1 | 85.7 | 0 | 94.8 | 87.5 | 100 | 100 | 0 | 98.5 | 97.6 |
| Bank 1 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 0 | 3 | 2 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 11 |
| % Bank 1 | 0 | 3.4 | 0 | 0 | 1.0 | 3.3 | 1.7 | 0 | 0 | 2.0 | 0 | 4.9 | 14.3 | 0 | 5.2 | 12.5 | 0 | 0 | 0 | 1.5 | 2.4 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.PM.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 1

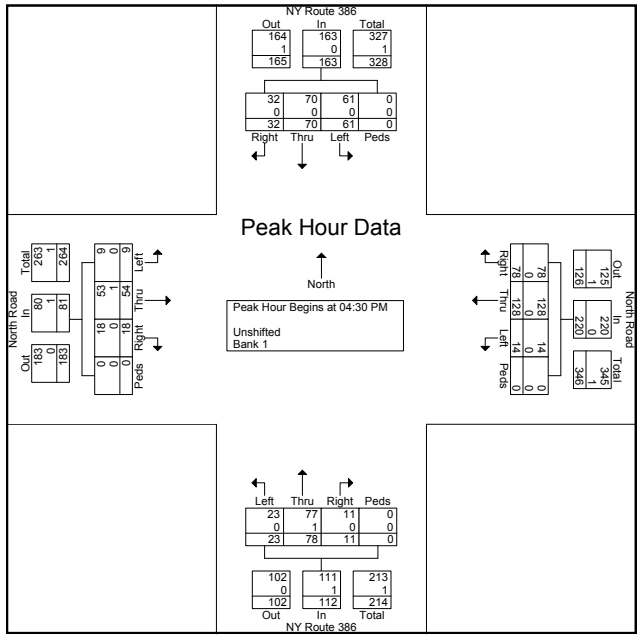
**Groups Printed- Unshifted - Bank 1**

| | NY Route 386 Southbound | | | | North Road Westbound | | | | NY Route 386 Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 04:30 PM | 9 | 13 | 13 | 0 | 18 | 35 | 1 | 0 | 3 | 28 | 10 | 0 | 2 | 7 | 2 | 0 | 141 |
| 04:45 PM | 6 | 16 | 3 | 0 | 17 | 30 | 2 | 0 | 1 | 19 | 4 | 0 | 5 | 14 | 1 | 0 | 118 |
| Total | 15 | 29 | 16 | 0 | 35 | 65 | 3 | 0 | 4 | 47 | 14 | 0 | 7 | 21 | 3 | 0 | 259 |
| 05:00 PM | 5 | 26 | 20 | 0 | 20 | 29 | 4 | 0 | 6 | 19 | 8 | 0 | 4 | 12 | 3 | 0 | 156 |
| 05:15 PM | 12 | 15 | 25 | 0 | 23 | 34 | 7 | 0 | 1 | 12 | 1 | 0 | 7 | 21 | 3 | 0 | 161 |
| 05:30 PM | 2 | 16 | 21 | 0 | 12 | 35 | 4 | 0 | 2 | 18 | 2 | 0 | 4 | 17 | 1 | 0 | 134 |
| 05:45 PM | 5 | 6 | 6 | 1 | 12 | 14 | 3 | 0 | 4 | 9 | 1 | 0 | 2 | 17 | 3 | 0 | 83 |
| Total | 24 | 63 | 72 | 1 | 67 | 112 | 18 | 0 | 13 | 58 | 12 | 0 | 17 | 67 | 10 | 0 | 534 |
| Grand Total | 39 | 92 | 88 | 1 | 102 | 177 | 21 | 0 | 17 | 105 | 26 | 0 | 24 | 88 | 13 | 0 | 793 |
| Apprch % | 17.7 | 41.8 | 40 | 0.5 | 34 | 59 | 7 | 0 | 11.5 | 70.9 | 17.6 | 0 | 19.2 | 70.4 | 10.4 | 0 | |
| Total % | 4.9 | 11.6 | 11.1 | 0.1 | 12.9 | 22.3 | 2.6 | 0 | 2.1 | 13.2 | 3.3 | 0 | 3 | 11.1 | 1.6 | 0 | |
| Unshifted | 39 | 92 | 88 | 1 | 102 | 177 | 21 | 0 | 17 | 103 | 26 | 0 | 24 | 87 | 13 | 0 | 790 |
| % Unshifted | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 98.1 | 100 | 0 | 100 | 98.9 | 100 | 0 | 99.6 |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.9 | 0 | 0 | 0 | 1.1 | 0 | 0 | 0.4 |

**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.NY386.PM.Peak
Site Code : 00000000
Start Date : 10/31/2012
Page No : 2

| | NY Route 386 Southbound | | | | | North Road Westbound | | | | | NY Route 386 Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:30 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 9 | 13 | 13 | 0 | 35 | 18 | **35** | 1 | 0 | 54 | 3 | **28** | **10** | | **41** | 2 | 7 | 2 | 0 | 11 | 141 |
| 04:45 PM | 6 | 16 | 3 | 0 | 25 | 17 | 30 | 2 | 0 | 49 | 1 | 19 | 4 | 0 | 24 | 5 | 14 | 1 | 0 | 20 | 118 |
| 05:00 PM | 5 | **26** | 20 | 0 | 51 | 20 | 29 | 4 | 0 | 53 | **6** | | | | | | | **3** | | | |
| **05:15 PM** | **12** | **15** | **25** | **0** | **52** | **23** | **34** | **7** | **0** | **64** | 1 | 12 | 1 | 0 | 14 | **7** | **21** | 3 | 0 | **31** | **161** |
| Total Volume | 32 | 70 | 61 | 0 | 163 | 78 | 128 | 14 | 0 | 220 | 11 | 78 | 23 | 0 | 112 | 18 | 54 | 9 | 0 | 81 | 576 |
| % App. Total | 19.6 | 42.9 | 37.4 | 0 | | 35.5 | 58.2 | 6.4 | 0 | | 9.8 | 69.6 | 20.5 | 0 | | 22.2 | 66.7 | 11.1 | 0 | | |
| PHF | .667 | .673 | .610 | .000 | .784 | .848 | .914 | .500 | .000 | .859 | .458 | .696 | .575 | .000 | .683 | .643 | .643 | .750 | .000 | .653 | .894 |
| Unshifted | 32 | 70 | 61 | 0 | 163 | 78 | 128 | 14 | 0 | 220 | 11 | 77 | 23 | 0 | 111 | 18 | 53 | 9 | 0 | 80 | 574 |
| % Unshifted | | | | | | | | | | | | 98.7 | | | | | 98.1 | | | | |
| Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| % Bank 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 | 0 | 0 | 0.9 | 0 | 1.9 | 0 | 0 | 1.2 | 0.3 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.SchoolParkingLot.AM.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 1

Groups Printed- Unshifted

| | Southbound | | | | North Road Westbound | | | | School Parking Lot Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 06:00 AM | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 27 | 0 | 0 | 37 |
| 06:15 AM | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 61 | 0 | 0 | 90 |
| 06:30 AM | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 62 |
| 06:45 AM | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 62 |
| Total | 0 | 0 | 0 | 0 | 0 | 78 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 168 | 0 | 0 | 251 |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 26 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 37 | 0 | 0 | 69 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 39 | 15 | 0 | 9 | 0 | 3 | 0 | 4 | 44 | 0 | 0 | 114 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 29 | 27 | 0 | 12 | 0 | 4 | 0 | 7 | 64 | 0 | 0 | 143 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 80 |
| Total | 0 | 0 | 0 | 0 | 0 | 117 | 46 | 0 | 22 | 0 | 8 | 0 | 11 | 202 | 0 | 0 | 406 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 195 | 48 | 0 | 23 | 0 | 8 | 0 | 13 | 370 | 0 | 0 | 657 |
| Apprch % | 0 | 0 | 0 | 0 | 0 | 80.2 | 19.8 | 0 | 74.2 | 0 | 25.8 | 0 | 3.4 | 96.6 | 0 | 0 | |
| Total % | 0 | 0 | 0 | 0 | 0 | 29.7 | 7.3 | 0 | 3.5 | 0 | 1.2 | 0 | 2 | 56.3 | 0 | 0 | |

**SRF & Associates**
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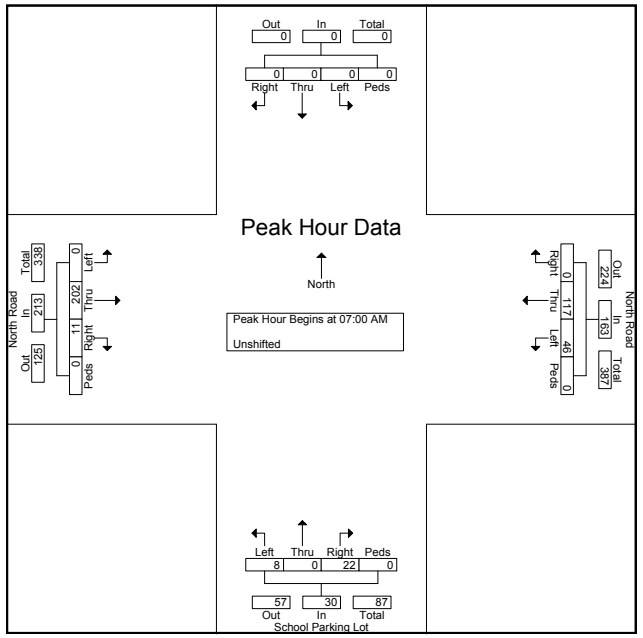
File Name : NorthRd.SchoolParkingLot.AM.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 2

| | Southbound | | | | | North Road Westbound | | | | | School Parking Lot Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 4 | 0 | 30 | 1 | 0 | 1 | 0 | 2 | 0 | 37 | 0 | 0 | 37 | 69 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | **39** | 15 | 0 | 54 | 9 | 0 | 3 | 0 | 12 | 4 | 44 | 0 | 0 | 48 | 114 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 29 | **27** | | **56** | **12** | | **4** | | **16** | **7** | **64** | 0 | 0 | **71** | **143** |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 57 | 80 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 46 | 0 | 163 | 22 | 0 | 8 | 0 | 30 | 11 | 202 | 0 | 0 | 213 | 406 |
| % App. Total | 0 | 0 | 0 | 0 | | 0 | 71.8 | 28.2 | 0 | | 73.3 | 0 | 26.7 | 0 | | 5.2 | 94.8 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .750 | .426 | .000 | .728 | .458 | .000 | .500 | .000 | .469 | .393 | .789 | .000 | .000 | .750 | .710 |



**SRF & Associates**
**3495 Winton Place, Building E, Suite 110**
**Rochester, NY 14623**

File Name : NorthRd.SchoolParkingLot.MD.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 1

**Groups Printed- Unshifted**

| | Southbound | | | | North Road Westbound | | | | School Parking Lot Northbound | | | | North Road Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Int. Total |
| 01:45 PM | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 47 |
| Total | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 47 |
| 02:00 PM | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 36 | 0 | 0 | 59 |
| 02:15 PM | 0 | 0 | 0 | 0 | 0 | 71 | 5 | 0 | 9 | 0 | 6 | 0 | 2 | 54 | 0 | 0 | 147 |
| 02:30 PM | 0 | 0 | 0 | 0 | 0 | 42 | 2 | 0 | 8 | 0 | 3 | 0 | 0 | 29 | 0 | 0 | 84 |
| 02:45 PM | 0 | 0 | 0 | 0 | 0 | 28 | 2 | 0 | 5 | 0 | 1 | 0 | 1 | 21 | 0 | 0 | 58 |
| Total | 0 | 0 | 0 | 0 | 0 | 161 | 10 | 0 | 22 | 0 | 11 | 0 | 4 | 140 | 0 | 0 | 348 |
| 03:00 PM | 0 | 0 | 0 | 0 | 0 | 46 | 2 | 0 | 4 | 0 | 2 | 0 | 1 | 37 | 0 | 0 | 92 |
| 03:15 PM | 0 | 0 | 0 | 0 | 0 | 52 | 2 | 0 | 8 | 0 | 1 | 0 | 2 | 24 | 0 | 0 | 89 |
| 03:30 PM | 0 | 0 | 0 | 0 | 1 | 40 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 71 |
| Grand Total | 0 | 0 | 0 | 0 | 1 | 320 | 16 | 0 | 37 | 0 | 14 | 0 | 7 | 252 | 0 | 0 | 647 |
| Apprch % | 0 | 0 | 0 | 0 | 0.3 | 95 | 4.7 | 0 | 72.5 | 0 | 27.5 | 0 | 2.7 | 97.3 | 0 | 0 | |
| Total % | 0 | 0 | 0 | 0 | 0.2 | 49.5 | 2.5 | 0 | 5.7 | 0 | 2.2 | 0 | 1.1 | 38.9 | 0 | 0 | |

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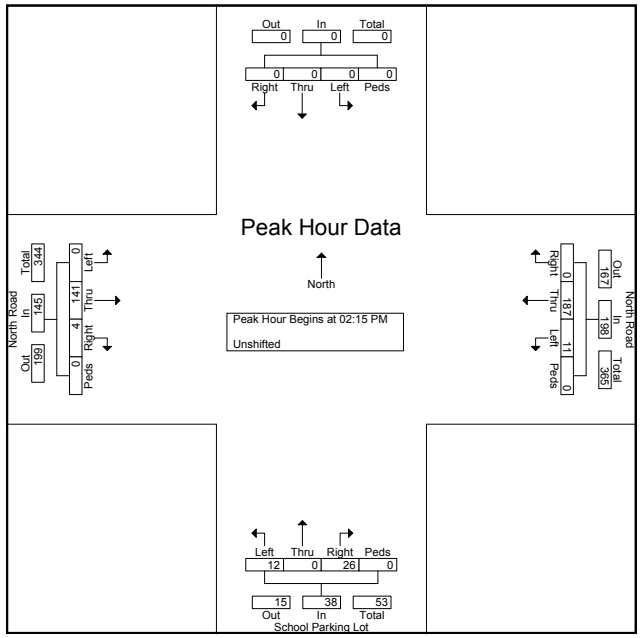
File Name : NorthRd.SchoolParkingLot.MD.Peak
Site Code : 00032036
Start Date : 10/31/2012
Page No : 2

| | Southbound | | | | | North Road Westbound | | | | | School Parking Lot Northbound | | | | | North Road Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 01:45 PM to 03:30 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 02:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 02:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | **71** | **5** | | **76** | **9** | | **6** | | **15** | **2** | **54** | 0 | 0 | **56** | **147** |
| 02:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 2 | 0 | 44 | 8 | 0 | 3 | 0 | 11 | 0 | 29 | 0 | 0 | 29 | 84 |
| 02:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 2 | 0 | 30 | 5 | 0 | 1 | 0 | 6 | 1 | 21 | 0 | 0 | 22 | 58 |
| 03:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 2 | 0 | 48 | 4 | 0 | 2 | 0 | 6 | 1 | 37 | 0 | 0 | 38 | 92 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 187 | 11 | 0 | 198 | 26 | 0 | 12 | 0 | 38 | 4 | 141 | 0 | 0 | 145 | 381 |
| % App. Total | 0 | 0 | 0 | 0 | | 0 | 94.4 | 5.6 | 0 | | 68.4 | 0 | 31.6 | 0 | | 2.8 | 97.2 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .658 | .550 | .000 | .651 | .722 | .000 | .500 | .000 | .633 | .500 | .653 | .000 | .000 | .647 | .648 |



# Traffic Circulation and Safety Study, Village of Scottsville, NY

Documentation of Ambient Traffic Volume Growth (AADT Volumes)

| Roadway | Segment | 1991 | 2003 | 2004 | 2005 | 2006 | 2009 | 2012 | Annual Growth |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Based on SRF data | |
| North Road (CR 139) | NY 386 to NY 383 | 3,612 | | | 3,517 | | 4,645 | 4,173 | 0.7% |
| NY 383 | NY 251 to North Road | | 5,810 | | 5,350 | | 5,966 | 6,170 | 0.7% |
| NY 386 | NY 383 to North Road | | | 1,870 | | 1,680 | 2,203 | 2,140 | 1.7% |
| | | | | | | | | Average | 1.0% |

**3-YEAR CRASH SUMMARY (2009-2011)**

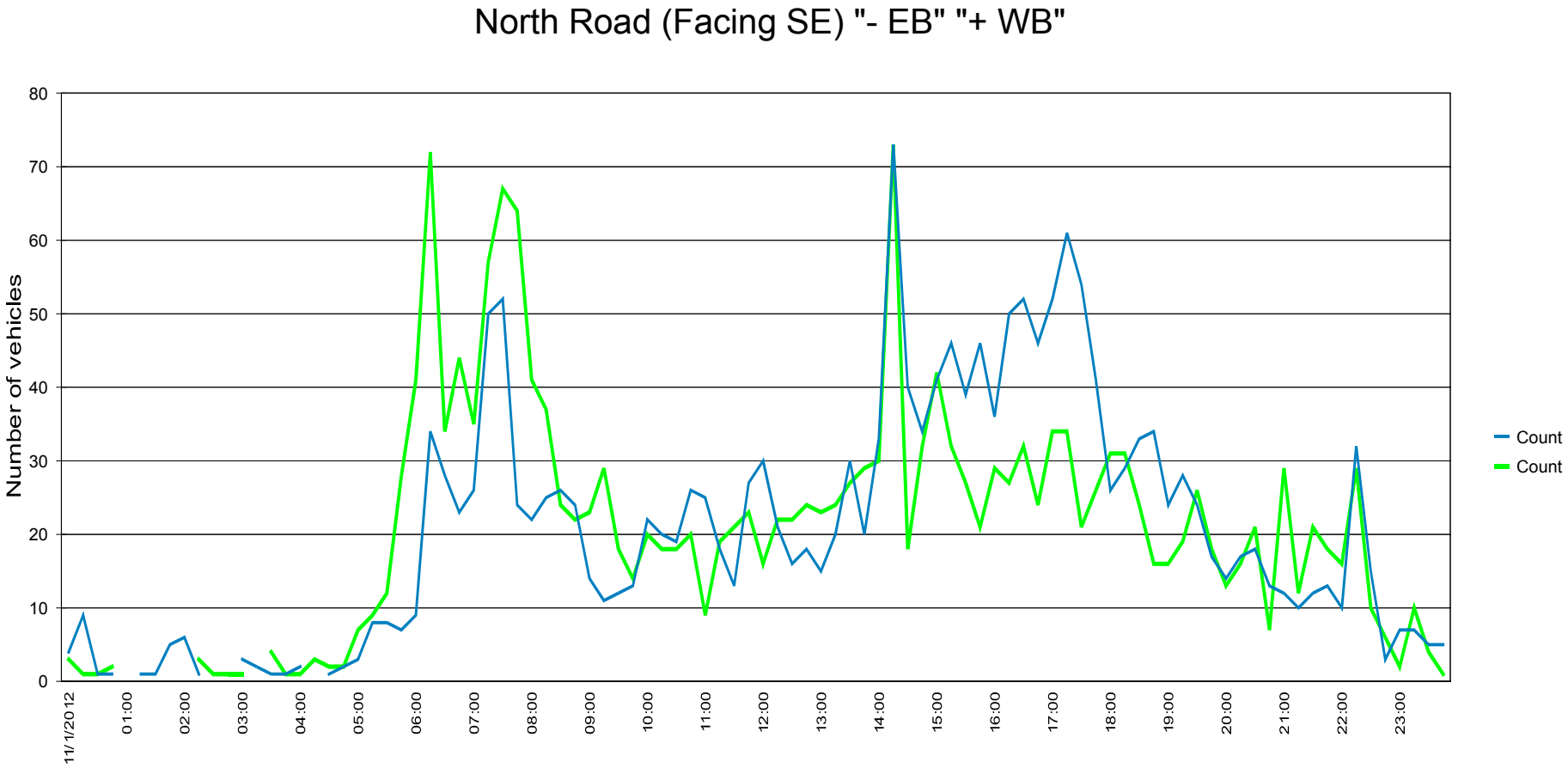
| Int. ID | ACCIDENT SEVERITY | | | | | | | TYPE | | | | | | | | | | | | PM Peak | ADT | Accident Rate | NYSDOT/MCDOT Average | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Injury | | | | | PDO | Total | SideSwipe | | Angle | Right Turn | Left Turn | Over taking | Rear End | Fixed Object | Unknown | Animal | Head On | Ped/ Bike | Total | | | | | |
| | Fatal | Major | Moderate | Minor | Unknown | | | Same | Opp. | | | | | | | | | | | | | | | | |
| **INTERSECTION RELATED** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 - NY 383 | | | 2 | 4 | | 8 | **14** | 1 | | | | 2 | | 3 | 3 | 3 | 1 | 1 | | **14** | 1196 | 11960 | 1.07 | 0.32 | NYSDOT |
| 2 - Browns | | | | | | 2 | **2** | | | 2 | | | | | | | | | | **2** | 433 | 4330 | 0.42 | 0.30 | MCDOT |
| 3 - Cavalier | | | | | | | **0** | | | | | | | | | | | | | **0** | 414 | 4140 | 0.00 | 0.30 | MCDOT |
| 4 - Briarwood | | | | | | | **0** | | | | | | | | | | | | | **0** | 533 | 5330 | 0.00 | 0.30 | MCDOT |
| 5 - WCHS | | | | | | | **0** | | | | | | | | | | | | | **0** | 381 | 3810 | 0.00 | 0.30 | MCDOT |
| 6 - NY 386 | | | 1 | | | 10 | **11** | | | 3 | | 1 | 1 | 1 | 3 | | 2 | | | **11** | 576 | 5760 | 1.74 | 0.19 | NYSDOT |
| **SEGMENT RELATED** | | | | | | | | | | | | | | | | | | | | | ADT | Seg Length | | | |
| Int. 1 to Int. 2 | | | | | | | **0** | | | | | | | | | | | | | **0** | 3889 | 0.36 | 0.00 | 0.72 | |
| Int. 2 to Int. 3 | | | | | | | **0** | | | | | | | | | | | | | **0** | 3889 | 0.14 | 0.00 | 0.72 | |
| Int. 3 to Int. 4 | | | | 1 | | | **1** | | | | | | | 1 | | | | | | **1** | 3889 | 0.19 | 1.24 | 0.72 | |
| Int. 4 to Int. 5 | | | | | | | **0** | | | | | | | | | | | | | **0** | 3889 | 0.30 | 0.00 | 0.72 | |
| Int. 5 to Int. 6 | | | | | | 1 | **1** | | | | | | | 1 | | | | | | **1** | 3889 | 0.24 | 0.98 | 0.72 | |
| | | | | | | | | | | | | | | | | | | | | **2** | 3889 | 1.23 | 0.38 | 0.72 | MCDOT |

Non-reportable:

1 Other at Rochester St (Route 383)
1 Collision with deer at Scottsville-Chili (Route 386)
1 Collision with animal at Int. 5 to 6
1 Right turn at Scottsville-Chili (Route 386)
1 Crash with fixed object at Browns Ave
1 Sideswipe east of Chili Ave at Int. 5 to 6 (Route 386)
1 Left turn at Scottsville-Chili (Route 386)
1 Collision with deer at Int. 2 to 3
1 Right turn at Int. 5 to 6
1 Unknown at Int. 4 to 5

29 TOTAL
27 INTERSECTION

## Radar Collected Traffic Data Summary ▼




### Statistics

Period: Thursday, November 01, 2012, 00:00 o'clock to Thursday, November 01, 2012, 23:59 o'clock

| | Count + | % | Count - | % | Total | % | V15 + | Va + | V85 + | Vmax+ | V15 - | Va - | V85 - | Vmax - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motorcycle | 8 | 0.4 | 52 | 2.7 | 60 | 1.5 | 27 | 33 | 36 | 45 | 7 | 21 | 33 | 38 |
| Car | 1870 | 95.8 | 1814 | 93.6 | 3684 | 94.7 | 30 | 34 | 40 | 56 | 28 | 33 | 37 | 55 |
| Truck | 63 | 3.2 | 58 | 3 | 121 | 3.1 | 25 | 32 | 39 | 47 | 26 | 32 | 37 | 42 |
| Long truck | 11 | 0.6 | 13 | 0.7 | 24 | 0.6 | 30 | 34 | 38 | 42 | 28 | 31 | 37 | 39 |
| Total | 1952 | 50.2 | 1937 | 49.8 | 3889 | 100 | 29 | 34 | 40 | 56 | 28 | 32 | 37 | 55 |

Average time interval: 1.6 sec
Traffic in column: 17 %

Truck Share: 4 %

SIERZEGA

## Pedestrian Level of Service Method ▼

AUSTRALIAN METHOD PEDESTRIAN LEVEL OF SERVICE

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | 1.6 - 2.0 m | 3 | 4 | 12 |
| Surface Quality | Acceptable Quality | 3 | 3 | 9 |
| Obstruction (Per km) | 1 to 4 | 3 | 2 | 6 |
| Crossing Opportunities | Poorly located | 1 | 3 | 3 |
| Support Facilities | Adequate | 3 | 5 | 15 |
| Connectivity | Poor | 1 | 3 | 3 |
| Path Environment | Acceptable, within 1 or 2 m of road | 2 | 4 | 8 |
| Potential for Conflict | Reasonable, 1 to 10 per km | 3 | 4 | 12 |
| Pedestrian Volume | Less than 80 per day | 4 | 1 | 4 |
| Mix of Users | Pedestrians only | 4 | 2 | 8 |
| Personal Security | Good | 3 | 3 | 9 |
| | TOTAL SCORE | | 89 | |
| | PED LOS | | C | |

**Crossing Opportunities:** the type and number of facilities provided to assist in the safe crossing of roads and paths by pedestrians. Includes median refuges,pelican crossings, guarded crossings, crosswalks, underpasses, and overpasses. 'Delay in crossing' is also a characteristic of this factor.

**Support Facilities:** the presence of facilities that assist pedestrians during their journey and includes tactile paving, colour contrast kerbing, provision of rest stops, kerb ramps, lane markings, signage, landings on long ramps etc.

### Location factors

**Connectivity:** the degree to which the path provides a useful, direct and logical link between key departure points and destinations.

**Path Environment:** a measure of the quality of the path environment dictated by its surroundings. The degree of 'pleasantness' of the surrounding environment will often relate to distance from the roadway.

**Potential for Vehicle Conflict:** a count of the number of potential vehicle conflict points along the route including intersections and driveways. Conflict points to be measured per path kilometre. The potential for pedestrian conflict increases with inc

### User factors

**Pedestrian Volume:** a count (or estimate) of the number of pedestrians using the path expressed as an average daily count.

**Mix of Path Users:** an estimate of the various groups who use the path as a percentage of total pedestrians. Groups include pedestrians, cyclists, roller-skaters, etc. When assessing this factor, consideration should be given to the various types of pede

**Personal Security:** qualitative measurement of the degree to which the path is safe for users. Characteristics of this factor include the provision of adequate lighting (from both direct and indirect sources), path visibility from the surrounding environ

### Design factors (Physical characteristics)

**Path Width:** a measure in metres of the width of the path that is available to pedestrians.

**Surface Quality:** a description of the quality of the surface of the path. Excellent quality means a continuous, smooth but skid resistant surface, without cracks and bumps or weed intrusion.

**Obstructions:** a measure of the number of obstructions per kilometre on the path being assessed. Assessment of this factor is essential to determine the access available to people with disabilities. Obstructions may be permanent (e.g. poles, signs, chairs etc) or temporary (e.g. bins, parked cars etc). Stairs are or temporary (e.g. bins, parked cars etc). Stairs are considered an obstruction if no alternative is available for people with mobility disabilities.

# Pedestrian Level of Service Calculations

(North) NY 383 to Briarwood Lane

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | No Path | 0 | 5 | 0 |
| Surface Quality | Unsealed, Bumps | 0 | 5 | 0 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Opportunities | Some, but not enough | 2 | 3 | 6 |
| Support Facilities | Nonexistent | 0 | 1 | 0 |
| Connectivity | Reasonable | 2 | 5 | 10 |
| Path Environment | Unpleasant, close to vehicles | 0 | 5 | 0 |
| Potential for Conflict | Reasonable, 1 to 10 per km | 3 | 2 | 6 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 67 | |
| | PED LOS | | D | |

(North) Briarwood Lane to Wheatland Chili Senior High School

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | No Path | 0 | 5 | 0 |
| Surface Quality | Unsealed, Bumps | 0 | 5 | 0 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Opportunities | None, difficult | 0 | 3 | 0 |
| Support Facilities | Nonexistent | 0 | 1 | 0 |
| Connectivity | Poor | 1 | 5 | 5 |
| Path Environment | Unpleasant, close to vehicles | 0 | 5 | 0 |
| Potential for Conflict | Reasonable, 1 to 10 per km | 3 | 2 | 6 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 56 | |
| | PED LOS | | D | |

## (North) Wheatland Chili Senior High School to NY 386

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | No Path | 0 | 5 | 0 |
| Surface Quality | Unsealed, Bumps | 0 | 5 | 0 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Opportunities | None, difficult | 0 | 3 | 0 |
| Support Facilities | Nonexistent | 0 | 1 | 0 |
| Connectivity | Nonexistent | 0 | 5 | 0 |
| Path Environment | Unpleasant, close to vehicles | 0 | 5 | 0 |
| Potential for Conflict | No vehicle conflicts | 4 | 2 | 8 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 53 | |
| | PED LOS | | D | |

## (South) NY 383 to Briarwood Lane

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | 1.6 - 2.0 m | 3 | 5 | 15 |
| Surface Quality | Moderate Quality | 2 | 5 | 10 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Oppurtunities | Poorly located | 1 | 3 | 3 |
| Support Facilities | Few and far between | 1 | 1 | 1 |
| Connectivity | Good | 3 | 5 | 15 |
| Path Environment | Reasonable, within 2 or 3 m of road | 3 | 5 | 15 |
| Potential for Conflict | Reasonable, 1 to 10 per km | 3 | 2 | 6 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 110 | |
| | PED LOS | | B | |

## (South) Briarwood Lane to Wheatland Chili Senior High School

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | 1.6 - 2.0 m | 3 | 5 | 15 |
| Surface Quality | Moderate Quality | 2 | 5 | 10 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Oppurtunities | None, difficult | 0 | 3 | 0 |
| Support Facilities | Few and far between | 1 | 1 | 1 |
| Connectivity | Good | 3 | 5 | 15 |
| Path Environment | Reasonable, within 2 or 3 m of road | 3 | 5 | 15 |
| Potential for Conflict | Reasonable, 1 to 10 per km | 3 | 2 | 6 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 107 | |
| | PED LOS | | B | |

## (South) Wheatland Chili Senior High School to NY 386

| | Please Select From the Drop Down | Points | Weight | Scores |
|---|---|---|---|---|
| Path Width | No Path | 0 | 5 | 0 |
| Surface Quality | Unsealed, Bumps | 0 | 5 | 0 |
| Obstruction (Per km) | None | 4 | 3 | 12 |
| Crossing Oppurtunities | None, difficult | 0 | 3 | 0 |
| Support Facilities | Nonexistent | 0 | 1 | 0 |
| Connectivity | Nonexistent | 0 | 5 | 0 |
| Path Environment | Unpleasant, close to vehicles | 0 | 5 | 0 |
| Potential for Conflict | No vehicle conflicts | 4 | 2 | 8 |
| Pedestrian Volume | Less than 80 per day | 4 | 3 | 12 |
| Mix of Users | Under 20% non pedestrians | 3 | 5 | 15 |
| Personal Security | Good | 3 | 2 | 6 |
| | TOTAL SCORE | | 53 | |
| | PED LOS | | D | |

## Bicycle Level of Service Results ▼

| Seg_ID | Road Name | From | To | Len-gth (Ls) | Dir. of Sur. | Lanes (L) | | ADT | Post. Spd. ($SP_p$) | Width of Pavement | | | Occ. Park. (OSPA) | Pavecon | | Bike Lane Mark | Cross Sec. | Buff. Width (BW) | Tree Spcg. in Buffer | % with Sidewalk | Swalk Width (Ws) | Bicycle LOS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Th | Con | | | $W_t$ | $W_l$ | $W_{ps}$ | | $PC_t$ | $PC_l$ | | | | | | | Score | Grade |
| | | | | (mi) | | # | | | mph | (ft) | (ft) | (ft) | (%) | (1..5) | (1..5) | (Y/N) | (C/S) | (ft) | (ft/ctr) | | (ft) | (1..6) | (A..F) |
| 1.0 | North Road | NY Route 383 | School | 0.97 | EB | 2 | U | 3,889 | 30 | 11.5 | 1.5 | 0 | 0 | 3.0 | 3.0 | N | S | 10.0 | 0 | 100 | 5.0 | 4.10 | D |
| 1.0 | | | | 0.97 | WB | 2 | U | 3,889 | 30 | 11.5 | 1.5 | 0 | 0 | 3.0 | 3.0 | N | S | 0.0 | 0 | 0 | 0.0 | 4.10 | D |
| 2.0 | North Road | School | NY Route 386 | 0.25 | EB | 2 | U | 3,889 | 30 | 18.0 | 8.0 | 0 | 0 | 3.0 | 3.0 | N | S | 0.0 | 0 | 0 | 0.0 | 1.17 | A |
| 2.0 | | | | 0.25 | WB | 2 | U | 3,889 | 30 | 18.0 | 8.0 | 0 | 0 | 3.0 | 3.0 | N | S | 0.0 | 0 | 0 | 0.0 | 1.17 | A |

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

*phone* 585.272.4660

*Re: Village of Scottsville Traffic Circulation and Safety Study*
*Steering Committee Meeting #1*

*October 22, 2012*

**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: Steering Committee #1**
**Meeting Date: Tuesday 10/22/12**

## MEETING MINUTES

Attendees:

Amy Dake
Stephen Ferranti
Sam Carrera
Paul Gee
Elizabeth Murray
Matt Ingalls
John Steinmetz
Tony Favro
Meaghan Capuano

The SRF Team met with the steering committee at the Wheatland Municipal Building to go over the project scope, schedule and to identify preliminary issues, needs, and opportunities.

**Study Process Items**

- Steering committee meetings can take place during the day, Mondays are bad for the code enforcement officer. The Town Highway Superintendent is on the distribution list.
- Need to identify members for the Technical Advisory Committee (TAC)

**Issues**

- Mayor reviewed history of issues on North Rd.
- Intersection near the High School has a lot of fender benders that are under reported and there are sight distance issues
- Brierwood issues at intersection. Has speed humps within the neighborhood.
- Brown's Rd – apartments – kids walking to school. Everyone can take the bus to school but many walk when the weather is good.
- Sidewalk between Brierwood & Heather ends @ Athletic fields, snow is an issue crossing the athletic fields. The Village plows all of the sidewalks.
- There are issues crossing Brierwood Lane at North Road.
- Cavalier Rd – needs crosswalk improvement
- What is the purpose of the paved "shoulder" areas on North Rd? Meaghan will check for history.
- Factory shift change at Cooper Vision is same time as middle and high school dismissal. Cooper Vision shift ends at 6:10am and next shift starts 6:30 am and afternoon 2:10 next shift starts at 2:30. Shifts are staggered to avoid on-site parking issues. School begins at 7:38 am dismissal is at 2:14 pm.
- Rochester St has pedestrian issues – no sidewalks
- Pedestrian fatality at plaza on east side of Scottsville Rd.
- There is a need to cross Scottsville Road to go from the apartments to the plaza.
- NYSDOT sidewalk project for next year on both sides of Rochester St but not on Scottsville Rd.
- Weekends large groups of cyclists travel North Road. Kids mostly ride bikes on sidewalks.
- High School put in separate bus loop to separate parent drop offs.
- Lack of sidewalks to Chili/Scottsville Rd forces pedestrians into North Rd and/or through school parking lots
- Trains are an issue, sometimes at afternoon peak – 2-3 trains per day. Trains are quite long.
- Town Economic Development Study => identifies areas for development and infrastructure. Areas for development are along Scottsville/Mumford Rd
- Cooper Vision – no room to expand on site, installing new automation system, will stay at current site, currently at capacity for employees. Sarah Kloos point person at Cooper Vision.
- Potential Development on Brown Rd. i.e.~ patio homes, new church
- Safety is top priority
- Speeding eastbound at school and southbound on Scottsville Rd
- Sidewalks around the Village are almost a perfect 5K loop.
- Significant pedestrian usage year round
- North Rd does not feel like a Village Street
- Improve aesthetics
- Latent demand for peds/bikes if improved
- Cut through on Grove St, Brierwood, Cooper Vision – no right turn
- Issues with left turns – Cooper Vision, High School, Browns Rd
- Sight Distance Issues at Southeast corner of Rochester St/Rt 253
- MCDOT recommended Northbound right turn lane at Briarwood
- Clamoring for a roundabout
- Lots of large farm equipment on North Rd
- Street lighting not good

*Re: Village of Scottsville Traffic Circulation and Safety Study*
*Steering Committee Meeting #1*

*October 22, 2012*

**Assets**

- Plowed sidewalks
- Schools
- Cooper Vision
- Ice Rink
- Parks

**Other Items Discussed**

- Peaks to study 7-8am and 2-3pm instead of 5-6pm
- Meaghan 2007 study => to give us a copy
- Do we need a bike lane on North Rd? maybe a bike lane or shared lane
- Where are gateways? At Chili Ave and Rochester St. Village is looking at installing new gateway signage:
  - approaching Rochester St from the East
  - Near the DPW, North on River Rd
  - Near High School
- County Sherriff – use digital speed trailers periodically
- Trucks more of an issue on Main Street & Rochester St.
- There is a lot of large farm equipment that uses North Road.
- Potential dates/times for public meeting: 6pm, Wed Dec 6th???? Take a look at week of 12/3 for public meeting. Hold the meeting at the Senior Center? We could expect 30-40 people.
- Steering Committee members will get back to us with suggested TAC members
- SEQRA required to accept or adopt project when finished. Need to discuss process with Mayor Gee. Tony believes minimal SEQRA will be required but will check on laws and requirements.

3

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

*phone* 585.272.4660
*fax* 585.272.4662

**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: TAC meeting #1**
**Meeting Date: Tuesday 12/4/12**

## MEETING MINUTES

Attendees:

Amy Dake
Mike Connelie
David Kruse
Meaghan Capuano
Matt Ingalls
Jeff Brown
Chuck Hazelton
Dave Goehring

The SRF Team met with the TAC committee at the Wheatland Municipal Building to go over the preliminary issues, needs, and opportunities and to discuss detailed design elements.

Browns Ave.

- People in hurry, reason for crashes
- Near elementary school
- Accident rates are still within reasonable expectations according to NYSDOT

Rochester St.

- People try to beat the light during evening peak
- People turn in front of other vehicles
- Note the pattern/type of accidents for the report

Level of Service - Pedestrians
The Australian method of analyzing quality of service for pedestrians will be utilized. This method includes a weighting scale to rank the importance of the variables. The weighting were discussed and agreed upon with the committee as follows:

Weights
Path Width: 4 to 5
Surface Quality: 4 to 5
Obstructions: 2 to 3
Crossing Opportunity: 2 to 3
Support Facilities: 1
Connectivity: 4 to 5
Path Environment: 4 to 5

Conflict: 2
Ped Volume: 2 to 3
Mix of Users: 4 to 5
Security: 2

- Pedestrian volumes can vary along North Road.
- The School District offers busing for students.
- Groups of high school students walk together to school.
- There are a fair amount of people who walk through village.
- The asphalt sidewalk surface is showing its age and is less inviting.
- There have been efforts to try and put sidewalks around NY 386 intersection for years.
- There is only one noted obstruction within the sidewalk path on North Road.
- For those walking to Clearview, pedestrians will cross @ Grenadier.
- The crossing near the rail tracks needs improvement.
- The sidewalk connects to two schools.
- The roadside path environment is not inviting.
- The road is horrible during winter – there is very little snow storage between sidewalk and road.
- North Road is not inviting during winter (wind tunnel) for pedestrians.
- CooperVision traffic tends to turn right (when exiting) to cut through the village. Most people are in a mad rush to leave.
- A motorists does not want to get caught there (CooperVision) during peak times.
- The majority of pedestrian volumes at CooperVision are students from the high school.
- Pedestrian volume may increase with improved environment along North Road.
- During events at the high school, most people park in school parking lots. There may be 2 to 3 times per year when cars park on the road because the parking lots are full. Can be 30 or so vehicles parking along North Road.
- Mike is not concerned with his daughter walking in the area.
- The idea of personal security is contextual in nature. A rural person may not light dark places, while someone else would prefer a well lit environment.

<u>Matt's Discussion</u>

- Option A –
  - Use of Asphalt Area
    - Could be space for snow storage during winter
    - Currently used for parking (not constant)
  - The rhythm of mailboxes and hydrants needs to be taken into account.
  - Post office delivery trucks would prefer full width of gutter and shoulder to pull off onto when delivering mail.
  - There are no specific drainage issues. One location had flooding issues during heavy rainfall. Does not seem to be an issue anymore.



*Re: Village of Scottsville Traffic Circulation and Safety Study* *December 4, 2012*
*TAC Meeting #1*

- Option B –
  - Curbs look nicer; however, there is maintenance as a result of their presence.
  - Overall, a curb isn't major issue along North Road.
  - Residents along the northern side of North Road don't want to give up lawn for a new sidewalk.
  - As a result of the committee meeting, the general preference was for sidewalks to be on both sides of North Road.
  - Community sweeping [of the streets] does not happen often (no street sweepers, community has to hire out).
- Option C –
  - The more trees present will results in a darker feel. Consequently North Road will need more lighting.
  - North Road is a heavily traveled bike route.
  - University Ave and raised intersection brought up an as example to follow for intersections along North Road.
  - Mike Connelie supports the use of roundabouts.
  - Mini-roundabout fits within existing lane widths and intersection dimension. They are more suitable at Briarwood, Browns, and Cavalier.
  - We should use multiple tools (strategies for improvement) along corridor.
  - Regarding the roundabout in Avon, NY – it is signed wrong. For two approaches, the eastbound and westbound entering traffic has right of way.
  - The backside of the poles at Rochester St. northbound is on the right of way. This reduces the feasibility for some options for improvement (i.e., a roundabout).
  - Northbound traffic at Rochester St. uses the shoulder space as a right turn lane.
  - Matt: North Round should incorporate streetscape improvements that create a more inviting, narrow/compact space. The study and the recommendations should look into County reconstruction projects to tie into.
  - Regarding NYSDOT, the study should look at surface/maintenance treatments as another way to identify other needs to augment further projects.
  - Half of catch basing needs replacement. It is a County system.
  - The storm system drainage structures need repair.
  - The use of Green Infrastructure and permeable paving can be considered.

<u>Low Maintenance Costs</u>

- Tree selection in terms of road durability (i.e., asphalt maintenance and the size of tree canopies related to drying the pavement below after wet conditions.)

*Re: Village of Scottsville Traffic Circulation and Safety Study* *December 4, 2012*
*TAC Meeting #1*

- Using green/permeable surfaces for sidewalk space is a consideration.
- Using a highway water purification system to deal with stormwater management issues.
- Look for grant money to fund greener alternatives.



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WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

phone 585.272.4660
fax 585.272.4662

**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: Steering Committee #2**
**Meeting Date: Tuesday 12/4/12**

## MEETING MINUTES

Attendees:

Amy Dake
Sam Carrera
David Kruse
Meaghan Capuano
Matt Ingalls
Paul Gee
Dan Hallowell
Tony Favro

The SRF Team met with the steering committee at the Wheatland Municipal Building to go over the preliminary issues, needs, and opportunities.

**Accidents**

- **Browns Ave.**
  - The sight distance is an issue to the east when travelling northbound.
  - The property on the corner has landscaping to the edge of the sidewalk.
  - Sight distance to the west is an issue as well for northbound traffic.
- **Chili Ave.**
  - There was an accident this past week (12/4). A vehicle ran the stop sign and t-boned another vehicle.
- **Rochester St.**
  - There is a short signal cycle.
  - People cut through at the gas station on the northeast corner to get around stopped traffic.
  - Northbound traffic results in speed related issues. One cause could be the change in grade approaching the intersection.
  - During the evening peak, motorists use Browns Grove as cut through to avoid the intersection.

**Crosswalks**

- Intersection of Scottsville Rd. and Apartments (Robert Quigley Dr.) are an issue.
- Change in grade (at Scottsville Rd./ Robert Quigley Dr. intersection) causes northbound traffic to gain speed.
- There was a fatality a couple years ago at that intersection.

*Re: Village of Scottsville Traffic Circulation and Safety Study* *December 4, 2012*
*Steering Committee Meeting #2*

- More pedestrians have been crossing recently.

Matt's Options

- Option 1 –
  - Two years ago, there was a sidewalk reconstruction and travel lane reconstruction project slated for construction from stimulus money, however, the project never happened.
- Option 2 –
  - Snow storage can be an issue. There is a constant struggle between sidewalk and travel lane plows. Town is reluctant to spend money to clear snow on the sidewalks.
- Option 3 –
  - Bike lanes are a preferred alternative as there are higher volumes of bicyclists in the area.
  - The County takes care of storm drainage.
  - Refer to the GTC Traffic Calming Handbook for alternatives.
  - On occasion, employees leaving CooperVision will have someone block Briarwood to help the employees leave the parking lot.
  - Accident @ CooperVision/Briarwood
  - The guard rails at CooperVision cause problems for entering traffic. People have been known to hit them entering/exiting the property.
  - There are approximately 2,100 people living in the Village of Scottsville.
  - The area from the school to Browns Avenue on the south side is a block grant area.
  - Regarding railroad traffic, there are two trains per day. The travel times change every three to four months. Rochester and Southern Rail operate the line.



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WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

*phone* 585.272.4660

**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: Public Meeting**
**Meeting Date: Wednesday 12/5/12**

## MEETING MINUTES

The SRF Team met with the public at the Wheatland Senior Center to go over the preliminary issues, needs, and opportunities.

**Comment Sheets**

- Would like a roundabout at the intersection of North Rd & Chili Ave and Scottsville-Chili Rd.
- As an avid bicyclist, I know there is a very large need for a bike lane to share with motorists. Currently it is very dangerous to ride from Scottsville-Chili Rd.
- Add sidewalk to the north side.
- Preference is for the "complete street" design
  - 2 x sidewalks
  - 2 x bicycle lanes
  - 10' vehicle lanes
- Some current issues:
  - Sidewalk on only 1 side
  - Asphalt between gutter & green space is too severely sloped for bike or foot or bicycle traffic
  - Cars speed to often
  - Right hand turn lanes at the following intersections are needed. North & Rochester St. and North & 386
  - Traffic light intervals are inadequate during peak time. North Rd heading east should have longer green lights.
- Speed humps may be a possible solution to the speeding issue.
- This corridor is part of a 5K loop that is used for training by many people, most notable the athletic team from WCCS. Also this street is part of 2 annual 5k races.
- Many bicyclists use this road. The North/Rochester St intersection is used by 2 annual races.
- Traffic light at the corner of Scottsville Chili Rd/Chili Ave and North Rd
- Make Handford/383/Chili Ave a 3 way stop

*Re: Village of Scottsville Traffic Circulation and Safety Study* *December 5, 2012*
*Public Meeting*

- Roundabout at North Road & 386, or a 4way stop signs.
- Along North Rd the major issues are speed and congestion trying to pull out of the driveway or cross the road to get mail is a chore., You can easily wait 10-15 min to get out of the driveway.
- The speed of drivers along North Rd. Everyone needs to slow down! I would recommend several speed humps (like along Briarwood) this slows traffic without stopping and creating further congestion.
- Two sidewalks
- 100% of students are bused to both schools.
- Why waste money on a straight road, curbs not needed.
- No speed humps
- Raise speed limit along with including sidewalks and streetscape improvement
- "When this road was engineered, people did not do the things we do now"
- Sewer line near North r.o.w. line
- Trees are near North r.o.w line. A sidewalk would damage the roots
- Pedestrians contribute to the trash along the street in front of homes
- Lack of enforcement in speeding
- Slow traffic
- No chip seal
- Do not like people walking on asphalt area



SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

*phone* 585.272.4660

**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: Steering Committee #3**
**Meeting Date: Tuesday 1/30/13**

## MEETING MINUTES

Attendees:

Amy Dake
Sam Carrera
Meaghan Capuano
Steve Farrell
Matt Ingalls
Paul Gee
Tony Favro

The SRF Team met with the steering committee at the Wheatland Municipal Building to go over the public comments and the preliminary alternatives.

- The Village has received two phone calls recently re: the signal timings at the Rochester St. intersection. Meaghan indicated that sometimes signal timing issues can be caused by malfunctioning loop detectors.
- The Village may be able to apply for a Block grant, to do replace and complete the sidewalk from the high school to Browns Rd.
- Multi-use trail option – may be cost prohibitive due to grade issues and the potential need for a retaining wall.
- MCDOT would like to see recommendations divided into short, medium and long term solutions. Short term could be no sidewalk north side due to justification for funding. Money would be better spent on the mini-roundabouts.
- Medium term – add sidewalk on north side
- Curbs add cost – the need for curbs is questionable. Options are granite, concrete, gutter instead of curb.
- Bioswales – good potential for funding right now.
- National grid will pay for trees if they are powerline friendly. $50 towards each tree possibly. Village would install trees and then turn over ownership and maintenance to National Grid.
- Concern that trees block lights but it comes down to placement.

SRF ASSOCIATES
WWW.SRFA.NET
Transportation Engineering & Planning Consultants

3495 Winton Place
Building E, Suite 110
Rochester, NY 14623

*phone* 585.272.4660



**Project: Village of Scottsville Traffic Circulation and Safety Study**
**Subject: TAC meeting #2**
**Meeting Date: Wednesday 1/30/13**

## MEETING MINUTES

Attendees:

| | |
|---|---|
| Amy Dake | Matt Ingalls |
| Paul Gee | Tony Favro |
| Meaghan Capuano | Dave Goehring |

The SRF Team met with the TAC committee at the Wheatland Municipal Building to go over the public comments and to discuss detailed design elements and preliminary alternatives.

- MCDOT found a 2009 Bike Condition Map that rates North Rd "good"
- MCDOT has concerns about drainage issues.
  - No plans for reconstruction. Funding is way off
  - Could do maintenance. Short, medium, long term
- Short term improvements could include signal timings, speed trailers
- Short – midterm => changes to pavement markings
- Issues raised are not justified by data
  - No accidents
  - Why do we need bike lanes?
- MCDOT does not stripe bike lanes, just shoulder or bike space
- There is a concern that if we don't mark bike lanes, bikes will ride in the road which would be too narrow
- MCDOT is concerned with legal issues associated with use of marked bike lanes. Bike lane vs bike space.
- Mobility needs do not rate well for funding right now
  - Rochester St ➔Left Turn lanes long term; pedestrian crosswalks etc medium term
- MCDOT not sold on Option A. It is not good for bikes but more likely to get funding. Option A can we make sidewalk multi-use path on south side?
- Safety benefit to existing asphalt area - minimizes rear end accidents
- Funding for Chili Road roundabout not likely – intersection is lacking either an infrastructure need or a safety need
- drainage is limiting shorter term improvements

| **MCDOT - Meaghan Capuano**<br>Received on: Friday, February 1st, 2013 email | | | |
|---|---|---|---|
| Page/Figure | Paragraph | Comment | Action Taken |
| Cover | - | Add "North Road from Route 383 to Route 386" and add Town of Wheatland | Revised |
| - | - | Page numbers were hard to read, can they be darker? | Revised |
| i | - | Add "Town of Wheatland" to Chuck Hazelton, Highway Superintendent | Revised |
| 1 | 1 | Add to the end something like "A section of North Rd outside the Village has also been included for continuity purposes". | Revised |
| Figure 1 | - | Label "Scottsville-Chili Rd" north of North Rd and add "Route 386" to Chili Ave label. | Revised |
| 8 | - | Chapter 6 was referenced twice? | Addressed, no revisions made |
| Figures 2/3 | - | Add north arrows to Figures 2 & 3 | Revised |
| 17 | - | Add the location the ADT counts were taken. Also discuss how this compares to previous counts. NYSDOT AADT was 4,650 vpd in 2009 (looks like volumes are going down). | Revised |
| Figure 7 | - | County intersections should be compared to County accident rates, not State. Non-reportables are included in the County accident rates (but will be in the future), I'm not sure about the State. See attached County rates. | Revised |
| Figure 9 | - | Include the back up (or table) as to how the LOS scores were obtained. It seems as though the east end of North Road would have similar scores on the North & South sides. Was the existing shoulder space outside of the gutter area given credit for pedestrian space? | Revised |
| Figure 10 | - | What score was given to the bike shoulder area? It should not be worse than the west end. The east end has shoulders but they are detached with the gutter acting as a buffer. Their pavement condition may not be great, but that should not drag the score down too low. | Addressed, no revisions made |
| 33 | - | Volumes are low suggesting plenty of gaps to cross the Street. This drives the need for sidewalks. One side only is ok if the Street can be crossed with ample gaps. | Addressed, no revisions made |
| 46 | - | Before the "Alternative Cross-sections" are discussed a section is needed to identify the specific problems (based on the follow up of citizen input) and using them to justify changes. | Addressed, no revisions made |
| 54 | - | Monitoring camera for signal? Show LOS results with improved signal timing's. | |
| 58 | - | Include any capacity analysis Synchro print outs. | Addressed in appendices |
| - | - | Identify who the responsible parties are. State, County paving/striping, Village sidewalks, Town, etc | Addressed in implementation table |

| **MCDOT - Meaghan Capuano**<br>Received on: Friday, February 1st, 2013 via phone conversation | | | |
|---|---|---|---|
| Bullet | Sub-bullet | Comment | Action Taken |
| 1 | - | More official comments from Jim on Alts | No action |
| 2 | - | *Short-term - do-nothing alternative* | |
| | 1 | Spot maintenance on drainage | |
| | 2 | Speed trailers | Addressed in recommendations |
| | 3 | Signal timings | Addressed |
| 3 | - | *Mid-term* | |
| | 1 | Resurfacing - leave gutter | Addressed in recommendations |
| | 2 | Jim & Terry issue with removing asphalt area. [It is] available for casual cyclists. Don't want to encourage use of sidewalk. Concern with driveway conflicts at sidewalk. | Addressed |
| | 3 | Keep asphalt area, flatten it and encourage use by bicyclists - colored asphalt?? - kind of like a bike lane. | No action |
| | 4 | Put tree lawn next to [asphalt area]. | No action |
| | 5 | Enhanced sidewalk. | No action |
| 4 | - | Issues with multi-use trail vs driveways. | No action |
| 5 | - | *Long-term* | |
| | 1 | Option B | No action |
| | 2 | Yes to sidewalk on both sides. | No action |
| | 3 | Concerned with cost of bioswales. | No action |
| | 4 | How to treat drainage if not curbed. | Addressed |
| 6 | - | County accident rates do not currently include non-reportables | Revised |
| 7 | - | Send back up calcs to MCDOT ASAP! For review | Completed |
| 8 | - | State that their really is no problem here, but citizens concerns. | No action |
| 9 | - | Mini-roundabout - what if we create a problem?! - Village to maintain | Addressed, no revisions made |

| **NYSDOT - Dave Goehring**<br>Received on: Wednesday, February 6th, 2013 email | | | |
|---|---|---|---|
| Item | - | Comment | Action Taken |
| 1 | - | The idea of short, mid and long term alternatives is very good so that it reflects the order of magnitude of the solutions offered in comparison to the problem identified. But also each solution offered should identify the problem it is solving . For instance, at Chili Ave intersection, there appears to be no capacity issues and no safety issues based on the level of service and the accident history. The only issue identified is a desire to see traffic calming along Route 386 southbound. The roundabout would be a long term solution for that. Long term because of its cost and the lack of safety or mobility needs. The intersection improvements at Scottsville Road could possibly be categorized as mid- term solutions since there is the one leg that suffers and there are a few more accidents, though neither are pressing issues. That combined with the scope and cost for the improvements make it mid-term at best. However, sidewalk or crosswalk elements at that location would be more like short to mid term solutions as pedestrian mobility needs would be easier to fund and less costly. | Addressed |
| 2 | - | Back to the Chili Ave intersection, the proposal for a four way stop again appears to be made only as a traffic calming measure since there are no capacity or safety issues identified. Four way stops are typically poor traffic calming tools resulting in vehicles needing to accelerate from a dead stop (noise pollution from braking and accelerating, increased energy consumption, travel delay) and introducing a higher risk of rear end accidents. It would also be ineffective at achieving the calming desired. This point is best illustrated by the fact that speeds on North Road are a concern while traffic on North Road needs to come to a stop at Route 386. My recommendation would be to minimize or even omit this alternative. | Omitted |

| **DOC020113** | | | |
|---|---|---|---|
| Received on: Friday, February 1st, 2013 email | | | |
| Page (PDF Page) | Paragraph | Comment | Action Taken |
| 1 | 1 | Inclusion of Village and Town | No action |
| 1 | 4 | Define local highway department - "Wheatland" | Revised |
| 2 | 1 | Noted use of "need" vs "desire" | Revised |
| 3 | 4,5 | Are all the comments from the same chapter | No Action |
| 4 | 1 | Grammatical error for posted speed limit | Revised |
| 4 | Table | Bicycle facilities and the GTC Bike Rating Map for North Road | Revised |
| 5 | 6 | Disagree with LOS "C" as not acceptable | Revised |
| 6 | 2 | Definition of dedicated bicycle facility and presence of shoulder/asphalt space | Revised |
| 6 | 3 | Comment regarding accepted practice of using asphalt space as bicycle facility | Revised |
| 7 | - | Follow up on items discussed. Follow up on observations based on concerns hear from the public. | Addressed, no revisions made |
| 7 | - | Mention 2007 MCDOT report on separating shift change time at CooperVision from school dismissal | Revised |
| 8 | 2 | Change need to desire | Revised |
| 8-other comnts | - | Study's response to issues learned | Addressed in recommendations |
| 9 | 1 | Use of asphalt area as bicycle facility | Clarified non-typical design of asphalt area |
| 9 | 3 | Are there parking restrictions on North Road | No action |
| 9 | 4,5 | Are there parking restrictions along North Road? The asphalt area can be used as a parking area. | No action |
| 10 | 1 | The number of mature tress along North Road. Who will maintain trash/recycle receptacles? | Revised |
| 10 | 3 | Reference the occurrence of speeding issues. Refer to Pg. 17 | Revised |
| 11 | 3 | Be more specific on sight distance issues | No action |
| 11 | 3 | As per page 39, trees are ample now | No action |
| **MCDOT Comments** | | | |
| Received on: Monday, May 13th, 2013 email | | | |
| Page (PDF Page) | Paragraph | Comment | Action Taken |
| 1 | Last | Traffic volume decreased per [2012] study | Revised, cited Comp Plan |
| 2 | 2 | Traffic volumes decreasing. | Addressed, see above |
| 3 | 2 | …HCM 2010 | Revised |
| 4 | Last | Spelling errors | Revised |
| 5 | Last | Mention MCDOT CooperVision report on separating shift change time | Addressed |
| 6 | 2 | Be specific on sight distance issues | Revised |
| 7 | 1 | Comments regarding Alternative A design components | Addressed |
| 8 | - | Requesting new section identifying the problem areas and matching them to the appropriate solutions. | Addressed |
| 9 | 2 | Signal timing option results missing | Revised |
| 10 | - | Are warrants met for installation of roundabout and AWSC? | Revised |
| 11 | - | Identify the responsible parties for each recommendation. | No action |
| 12 | - | Pedestrian signage and crosswalk enhancements | Revised |
| 13 | 1 | MCDOT Traffic Study. CooperVision shift times | Revised |
| 14 | Table | Update the costs to include more accurate figures | Revised |

Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 93 | 123 | 17 | 31 | 64 | 35 | 9 | 247 | 123 | 36 | 72 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.990 | | | 0.964 | | | 0.956 | | | 0.970 | |
| Flt Protected | | 0.980 | | | 0.988 | | | 0.999 | | | 0.987 | |
| Satd. Flow (prot) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1779 | 0 | 0 | 1783 | 0 |
| Flt Permitted | | 0.980 | | | 0.988 | | | 0.992 | | | 0.816 | |
| Satd. Flow (perm) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1767 | 0 | 0 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 17 | | | 38 | | | 22 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.76 | 0.76 | 0.76 | 0.89 | 0.89 | 0.89 | 0.81 | 0.81 | 0.81 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 121 | 160 | 22 | 41 | 84 | 46 | 10 | 278 | 138 | 44 | 89 | 38 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 303 | 0 | 0 | 171 | 0 | 0 | 426 | 0 | 0 | 171 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 24.0 | 24.0 | 0.0 | 17.0 | 17.0 | 0.0 | 49.0 | 49.0 | 0.0 | 49.0 | 49.0 | 0.0 |
| Total Split (%) | 26.7% | 26.7% | 0.0% | 18.9% | 18.9% | 0.0% | 54.4% | 54.4% | 0.0% | 54.4% | 54.4% | 0.0% |
| Maximum Green (s) | 19.0 | 19.0 | | 12.0 | 12.0 | | 44.0 | 44.0 | | 44.0 | 44.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 15.2 | | | 10.3 | | | 19.4 | | | 19.4 | |
| Actuated g/C Ratio | | 0.25 | | | 0.17 | | | 0.32 | | | 0.32 | |
| v/c Ratio | | 0.66 | | | 0.54 | | | 0.72 | | | 0.35 | |
| Control Delay | | 29.3 | | | 30.2 | | | 24.5 | | | 16.4 | |



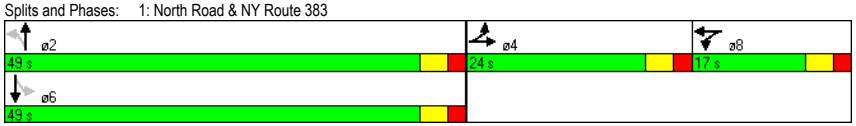
Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 29.3 | | | 30.2 | | | 24.5 | | | 16.4 | |
| LOS | | C | | | C | | | C | | | B | |
| Approach Delay | | 29.3 | | | 30.2 | | | 24.5 | | | 16.4 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 60.5 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.72 | | | |
| Intersection Signal Delay: 25.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 54.1% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings
2: North Road & Browns Road

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 21 | 232 | 16 | 11 | 119 | 3 | 13 | 7 | 17 | 10 | 6 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.992 | | | 0.997 | | | 0.937 | | | 0.918 | |
| Flt Protected | | 0.996 | | | 0.996 | | | 0.983 | | | 0.988 | |
| Satd. Flow (prot) | 0 | 1859 | 0 | 0 | 1868 | 0 | 0 | 1733 | 0 | 0 | 1706 | 0 |
| Flt Permitted | | 0.996 | | | 0.996 | | | 0.983 | | | 0.988 | |
| Satd. Flow (perm) | 0 | 1859 | 0 | 0 | 1868 | 0 | 0 | 1733 | 0 | 0 | 1706 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 734 | | | 1890 | | | 366 | | | 434 | |
| Travel Time (s) | | 16.7 | | | 43.0 | | | 8.3 | | | 9.9 | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 30 | 327 | 23 | 13 | 135 | 3 | 15 | 8 | 20 | 14 | 8 | 34 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 380 | 0 | 0 | 150 | 0 | 0 | 43 | 0 | 0 | 56 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 28.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis
2: North Road & Browns Road

Existing Conditions - AM Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 21 | 232 | 16 | 11 | 119 | 3 | 13 | 7 | 17 | 10 | 6 | 24 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 30 | 327 | 23 | 12 | 135 | 3 | 15 | 8 | 20 | 14 | 8 | 34 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 139 | | | 349 | | | 597 | 561 | 338 | 584 | 570 | 137 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 139 | | | 349 | | | 597 | 561 | 338 | 584 | 570 | 137 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 99 | | | 96 | 98 | 97 | 96 | 98 | 96 |
| cM capacity (veh/h) | 1451 | | | 1215 | | | 385 | 425 | 706 | 397 | 419 | 914 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 379 | 151 | 44 | 56 |
| Volume Left | 30 | 12 | 15 | 14 |
| Volume Right | 23 | 3 | 20 | 34 |
| cSH | 1451 | 1215 | 498 | 608 |
| Volume to Capacity | 0.02 | 0.01 | 0.09 | 0.09 |
| Queue Length 95th (ft) | 2 | 1 | 7 | 8 |
| Control Delay (s) | 0.8 | 0.7 | 12.9 | 11.5 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.8 | 0.7 | 12.9 | 11.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.6 | | |
| Intersection Capacity Utilization | | 28.5% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
3: North Road & N Cavalier Road

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 260 | 6 | 1 | 157 | 0 | 9 | 0 | 6 | 2 | 1 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.997 | | | | | | 0.946 | | | 0.921 | |
| Flt Protected | | | | | | | | 0.971 | | | 0.988 | |
| Satd. Flow (prot) | 0 | 1876 | 0 | 0 | 1881 | 0 | 0 | 1728 | 0 | 0 | 1712 | 0 |
| Flt Permitted | | | | | | | | 0.971 | | | 0.988 | |
| Satd. Flow (perm) | 0 | 1876 | 0 | 0 | 1881 | 0 | 0 | 1728 | 0 | 0 | 1712 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 279 | | | 734 | | | 248 | | | 294 | |
| Travel Time (s) | | 6.3 | | | 16.7 | | | 5.6 | | | 6.7 | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.62 | 0.62 | 0.62 | 0.58 | 0.58 | 0.58 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 3 | 366 | 8 | 1 | 178 | 0 | 15 | 0 | 10 | 3 | 2 | 7 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 377 | 0 | 0 | 179 | 0 | 0 | 25 | 0 | 0 | 12 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis
3: North Road & N Cavalier Road

Existing Conditions - AM Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 260 | 6 | 1 | 157 | 0 | 9 | 0 | 6 | 2 | 1 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.62 | 0.62 | 0.62 | 0.58 | 0.58 | 0.58 |
| Hourly flow rate (vph) | 3 | 366 | 8 | 1 | 178 | 0 | 15 | 0 | 10 | 3 | 2 | 7 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 178 | | | 375 | | | 564 | 557 | 370 | 566 | 561 | 178 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 178 | | | 375 | | | 564 | 557 | 370 | 566 | 561 | 178 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 97 | 100 | 99 | 99 | 100 | 99 |
| cM capacity (veh/h) | 1403 | | | 1189 | | | 432 | 439 | 678 | 429 | 437 | 867 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 377 | 180 | 24 | 12 |
| Volume Left | 3 | 1 | 15 | 3 |
| Volume Right | 8 | 0 | 10 | 7 |
| cSH | 1403 | 1189 | 505 | 605 |
| Volume to Capacity | 0.00 | 0.00 | 0.05 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 4 | 2 |
| Control Delay (s) | 0.1 | 0.1 | 12.5 | 11.1 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.1 | 0.1 | 12.5 | 11.1 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.8 | | |
| Intersection Capacity Utilization | | 25.4% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
4: North Road & Fairview Road

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 210 | 16 | 24 | 139 | 1 | 17 | 0 | 46 | 9 | 1 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.991 | | | 0.999 | | | 0.902 | | | 0.960 | |
| Flt Protected | | | | | 0.993 | | | 0.986 | | | 0.969 | |
| Satd. Flow (prot) | 0 | 1864 | 0 | 0 | 1866 | 0 | 0 | 1673 | 0 | 0 | 1750 | 0 |
| Flt Permitted | | | | | 0.993 | | | 0.986 | | | 0.969 | |
| Satd. Flow (perm) | 0 | 1864 | 0 | 0 | 1866 | 0 | 0 | 1673 | 0 | 0 | 1750 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 757 | | | 737 | | | 481 | | | 483 | |
| Travel Time (s) | | 17.2 | | | 16.8 | | | 10.9 | | | 11.0 | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.72 | 0.72 | 0.72 | 0.75 | 0.75 | 0.75 | 0.70 | 0.70 | 0.70 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 3 | 280 | 21 | 33 | 193 | 1 | 23 | 0 | 61 | 13 | 1 | 6 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 304 | 0 | 0 | 227 | 0 | 0 | 84 | 0 | 0 | 20 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 34.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis
4: North Road & Fairview Road

Existing Conditions - AM Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 210 | 16 | 24 | 139 | 1 | 17 | 0 | 46 | 9 | 1 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.72 | 0.72 | 0.72 | 0.75 | 0.75 | 0.75 | 0.70 | 0.70 | 0.70 |
| Hourly flow rate (vph) | 3 | 280 | 21 | 33 | 193 | 1 | 23 | 0 | 61 | 13 | 1 | 6 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 194 | | | 301 | | | 563 | 557 | 291 | 618 | 567 | 194 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 194 | | | 301 | | | 563 | 557 | 291 | 618 | 567 | 194 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 97 | | | 95 | 100 | 92 | 96 | 100 | 99 |
| cM capacity (veh/h) | 1385 | | | 1265 | | | 425 | 428 | 751 | 362 | 422 | 850 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 304 | 228 | 84 | 20 |
| Volume Left | 3 | 33 | 23 | 13 |
| Volume Right | 21 | 1 | 61 | 6 |
| cSH | 1385 | 1265 | 622 | 439 |
| Volume to Capacity | 0.00 | 0.03 | 0.13 | 0.05 |
| Queue Length 95th (ft) | 0 | 2 | 12 | 4 |
| Control Delay (s) | 0.1 | 1.4 | 11.7 | 13.6 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.1 | 1.4 | 11.7 | 13.6 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.5 | | |
| Intersection Capacity Utilization | 34.4% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

Lanes, Volumes, Timings
5: North Road & WCHS Student Parking Lot

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 202 | 11 | 46 | 117 | 8 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.993 | | | | 0.901 | |
| Flt Protected | | | | 0.986 | 0.987 | |
| Satd. Flow (prot) | 1868 | 0 | 0 | 1855 | 1673 | 0 |
| Flt Permitted | | | | 0.986 | 0.987 | |
| Satd. Flow (perm) | 1868 | 0 | 0 | 1855 | 1673 | 0 |
| Link Speed (mph) | 30 | | | 30 | 10 | |
| Link Distance (ft) | 1226 | | | 857 | 184 | |
| Travel Time (s) | 27.9 | | | 19.5 | 12.5 | |
| Peak Hour Factor | 0.75 | 0.75 | 0.73 | 0.73 | 0.47 | 0.47 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 269 | 15 | 63 | 160 | 17 | 47 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 284 | 0 | 0 | 223 | 64 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(ft) | 0 | | | 0 | 12 | |
| Link Offset(ft) | 0 | | | 0 | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 33.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
5: North Road & WCHS Student Parking Lot

Existing Conditions - AM Peak Hour
11/6/2012

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 202 | 11 | 46 | 117 | 8 | 22 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.73 | 0.73 | 0.47 | 0.47 |
| Hourly flow rate (vph) | 269 | 15 | 63 | 160 | 17 | 47 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 284 | | 563 | 277 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 284 | | 563 | 277 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 95 | | 96 | 94 |
| cM capacity (veh/h) | | | 1284 | | 465 | 765 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 284 | 223 | 64 |
| Volume Left | 0 | 63 | 17 |
| Volume Right | 15 | 0 | 47 |
| cSH | 1700 | 1284 | 653 |
| Volume to Capacity | 0.17 | 0.05 | 0.10 |
| Queue Length 95th (ft) | 0 | 4 | 8 |
| Control Delay (s) | 0.0 | 2.6 | 11.1 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 2.6 | 11.1 |
| Approach LOS | | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.2 | | |
| Intersection Capacity Utilization | | 33.3% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
6: North Road & NY Route 386

Existing Conditions - AM Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 22 | 102 | 26 | 26 | 54 | 46 | 13 | 59 | 41 | 61 | 71 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.976 | | | 0.951 | | | 0.951 | | | 0.992 | |
| Flt Protected | | 0.993 | | | 0.990 | | | 0.994 | | | 0.979 | |
| Satd. Flow (prot) | 0 | 1823 | 0 | 0 | 1771 | 0 | 0 | 1761 | 0 | 0 | 1809 | 0 |
| Flt Permitted | | 0.993 | | | 0.990 | | | 0.994 | | | 0.979 | |
| Satd. Flow (perm) | 0 | 1823 | 0 | 0 | 1771 | 0 | 0 | 1761 | 0 | 0 | 1809 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.88 | 0.88 | 0.88 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 26 | 120 | 31 | 35 | 72 | 61 | 16 | 75 | 52 | 69 | 81 | 10 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 177 | 0 | 0 | 168 | 0 | 0 | 143 | 0 | 0 | 160 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 31.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis
6: North Road & NY Route 386

Existing Conditions - AM Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 22 | 102 | 26 | 26 | 54 | 46 | 13 | 59 | 41 | 61 | 71 | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 26 | 120 | 31 | 35 | 72 | 61 | 16 | 75 | 52 | 69 | 81 | 10 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 455 | 384 | 86 | 449 | 363 | 101 | 91 | | | 127 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 455 | 384 | 86 | 449 | 363 | 101 | 91 | | | 127 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 94 | 77 | 97 | 91 | 87 | 94 | 99 | | | 95 | | |
| cM capacity (veh/h) | 415 | 519 | 976 | 398 | 533 | 958 | 1504 | | | 1460 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 176 | 168 | 143 | 160 |
| Volume Left | 26 | 35 | 16 | 69 |
| Volume Right | 31 | 61 | 52 | 10 |
| cSH | 543 | 587 | 1504 | 1460 |
| Volume to Capacity | 0.32 | 0.29 | 0.01 | 0.05 |
| Queue Length 95th (ft) | 35 | 29 | 1 | 4 |
| Control Delay (s) | 14.8 | 13.6 | 0.9 | 3.5 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.8 | 13.6 | 0.9 | 3.5 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 8.6 | | |
| Intersection Capacity Utilization | | 31.7% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 72 | 78 | 16 | 71 | 86 | 40 | 8 | 107 | 63 | 26 | 142 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.987 | | | 0.972 | | | 0.952 | | | 0.962 | |
| Flt Protected | | 0.979 | | | 0.982 | | | 0.998 | | | 0.995 | |
| Satd. Flow (prot) | 0 | 1800 | 0 | 0 | 1778 | 0 | 0 | 1770 | 0 | 0 | 1783 | 0 |
| Flt Permitted | | 0.979 | | | 0.982 | | | 0.980 | | | 0.949 | |
| Satd. Flow (perm) | 0 | 1800 | 0 | 0 | 1778 | 0 | 0 | 1738 | 0 | 0 | 1701 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 13 | | | 42 | | | 30 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 116 | 126 | 26 | 83 | 100 | 47 | 9 | 124 | 73 | 32 | 178 | 82 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 268 | 0 | 0 | 230 | 0 | 0 | 206 | 0 | 0 | 292 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 20.0 | 20.0 | 0.0 | 22.0 | 22.0 | 0.0 | 48.0 | 48.0 | 0.0 | 48.0 | 48.0 | 0.0 |
| Total Split (%) | 22.2% | 22.2% | 0.0% | 24.4% | 24.4% | 0.0% | 53.3% | 53.3% | 0.0% | 53.3% | 53.3% | 0.0% |
| Maximum Green (s) | 15.0 | 15.0 | | 17.0 | 17.0 | | 43.0 | 43.0 | | 43.0 | 43.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 13.9 | | | 12.1 | | | 14.3 | | | 14.3 | |
| Actuated g/C Ratio | | 0.25 | | | 0.22 | | | 0.26 | | | 0.26 | |
| v/c Ratio | | 0.59 | | | 0.58 | | | 0.43 | | | 0.64 | |
| Control Delay | | 26.7 | | | 26.0 | | | 17.4 | | | 24.0 | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |



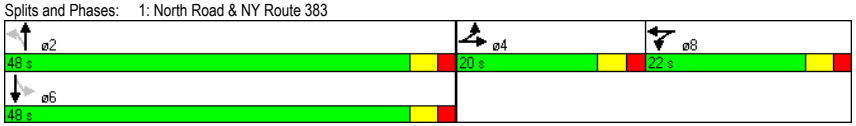
Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Delay | | 26.7 | | | 26.0 | | | 17.4 | | | 24.0 | |
| LOS | | C | | | C | | | B | | | C | |
| Approach Delay | | 26.7 | | | 26.0 | | | 17.4 | | | 24.0 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 55.7 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.64 | | | |
| Intersection Signal Delay: 23.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 43.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383




Village of Scottsville Traffic Circulation and Safety Study
SRF & Associates

Lanes, Volumes, Timings
2: North Road & Browns Road

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 14 | 174 | 13 | 10 | 162 | 6 | 11 | 11 | 7 | 1 | 10 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.991 | | | 0.995 | | | 0.966 | | | 0.923 | |
| Flt Protected | | 0.997 | | | 0.997 | | | 0.982 | | | 0.999 | |
| Satd. Flow (prot) | 0 | 1840 | 0 | 0 | 1848 | 0 | 0 | 1767 | 0 | 0 | 1718 | 0 |
| Flt Permitted | | 0.997 | | | 0.997 | | | 0.982 | | | 0.999 | |
| Satd. Flow (perm) | 0 | 1840 | 0 | 0 | 1848 | 0 | 0 | 1767 | 0 | 0 | 1718 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 734 | | | 1890 | | | 366 | | | 434 | |
| Travel Time (s) | | 16.7 | | | 43.0 | | | 8.3 | | | 9.9 | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.80 | 0.80 | 0.80 | 0.45 | 0.45 | 0.45 | 0.69 | 0.69 | 0.69 |
| Adj. Flow (vph) | 20 | 249 | 19 | 13 | 203 | 8 | 24 | 24 | 16 | 1 | 14 | 20 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 288 | 0 | 0 | 222 | 0 | 0 | 64 | 0 | 0 | 35 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 27.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
2: North Road & Browns Road

Existing Conditions - MD Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 14 | 174 | 13 | 10 | 162 | 6 | 11 | 11 | 7 | 1 | 10 | 14 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.80 | 0.80 | 0.80 | 0.45 | 0.45 | 0.45 | 0.69 | 0.69 | 0.69 |
| Hourly flow rate (vph) | 20 | 249 | 19 | 12 | 202 | 8 | 24 | 24 | 16 | 1 | 14 | 20 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 210 | | | 267 | | | 557 | 533 | 258 | 557 | 538 | 206 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 210 | | | 267 | | | 557 | 533 | 258 | 557 | 538 | 206 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 94 | 94 | 98 | 100 | 97 | 98 |
| cM capacity (veh/h) | 1361 | | | 1297 | | | 412 | 442 | 781 | 406 | 439 | 834 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 287 | 222 | 64 | 36 |
| Volume Left | 20 | 12 | 24 | 1 |
| Volume Right | 19 | 8 | 16 | 20 |
| cSH | 1361 | 1297 | 479 | 595 |
| Volume to Capacity | 0.01 | 0.01 | 0.13 | 0.06 |
| Queue Length 95th (ft) | 1 | 1 | 12 | 5 |
| Control Delay (s) | 0.7 | 0.5 | 13.7 | 11.4 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.7 | 0.5 | 13.7 | 11.4 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.6 | | | |
| Intersection Capacity Utilization | 27.6% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

Lanes, Volumes, Timings
3: North Road & N Cavalier Road

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 199 | 5 | 2 | 184 | 1 | 4 | 1 | 3 | 3 | 1 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.997 | | | 0.999 | | | 0.949 | | | 0.921 | |
| Flt Protected | | 0.999 | | | | | | 0.976 | | | 0.986 | |
| Satd. Flow (prot) | 0 | 1855 | 0 | 0 | 1861 | 0 | 0 | 1725 | 0 | 0 | 1692 | 0 |
| Flt Permitted | | 0.999 | | | | | | 0.976 | | | 0.986 | |
| Satd. Flow (perm) | 0 | 1855 | 0 | 0 | 1861 | 0 | 0 | 1725 | 0 | 0 | 1692 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 279 | | | 734 | | | 248 | | | 294 | |
| Travel Time (s) | | 6.3 | | | 16.7 | | | 5.6 | | | 6.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.50 | 0.50 | 0.50 | 0.62 | 0.62 | 0.62 |
| Adj. Flow (vph) | 5 | 216 | 5 | 2 | 200 | 1 | 8 | 2 | 6 | 5 | 2 | 10 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 226 | 0 | 0 | 203 | 0 | 0 | 16 | 0 | 0 | 17 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 23.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
3: North Road & N Cavalier Road

Existing Conditions - MD Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 5 | 199 | 5 | 2 | 184 | 1 | 4 | 1 | 3 | 3 | 1 | 6 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.50 | 0.50 | 0.50 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 5 | 216 | 5 | 2 | 200 | 1 | 8 | 2 | 6 | 5 | 2 | 10 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 201 | | | 222 | | | 445 | 435 | 219 | 442 | 438 | 201 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 201 | | | 222 | | | 445 | 435 | 219 | 442 | 438 | 201 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 98 | 100 | 99 | 99 | 100 | 99 |
| cM capacity (veh/h) | 1371 | | | 1347 | | | 514 | 511 | 821 | 518 | 510 | 840 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 227 | 203 | 16 | 16 |
| Volume Left | 5 | 2 | 8 | 5 |
| Volume Right | 5 | 1 | 6 | 10 |
| cSH | 1371 | 1347 | 597 | 672 |
| Volume to Capacity | 0.00 | 0.00 | 0.03 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 2 | 2 |
| Control Delay (s) | 0.2 | 0.1 | 11.2 | 10.5 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.2 | 0.1 | 11.2 | 10.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.9 | | |
| Intersection Capacity Utilization | 23.8% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

Lanes, Volumes, Timings
4: North Road & Fairview Road

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 123 | 38 | 60 | 131 | 3 | 75 | 1 | 92 | 4 | 0 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.969 | | | 0.998 | | | 0.926 | | | 0.966 | |
| Flt Protected | | 0.999 | | | 0.985 | | | 0.978 | | | 0.964 | |
| Satd. Flow (prot) | 0 | 1803 | 0 | 0 | 1831 | 0 | 0 | 1687 | 0 | 0 | 1735 | 0 |
| Flt Permitted | | 0.999 | | | 0.985 | | | 0.978 | | | 0.964 | |
| Satd. Flow (perm) | 0 | 1803 | 0 | 0 | 1831 | 0 | 0 | 1687 | 0 | 0 | 1735 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 757 | | | 737 | | | 481 | | | 483 | |
| Travel Time (s) | | 17.2 | | | 16.8 | | | 10.9 | | | 11.0 | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.41 | 0.41 | 0.41 | 0.62 | 0.62 | 0.62 |
| Adj. Flow (vph) | 7 | 176 | 54 | 85 | 185 | 4 | 183 | 2 | 224 | 6 | 0 | 2 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 237 | 0 | 0 | 274 | 0 | 0 | 409 | 0 | 0 | 8 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 39.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
4: North Road & Fairview Road

Existing Conditions - MD Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 5 | 123 | 38 | 60 | 131 | 3 | 75 | 1 | 92 | 4 | 0 | 1 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.41 | 0.41 | 0.41 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 7 | 176 | 54 | 85 | 185 | 4 | 183 | 2 | 224 | 6 | 0 | 2 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 189 | | | 230 | | | 574 | 575 | 203 | 798 | 600 | 187 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 189 | | | 230 | | | 574 | 575 | 203 | 798 | 600 | 187 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 94 | | | 55 | 99 | 73 | 97 | 100 | 100 |
| cM capacity (veh/h) | 1385 | | | 1338 | | | 406 | 399 | 838 | 210 | 387 | 855 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 237 | 273 | 410 | 8 |
| Volume Left | 7 | 85 | 183 | 6 |
| Volume Right | 54 | 4 | 224 | 2 |
| cSH | 1385 | 1338 | 566 | 247 |
| Volume to Capacity | 0.01 | 0.06 | 0.72 | 0.03 |
| Queue Length 95th (ft) | 0 | 5 | 150 | 3 |
| Control Delay (s) | 0.3 | 2.8 | 26.3 | 20.0 |
| Lane LOS | A | A | D | C |
| Approach Delay (s) | 0.3 | 2.8 | 26.3 | 20.0 |
| Approach LOS | | | D | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 12.7 | | | |
| Intersection Capacity Utilization | 39.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

Lanes, Volumes, Timings
5: North Road & Student Parking Lot

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 141 | 4 | 11 | 187 | 12 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.996 | | | | 0.908 | |
| Flt Protected | | | | 0.997 | 0.984 | |
| Satd. Flow (prot) | 1855 | 0 | 0 | 1857 | 1664 | 0 |
| Flt Permitted | | | | 0.997 | 0.984 | |
| Satd. Flow (perm) | 1855 | 0 | 0 | 1857 | 1664 | 0 |
| Link Speed (mph) | 30 | | | 30 | 10 | |
| Link Distance (ft) | 1226 | | | 857 | 184 | |
| Travel Time (s) | 27.9 | | | 19.5 | 12.5 | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.63 | 0.63 |
| Adj. Flow (vph) | 217 | 6 | 17 | 288 | 19 | 41 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 223 | 0 | 0 | 305 | 60 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(ft) | 0 | | | 0 | 12 | |
| Link Offset(ft) | 0 | | | 0 | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 28.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
5: North Road & Student Parking Lot

Existing Conditions - MD Peak Hour
11/6/2012

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 141 | 4 | 11 | 187 | 12 | 26 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.63 | 0.63 |
| Hourly flow rate (vph) | 217 | 6 | 17 | 288 | 19 | 41 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 223 | | 542 | 220 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 223 | | 542 | 220 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 96 | 95 |
| cM capacity (veh/h) | | | 1346 | | 495 | 820 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 223 | 305 | 60 |
| Volume Left | 0 | 17 | 19 |
| Volume Right | 6 | 0 | 41 |
| cSH | 1700 | 1346 | 679 |
| Volume to Capacity | 0.13 | 0.01 | 0.09 |
| Queue Length 95th (ft) | 0 | 1 | 7 |
| Control Delay (s) | 0.0 | 0.5 | 10.8 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 0.5 | 10.8 |
| Approach LOS | | | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.4 | | |
| Intersection Capacity Utilization | | 28.8% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
6: North Road & NY Route 386

Existing Conditions - MD Peak Hour
11/6/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 50 | 8 | 23 | 119 | 61 | 14 | 61 | 22 | 57 | 29 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.985 | | | 0.960 | | | 0.970 | | | 0.985 | |
| Flt Protected | | 0.993 | | | 0.994 | | | 0.993 | | | 0.971 | |
| Satd. Flow (prot) | 0 | 1822 | 0 | 0 | 1778 | 0 | 0 | 1794 | 0 | 0 | 1782 | 0 |
| Flt Permitted | | 0.993 | | | 0.994 | | | 0.993 | | | 0.971 | |
| Satd. Flow (perm) | 0 | 1822 | 0 | 0 | 1778 | 0 | 0 | 1794 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.70 | 0.70 | 0.70 | 0.84 | 0.84 | 0.84 | 0.76 | 0.76 | 0.76 |
| Adj. Flow (vph) | 12 | 59 | 9 | 33 | 170 | 87 | 17 | 73 | 26 | 75 | 38 | 14 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 80 | 0 | 0 | 290 | 0 | 0 | 116 | 0 | 0 | 127 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 32.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis
6: North Road & NY Route 386

Existing Conditions - MD Peak Hour
11/6/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 50 | 8 | 23 | 119 | 61 | 14 | 61 | 22 | 57 | 29 | 11 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.70 | 0.70 | 0.70 | 0.84 | 0.84 | 0.84 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 12 | 59 | 9 | 33 | 170 | 87 | 17 | 73 | 26 | 75 | 38 | 14 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 487 | 328 | 45 | 353 | 322 | 86 | 53 | | | 99 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 487 | 328 | 45 | 353 | 322 | 86 | 53 | | | 99 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 96 | 89 | 99 | 94 | 70 | 91 | 99 | | | 95 | | |
| cM capacity (veh/h) | 327 | 555 | 1024 | 523 | 560 | 973 | 1553 | | | 1494 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 80 | 290 | 115 | 128 |
| Volume Left | 12 | 33 | 17 | 75 |
| Volume Right | 9 | 87 | 26 | 14 |
| cSH | 530 | 636 | 1553 | 1494 |
| Volume to Capacity | 0.15 | 0.46 | 0.01 | 0.05 |
| Queue Length 95th (ft) | 13 | 60 | 1 | 4 |
| Control Delay (s) | 13.0 | 15.3 | 1.1 | 4.6 |
| Lane LOS | B | C | A | A |
| Approach Delay (s) | 13.0 | 15.3 | 1.1 | 4.6 |
| Approach LOS | B | C | | |

| Intersection Summary | | | | | |
|---|---|---|---|---|---|
| Average Delay | | 10.1 | | | |
| Intersection Capacity Utilization | 32.7% | ICU Level of Service | | A | |
| Analysis Period (min) | 15 | | | | |

Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 70 | 12 | 135 | 161 | 94 | 7 | 115 | 67 | 76 | 281 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.988 | | | 0.967 | | | 0.952 | | | 0.966 | |
| Flt Protected | | 0.980 | | | 0.983 | | | 0.998 | | | 0.992 | |
| Satd. Flow (prot) | 0 | 1804 | 0 | 0 | 1771 | 0 | 0 | 1770 | 0 | 0 | 1785 | 0 |
| Flt Permitted | | 0.980 | | | 0.983 | | | 0.980 | | | 0.910 | |
| Satd. Flow (perm) | 0 | 1804 | 0 | 0 | 1771 | 0 | 0 | 1738 | 0 | 0 | 1637 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 14 | | | 48 | | | 29 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 66 | 80 | 14 | 155 | 185 | 108 | 8 | 131 | 76 | 84 | 309 | 132 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 160 | 0 | 0 | 448 | 0 | 0 | 215 | 0 | 0 | 525 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 16.0 | 16.0 | 0.0 | 20.0 | 20.0 | 0.0 | 59.0 | 59.0 | 0.0 | 59.0 | 59.0 | 0.0 |
| Total Split (%) | 16.8% | 16.8% | 0.0% | 21.1% | 21.1% | 0.0% | 62.1% | 62.1% | 0.0% | 62.1% | 62.1% | 0.0% |
| Maximum Green (s) | 11.0 | 11.0 | | 15.0 | 15.0 | | 54.0 | 54.0 | | 54.0 | 54.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 10.1 | | | 15.3 | | | 25.7 | | | 25.7 | |
| Actuated g/C Ratio | | 0.15 | | | 0.23 | | | 0.39 | | | 0.39 | |
| v/c Ratio | | 0.57 | | | 1.07 | | | 0.31 | | | 0.81 | |
| Control Delay | | 37.1 | | | 93.7 | | | 11.4 | | | 27.3 | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |



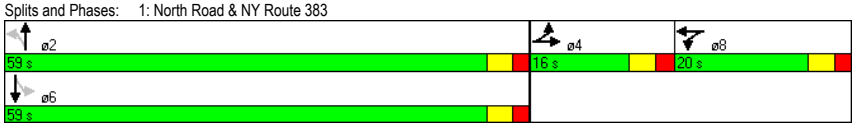
Lanes, Volumes, Timings
1: North Road & NY Route 383

Existing Conditions - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Delay | | 37.1 | | | 93.7 | | | 11.4 | | | 27.3 | |
| LOS | | D | | | F | | | B | | | C | |
| Approach Delay | | 37.1 | | | 93.7 | | | 11.4 | | | 27.3 | |
| Approach LOS | | D | | | F | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 95 | | | |
| Actuated Cycle Length: 66.4 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 1.07 | | | |
| Intersection Signal Delay: 48.0 | | Intersection LOS: D | |
| Intersection Capacity Utilization 75.6% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings
6: North Road & NY Route 386

Existing Conditions - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 9 | 54 | 18 | 14 | 128 | 78 | 23 | 78 | 11 | 61 | 70 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.970 | | | 0.952 | | | 0.987 | | | 0.974 | |
| Flt Protected | | 0.994 | | | 0.997 | | | 0.990 | | | 0.982 | |
| Satd. Flow (prot) | 0 | 1796 | 0 | 0 | 1768 | 0 | 0 | 1820 | 0 | 0 | 1782 | 0 |
| Flt Permitted | | 0.994 | | | 0.997 | | | 0.990 | | | 0.982 | |
| Satd. Flow (perm) | 0 | 1796 | 0 | 0 | 1768 | 0 | 0 | 1820 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.86 | 0.86 | 0.86 | 0.68 | 0.68 | 0.68 | 0.78 | 0.78 | 0.78 |
| Adj. Flow (vph) | 14 | 83 | 28 | 16 | 149 | 91 | 34 | 115 | 16 | 78 | 90 | 41 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 125 | 0 | 0 | 256 | 0 | 0 | 165 | 0 | 0 | 209 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Area Type: | Other | | | |
| Control Type: Unsignalized | | | | |
| Intersection Capacity Utilization 36.8% | | ICU Level of Service A | | |
| Analysis Period (min) 15 | | | | |



HCM Unsignalized Intersection Capacity Analysis
6: North Road & NY Route 386

Existing Conditions - AM Peak Hour
2/11/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 9 | 54 | 18 | 14 | 128 | 78 | 23 | 78 | 11 | 61 | 70 | 32 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.86 | 0.86 | 0.86 | 0.68 | 0.68 | 0.68 | 0.78 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 14 | 83 | 28 | 16 | 149 | 91 | 34 | 115 | 16 | 78 | 90 | 41 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 622 | 465 | 110 | 526 | 478 | 123 | 131 | | | 131 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 622 | 465 | 110 | 526 | 478 | 123 | 131 | | | 131 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 95 | 82 | 97 | 96 | 67 | 90 | 98 | | | 95 | | |
| cM capacity (veh/h) | 253 | 457 | 943 | 364 | 450 | 928 | 1455 | | | 1454 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 125 | 256 | 165 | 209 |
| Volume Left | 14 | 16 | 34 | 78 |
| Volume Right | 28 | 91 | 16 | 41 |
| cSH | 469 | 540 | 1455 | 1454 |
| Volume to Capacity | 0.27 | 0.47 | 0.02 | 0.05 |
| Queue Length 95th (ft) | 27 | 63 | 2 | 4 |
| Control Delay (s) | 15.4 | 17.5 | 1.7 | 3.1 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 15.4 | 17.5 | 1.7 | 3.1 |
| Approach LOS | C | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 9.7 | | |
| Intersection Capacity Utilization | | 36.8% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - AM Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 93 | 123 | 17 | 31 | 64 | 35 | 9 | 247 | 123 | 36 | 72 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.990 | | | 0.964 | | | 0.956 | | | 0.970 | |
| Flt Protected | | 0.980 | | | 0.988 | | | 0.999 | | | 0.987 | |
| Satd. Flow (prot) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1779 | 0 | 0 | 1783 | 0 |
| Flt Permitted | | 0.980 | | | 0.988 | | | 0.992 | | | 0.756 | |
| Satd. Flow (perm) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1767 | 0 | 0 | 1366 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 17 | | | 38 | | | 22 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.76 | 0.76 | 0.76 | 0.89 | 0.89 | 0.89 | 0.81 | 0.81 | 0.81 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 145 | 192 | 26 | 49 | 101 | 55 | 12 | 333 | 166 | 53 | 107 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 363 | 0 | 0 | 205 | 0 | 0 | 511 | 0 | 0 | 206 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 24.0 | 24.0 | 0.0 | 17.0 | 17.0 | 0.0 | 49.0 | 49.0 | 0.0 | 49.0 | 49.0 | 0.0 |
| Total Split (%) | 26.7% | 26.7% | 0.0% | 18.9% | 18.9% | 0.0% | 54.4% | 54.4% | 0.0% | 54.4% | 54.4% | 0.0% |
| Maximum Green (s) | 19.0 | 19.0 | | 12.0 | 12.0 | | 44.0 | 44.0 | | 44.0 | 44.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 18.3 | | | 11.3 | | | 24.5 | | | 24.5 | |
| Actuated g/C Ratio | | 0.26 | | | 0.16 | | | 0.35 | | | 0.35 | |
| v/c Ratio | | 0.75 | | | 0.67 | | | 0.79 | | | 0.42 | |



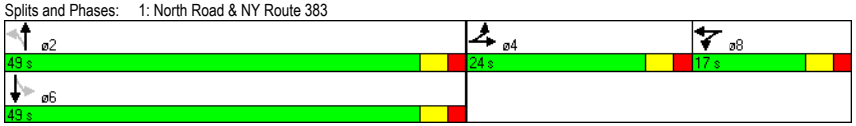
Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - AM Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | | 37.1 | | | 39.9 | | | 28.1 | | | 17.6 | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 37.1 | | | 39.9 | | | 28.1 | | | 17.6 | |
| LOS | | D | | | D | | | C | | | B | |
| Approach Delay | | 37.1 | | | 39.9 | | | 28.1 | | | 17.6 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 69.5 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.79 | | | |
| Intersection Signal Delay: 30.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 61.9% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
2: North Road & Browns Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 21 | 232 | 16 | 11 | 119 | 3 | 13 | 7 | 17 | 10 | 6 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.992 | | | 0.997 | | | 0.939 | | | 0.919 | |
| Flt Protected | | 0.996 | | | 0.996 | | | 0.982 | | | 0.988 | |
| Satd. Flow (prot) | 0 | 1859 | 0 | 0 | 1868 | 0 | 0 | 1735 | 0 | 0 | 1708 | 0 |
| Flt Permitted | | 0.996 | | | 0.996 | | | 0.982 | | | 0.988 | |
| Satd. Flow (perm) | 0 | 1859 | 0 | 0 | 1868 | 0 | 0 | 1735 | 0 | 0 | 1708 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 734 | | | 1890 | | | 366 | | | 434 | |
| Travel Time (s) | | 16.7 | | | 43.0 | | | 8.3 | | | 9.9 | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 35 | 392 | 27 | 15 | 162 | 4 | 19 | 10 | 24 | 17 | 10 | 41 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 454 | 0 | 0 | 181 | 0 | 0 | 53 | 0 | 0 | 68 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 32.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
2: North Road & Browns Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 21 | 232 | 16 | 11 | 119 | 3 | 13 | 7 | 17 | 10 | 6 | 24 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 35 | 392 | 27 | 15 | 162 | 4 | 19 | 10 | 24 | 17 | 10 | 41 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 166 | | | 419 | | | 717 | 673 | 406 | 700 | 684 | 164 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 166 | | | 419 | | | 717 | 673 | 406 | 700 | 684 | 164 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 99 | | | 94 | 97 | 96 | 95 | 97 | 95 |
| cM capacity (veh/h) | 1418 | | | 1145 | | | 314 | 364 | 647 | 325 | 358 | 883 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 455 | 181 | 53 | 68 |
| Volume Left | 35 | 15 | 19 | 17 |
| Volume Right | 27 | 4 | 24 | 41 |
| cSH | 1418 | 1145 | 426 | 535 |
| Volume to Capacity | 0.03 | 0.01 | 0.12 | 0.13 |
| Queue Length 95th (ft) | 2 | 1 | 11 | 11 |
| Control Delay (s) | 0.8 | 0.8 | 14.7 | 12.7 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.8 | 0.8 | 14.7 | 12.7 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.8 | | |
| Intersection Capacity Utilization | 32.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
3: North Road & N Cavalier Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 260 | 6 | 1 | 157 | 0 | 9 | 0 | 6 | 2 | 1 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.997 | | | | | | 0.944 | | | 0.923 | |
| Flt Protected | | | | | | | | 0.972 | | | 0.986 | |
| Satd. Flow (prot) | 0 | 1876 | 0 | 0 | 1881 | 0 | 0 | 1726 | 0 | 0 | 1712 | 0 |
| Flt Permitted | | | | | | | | 0.972 | | | 0.986 | |
| Satd. Flow (perm) | 0 | 1876 | 0 | 0 | 1881 | 0 | 0 | 1726 | 0 | 0 | 1712 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 279 | | | 734 | | | 248 | | | 294 | |
| Travel Time (s) | | 6.3 | | | 16.7 | | | 5.6 | | | 6.7 | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.62 | 0.62 | 0.62 | 0.58 | 0.58 | 0.58 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 3 | 439 | 10 | 1 | 214 | 0 | 17 | 0 | 12 | 4 | 2 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 452 | 0 | 0 | 215 | 0 | 0 | 29 | 0 | 0 | 14 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 28.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
3: North Road & N Cavalier Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 260 | 6 | 1 | 157 | 0 | 9 | 0 | 6 | 2 | 1 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.71 | 0.71 | 0.71 | 0.88 | 0.88 | 0.88 | 0.62 | 0.62 | 0.62 | 0.58 | 0.58 | 0.58 |
| Hourly flow rate (vph) | 3 | 439 | 10 | 1 | 214 | 0 | 17 | 0 | 12 | 4 | 2 | 8 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 214 | | | 450 | | | 677 | 668 | 445 | 680 | 673 | 214 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 214 | | | 450 | | | 677 | 668 | 445 | 680 | 673 | 214 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 95 | 100 | 98 | 99 | 99 | 99 |
| cM capacity (veh/h) | 1362 | | | 1116 | | | 362 | 379 | 616 | 359 | 376 | 828 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 453 | 215 | 29 | 14 |
| Volume Left | 3 | 1 | 17 | 4 |
| Volume Right | 10 | 0 | 12 | 8 |
| cSH | 1362 | 1116 | 433 | 536 |
| Volume to Capacity | 0.00 | 0.00 | 0.07 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 5 | 2 |
| Control Delay (s) | 0.1 | 0.1 | 13.9 | 11.9 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.1 | 0.1 | 13.9 | 11.9 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.9 | | |
| Intersection Capacity Utilization | | 28.5% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
4: North Road & Fairview Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 2 | 210 | 16 | 24 | 139 | 1 | 17 | 0 | 46 | 9 | 1 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.990 | | | 0.999 | | | 0.901 | | | 0.961 | |
| Flt Protected | | | | | 0.993 | | | 0.987 | | | 0.970 | |
| Satd. Flow (prot) | 0 | 1862 | 0 | 0 | 1866 | 0 | 0 | 1673 | 0 | 0 | 1754 | 0 |
| Flt Permitted | | | | | 0.993 | | | 0.987 | | | 0.970 | |
| Satd. Flow (perm) | 0 | 1862 | 0 | 0 | 1866 | 0 | 0 | 1673 | 0 | 0 | 1754 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 757 | | | 737 | | | 481 | | | 483 | |
| Travel Time (s) | | 17.2 | | | 16.8 | | | 10.9 | | | 11.0 | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.72 | 0.72 | 0.72 | 0.75 | 0.75 | 0.75 | 0.70 | 0.70 | 0.70 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 3 | 336 | 26 | 40 | 232 | 2 | 27 | 0 | 74 | 15 | 2 | 7 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 365 | 0 | 0 | 274 | 0 | 0 | 101 | 0 | 0 | 24 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
4: North Road & Fairview Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 210 | 16 | 24 | 139 | 1 | 17 | 0 | 46 | 9 | 1 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.72 | 0.72 | 0.72 | 0.75 | 0.75 | 0.75 | 0.70 | 0.70 | 0.70 |
| Hourly flow rate (vph) | 3 | 336 | 26 | 40 | 232 | 2 | 27 | 0 | 74 | 15 | 2 | 7 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 233 | | | 362 | | | 675 | 669 | 349 | 741 | 680 | 232 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 233 | | | 362 | | | 675 | 669 | 349 | 741 | 680 | 232 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 97 | | | 92 | 100 | 89 | 95 | 100 | 99 |
| cM capacity (veh/h) | 1340 | | | 1203 | | | 355 | 367 | 697 | 290 | 361 | 809 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 365 | 273 | 101 | 24 |
| Volume Left | 3 | 40 | 27 | 15 |
| Volume Right | 26 | 2 | 74 | 7 |
| cSH | 1340 | 1203 | 553 | 361 |
| Volume to Capacity | 0.00 | 0.03 | 0.18 | 0.07 |
| Queue Length 95th (ft) | 0 | 3 | 17 | 5 |
| Control Delay (s) | 0.1 | 1.5 | 13.0 | 15.7 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 0.1 | 1.5 | 13.0 | 15.7 |
| Approach LOS | | | B | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.8 | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
5: North Road & WCHS Student Parking Lot — 12/19/2012

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 202 | 11 | 46 | 117 | 8 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.993 | | | | 0.901 | |
| Flt Protected | | | | 0.986 | 0.987 | |
| Satd. Flow (prot) | 1868 | 0 | 0 | 1855 | 1673 | 0 |
| Flt Permitted | | | | 0.986 | 0.987 | |
| Satd. Flow (perm) | 1868 | 0 | 0 | 1855 | 1673 | 0 |
| Link Speed (mph) | 30 | | | 30 | 10 | |
| Link Distance (ft) | 1226 | | | 857 | 184 | |
| Travel Time (s) | 27.9 | | | 19.5 | 12.5 | |
| Peak Hour Factor | 0.75 | 0.75 | 0.73 | 0.73 | 0.47 | 0.47 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 323 | 18 | 76 | 192 | 20 | 56 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 341 | 0 | 0 | 268 | 76 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(ft) | 0 | | | 0 | 12 | |
| Link Offset(ft) | 0 | | | 0 | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 37.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
5: North Road & WCHS Student Parking Lot — 12/19/2012

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 202 | 11 | 46 | 117 | 8 | 22 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.75 | 0.75 | 0.73 | 0.73 | 0.47 | 0.47 |
| Hourly flow rate (vph) | 323 | 18 | 76 | 192 | 20 | 56 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 341 | | 676 | 332 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 341 | | 676 | 332 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 94 | | 95 | 92 |
| cM capacity (veh/h) | | | 1224 | | 395 | 712 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 341 | 268 | 77 |
| Volume Left | 0 | 76 | 20 |
| Volume Right | 18 | 0 | 56 |
| cSH | 1700 | 1224 | 586 |
| Volume to Capacity | 0.20 | 0.06 | 0.13 |
| Queue Length 95th (ft) | 0 | 5 | 11 |
| Control Delay (s) | 0.0 | 2.7 | 12.1 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 2.7 | 12.1 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 22 | 102 | 26 | 26 | 54 | 46 | 13 | 59 | 41 | 61 | 71 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.976 | | | 0.951 | | | 0.951 | | | 0.992 | |
| Flt Protected | | 0.993 | | | 0.990 | | | 0.994 | | | 0.979 | |
| Satd. Flow (prot) | 0 | 1823 | 0 | 0 | 1771 | 0 | 0 | 1761 | 0 | 0 | 1809 | 0 |
| Flt Permitted | | 0.993 | | | 0.990 | | | 0.994 | | | 0.979 | |
| Satd. Flow (perm) | 0 | 1823 | 0 | 0 | 1771 | 0 | 0 | 1761 | 0 | 0 | 1809 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.88 | 0.88 | 0.88 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 31 | 144 | 37 | 42 | 86 | 74 | 20 | 90 | 62 | 83 | 97 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 212 | 0 | 0 | 202 | 0 | 0 | 172 | 0 | 0 | 192 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 22 | 102 | 26 | 26 | 54 | 46 | 13 | 59 | 41 | 61 | 71 | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 31 | 144 | 37 | 42 | 86 | 74 | 20 | 90 | 62 | 83 | 97 | 12 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 546 | 461 | 103 | 538 | 436 | 121 | 109 | | | 152 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 546 | 461 | 103 | 538 | 436 | 121 | 109 | | | 152 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 91 | 69 | 96 | 87 | 82 | 92 | 99 | | | 94 | | |
| cM capacity (veh/h) | 338 | 464 | 955 | 316 | 479 | 933 | 1481 | | | 1429 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 212 | 202 | 172 | 192 |
| Volume Left | 31 | 42 | 20 | 83 |
| Volume Right | 37 | 74 | 62 | 12 |
| cSH | 480 | 516 | 1481 | 1429 |
| Volume to Capacity | 0.44 | 0.39 | 0.01 | 0.06 |
| Queue Length 95th (ft) | 55 | 46 | 1 | 5 |
| Control Delay (s) | 18.3 | 16.4 | 1.0 | 3.6 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 18.3 | 16.4 | 1.0 | 3.6 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.3 | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - MD Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 72 | 78 | 16 | 71 | 86 | 40 | 8 | 107 | 63 | 26 | 142 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.987 | | | 0.973 | | | 0.952 | | | 0.962 | |
| Flt Protected | | 0.979 | | | 0.982 | | | 0.998 | | | 0.994 | |
| Satd. Flow (prot) | 0 | 1800 | 0 | 0 | 1780 | 0 | 0 | 1770 | 0 | 0 | 1781 | 0 |
| Flt Permitted | | 0.979 | | | 0.982 | | | 0.980 | | | 0.947 | |
| Satd. Flow (perm) | 0 | 1800 | 0 | 0 | 1780 | 0 | 0 | 1738 | 0 | 0 | 1697 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 13 | | | 42 | | | 30 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.80 | 0.80 | 0.80 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 139 | 151 | 31 | 99 | 120 | 56 | 11 | 149 | 88 | 39 | 213 | 99 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 321 | 0 | 0 | 275 | 0 | 0 | 248 | 0 | 0 | 351 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 20.0 | 20.0 | 0.0 | 22.0 | 22.0 | 0.0 | 48.0 | 48.0 | 0.0 | 48.0 | 48.0 | 0.0 |
| Total Split (%) | 22.2% | 22.2% | 0.0% | 24.4% | 24.4% | 0.0% | 53.3% | 53.3% | 0.0% | 53.3% | 53.3% | 0.0% |
| Maximum Green (s) | 15.0 | 15.0 | | 17.0 | 17.0 | | 43.0 | 43.0 | | 43.0 | 43.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 15.3 | | | 14.1 | | | 17.4 | | | 17.4 | |
| Actuated g/C Ratio | | 0.25 | | | 0.23 | | | 0.28 | | | 0.28 | |
| v/c Ratio | | 0.72 | | | 0.66 | | | 0.48 | | | 0.71 | |
| Control Delay | | 35.1 | | | 30.2 | | | 18.6 | | | 26.8 | |



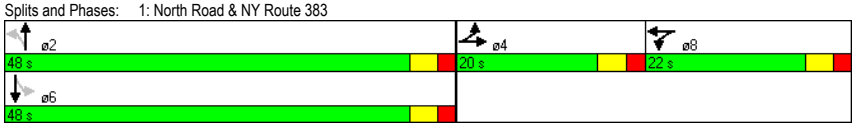
Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - MD Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 35.1 | | | 30.2 | | | 18.6 | | | 26.8 | |
| LOS | | D | | | C | | | B | | | C | |
| Approach Delay | | 35.1 | | | 30.2 | | | 18.6 | | | 26.8 | |
| Approach LOS | | D | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 62 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.72 | | | |
| Intersection Signal Delay: 28.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 50.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings — 2032 No Build Conditions - MD Peak Hour
2: North Road & Browns Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 14 | 174 | 13 | 10 | 162 | 6 | 11 | 11 | 7 | 1 | 10 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.991 | | | 0.995 | | | 0.967 | | | 0.925 | |
| Flt Protected | | 0.997 | | | 0.997 | | | 0.982 | | | 0.998 | |
| Satd. Flow (prot) | 0 | 1840 | 0 | 0 | 1848 | 0 | 0 | 1769 | 0 | 0 | 1720 | 0 |
| Flt Permitted | | 0.997 | | | 0.997 | | | 0.982 | | | 0.998 | |
| Satd. Flow (perm) | 0 | 1840 | 0 | 0 | 1848 | 0 | 0 | 1769 | 0 | 0 | 1720 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 734 | | | 1890 | | | 366 | | | 434 | |
| Travel Time (s) | | 16.7 | | | 43.0 | | | 8.3 | | | 9.9 | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.80 | 0.80 | 0.80 | 0.45 | 0.45 | 0.45 | 0.69 | 0.69 | 0.69 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 24 | 298 | 22 | 15 | 243 | 9 | 29 | 29 | 19 | 2 | 17 | 24 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 344 | 0 | 0 | 267 | 0 | 0 | 77 | 0 | 0 | 43 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 31.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - MD Peak Hour
2: North Road & Browns Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 14 | 174 | 13 | 10 | 162 | 6 | 11 | 11 | 7 | 1 | 10 | 14 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.80 | 0.80 | 0.80 | 0.45 | 0.45 | 0.45 | 0.69 | 0.69 | 0.69 |
| Hourly flow rate (vph) | 24 | 298 | 22 | 15 | 243 | 9 | 29 | 29 | 19 | 2 | 17 | 24 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 252 | | | 321 | | | 668 | 639 | 309 | 668 | 646 | 248 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 252 | | | 321 | | | 668 | 639 | 309 | 668 | 646 | 248 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 99 | | | 91 | 92 | 97 | 99 | 95 | 97 |
| cM capacity (veh/h) | 1313 | | | 1239 | | | 340 | 382 | 731 | 333 | 378 | 791 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 345 | 267 | 77 | 43 |
| Volume Left | 24 | 15 | 29 | 2 |
| Volume Right | 22 | 9 | 19 | 24 |
| cSH | 1313 | 1239 | 410 | 531 |
| Volume to Capacity | 0.02 | 0.01 | 0.19 | 0.08 |
| Queue Length 95th (ft) | 1 | 1 | 17 | 7 |
| Control Delay (s) | 0.7 | 0.6 | 15.8 | 12.4 |
| Lane LOS | A | A | C | B |
| Approach Delay (s) | 0.7 | 0.6 | 15.8 | 12.4 |
| Approach LOS | | | C | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.9 | | |
| Intersection Capacity Utilization | | 31.7% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - MD Peak Hour
3: North Road & N Cavalier Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 199 | 5 | 2 | 184 | 1 | 4 | 1 | 3 | 3 | 1 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.997 | | | 0.999 | | | 0.950 | | | 0.919 | |
| Flt Protected | | 0.999 | | | 0.999 | | | 0.974 | | | 0.985 | |
| Satd. Flow (prot) | 0 | 1855 | 0 | 0 | 1859 | 0 | 0 | 1724 | 0 | 0 | 1686 | 0 |
| Flt Permitted | | 0.999 | | | 0.999 | | | 0.974 | | | 0.985 | |
| Satd. Flow (perm) | 0 | 1855 | 0 | 0 | 1859 | 0 | 0 | 1724 | 0 | 0 | 1686 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 279 | | | 734 | | | 248 | | | 294 | |
| Travel Time (s) | | 6.3 | | | 16.7 | | | 5.6 | | | 6.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.50 | 0.50 | 0.50 | 0.62 | 0.62 | 0.62 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 7 | 260 | 7 | 3 | 240 | 1 | 10 | 2 | 7 | 6 | 2 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 274 | 0 | 0 | 244 | 0 | 0 | 19 | 0 | 0 | 20 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 26.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - MD Peak Hour
3: North Road & N Cavalier Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 5 | 199 | 5 | 2 | 184 | 1 | 4 | 1 | 3 | 3 | 1 | 6 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.50 | 0.50 | 0.50 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 7 | 260 | 7 | 3 | 240 | 1 | 10 | 2 | 7 | 6 | 2 | 12 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 241 | | | 266 | | | 534 | 522 | 263 | 530 | 525 | 241 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 241 | | | 266 | | | 534 | 522 | 263 | 530 | 525 | 241 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 98 | 99 | 99 | 99 | 100 | 99 |
| cM capacity (veh/h) | 1325 | | | 1298 | | | 446 | 456 | 776 | 451 | 454 | 798 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 273 | 244 | 19 | 19 |
| Volume Left | 7 | 3 | 10 | 6 |
| Volume Right | 7 | 1 | 7 | 12 |
| cSH | 1325 | 1298 | 532 | 611 |
| Volume to Capacity | 0.00 | 0.00 | 0.04 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 2 |
| Control Delay (s) | 0.2 | 0.1 | 12.0 | 11.1 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.2 | 0.1 | 12.0 | 11.1 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.0 | | |
| Intersection Capacity Utilization | | 26.6% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - MD Peak Hour
4: North Road & Fairview Road — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 123 | 38 | 60 | 131 | 3 | 75 | 1 | 92 | 4 | 0 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.969 | | | 0.998 | | | 0.926 | | | 0.973 | |
| Flt Protected | | 0.998 | | | 0.985 | | | 0.978 | | | 0.962 | |
| Satd. Flow (prot) | 0 | 1801 | 0 | 0 | 1831 | 0 | 0 | 1687 | 0 | 0 | 1744 | 0 |
| Flt Permitted | | 0.998 | | | 0.985 | | | 0.978 | | | 0.962 | |
| Satd. Flow (perm) | 0 | 1801 | 0 | 0 | 1831 | 0 | 0 | 1687 | 0 | 0 | 1744 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 757 | | | 737 | | | 481 | | | 483 | |
| Travel Time (s) | | 17.2 | | | 16.8 | | | 10.9 | | | 11.0 | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.41 | 0.41 | 0.41 | 0.62 | 0.62 | 0.62 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 9 | 211 | 65 | 101 | 221 | 5 | 220 | 3 | 269 | 8 | 0 | 2 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 285 | 0 | 0 | 327 | 0 | 0 | 492 | 0 | 0 | 10 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - MD Peak Hour
4: North Road & Fairview Road — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 5 | 123 | 38 | 60 | 131 | 3 | 75 | 1 | 92 | 4 | 0 | 1 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.71 | 0.71 | 0.71 | 0.41 | 0.41 | 0.41 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 9 | 211 | 65 | 101 | 221 | 5 | 220 | 3 | 269 | 8 | 0 | 2 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 226 | | | 276 | | | 689 | 690 | 243 | 958 | 720 | 224 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 226 | | | 276 | | | 689 | 690 | 243 | 958 | 720 | 224 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 92 | | | 35 | 99 | 66 | 95 | 100 | 100 |
| cM capacity (veh/h) | 1342 | | | 1287 | | | 336 | 337 | 795 | 146 | 324 | 816 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 285 | 328 | 492 | 10 |
| Volume Left | 9 | 101 | 220 | 8 |
| Volume Right | 65 | 5 | 269 | 2 |
| cSH | 1342 | 1287 | 491 | 174 |
| Volume to Capacity | 0.01 | 0.08 | 1.00 | 0.06 |
| Queue Length 95th (ft) | 0 | 6 | 340 | 4 |
| Control Delay (s) | 0.3 | 3.0 | 70.1 | 26.9 |
| Lane LOS | A | A | F | D |
| Approach Delay (s) | 0.3 | 3.0 | 70.1 | 26.9 |
| Approach LOS | | | F | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 32.1 | | |
| Intersection Capacity Utilization | | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - MD Peak Hour
5: North Road & Student Parking Lot — 12/19/2012

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 141 | 4 | 11 | 187 | 12 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.996 | | | | 0.908 | |
| Flt Protected | | | | 0.997 | 0.984 | |
| Satd. Flow (prot) | 1855 | 0 | 0 | 1857 | 1664 | 0 |
| Flt Permitted | | | | 0.997 | 0.984 | |
| Satd. Flow (perm) | 1855 | 0 | 0 | 1857 | 1664 | 0 |
| Link Speed (mph) | 30 | | | 30 | 10 | |
| Link Distance (ft) | 1226 | | | 857 | 184 | |
| Travel Time (s) | 27.9 | | | 19.5 | 12.5 | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.63 | 0.63 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 260 | 7 | 20 | 345 | 23 | 50 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 267 | 0 | 0 | 365 | 73 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(ft) | 0 | | | 0 | 12 | |
| Link Offset(ft) | 0 | | | 0 | 0 | |
| Crosswalk Width(ft) | 16 | | | 16 | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - MD Peak Hour
5: North Road & Student Parking Lot — 12/19/2012

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 141 | 4 | 11 | 187 | 12 | 26 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.65 | 0.63 | 0.63 |
| Hourly flow rate (vph) | 260 | 7 | 20 | 345 | 23 | 50 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 268 | | 650 | 264 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 268 | | 650 | 264 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 98 | | 95 | 94 |
| cM capacity (veh/h) | | | 1296 | | 427 | 775 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 268 | 366 | 72 |
| Volume Left | 0 | 20 | 23 |
| Volume Right | 7 | 0 | 50 |
| cSH | 1700 | 1296 | 616 |
| Volume to Capacity | 0.16 | 0.02 | 0.12 |
| Queue Length 95th (ft) | 0 | 1 | 10 |
| Control Delay (s) | 0.0 | 0.6 | 11.6 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 0.6 | 11.6 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 32.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Lanes, Volumes, Timings — 2032 No Build Conditions - MD Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 50 | 8 | 23 | 119 | 61 | 14 | 61 | 22 | 57 | 29 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.985 | | | 0.959 | | | 0.970 | | | 0.985 | |
| Flt Protected | | 0.993 | | | 0.994 | | | 0.993 | | | 0.971 | |
| Satd. Flow (prot) | 0 | 1822 | 0 | 0 | 1776 | 0 | 0 | 1794 | 0 | 0 | 1782 | 0 |
| Flt Permitted | | 0.993 | | | 0.994 | | | 0.993 | | | 0.971 | |
| Satd. Flow (perm) | 0 | 1822 | 0 | 0 | 1776 | 0 | 0 | 1794 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.70 | 0.70 | 0.70 | 0.84 | 0.84 | 0.84 | 0.76 | 0.76 | 0.76 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 14 | 71 | 11 | 39 | 204 | 105 | 20 | 87 | 31 | 90 | 46 | 17 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 96 | 0 | 0 | 348 | 0 | 0 | 138 | 0 | 0 | 153 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 36.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - MD Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 50 | 8 | 23 | 119 | 61 | 14 | 61 | 22 | 57 | 29 | 11 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.70 | 0.70 | 0.70 | 0.84 | 0.84 | 0.84 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 14 | 71 | 11 | 39 | 204 | 105 | 20 | 87 | 31 | 90 | 46 | 17 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 584 | 393 | 54 | 424 | 386 | 103 | 63 | | | 119 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 584 | 393 | 54 | 424 | 386 | 103 | 63 | | | 119 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 94 | 86 | 99 | 91 | 60 | 89 | 99 | | | 94 | | |
| cM capacity (veh/h) | 245 | 503 | 1013 | 451 | 508 | 952 | 1539 | | | 1470 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 96 | 348 | 139 | 153 |
| Volume Left | 14 | 39 | 20 | 90 |
| Volume Right | 11 | 105 | 31 | 17 |
| cSH | 459 | 581 | 1539 | 1470 |
| Volume to Capacity | 0.21 | 0.60 | 0.01 | 0.06 |
| Queue Length 95th (ft) | 19 | 99 | 1 | 5 |
| Control Delay (s) | 14.9 | 20.0 | 1.2 | 4.7 |
| Lane LOS | B | C | A | A |
| Approach Delay (s) | 14.9 | 20.0 | 1.2 | 4.7 |
| Approach LOS | B | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 12.6 | | |
| Intersection Capacity Utilization | | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - AM Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 70 | 12 | 135 | 161 | 94 | 7 | 115 | 67 | 76 | 281 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.989 | | | 0.967 | | | 0.952 | | | 0.966 | |
| Flt Protected | | 0.980 | | | 0.983 | | | 0.998 | | | 0.992 | |
| Satd. Flow (prot) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1770 | 0 | 0 | 1785 | 0 |
| Flt Permitted | | 0.980 | | | 0.983 | | | 0.975 | | | 0.904 | |
| Satd. Flow (perm) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1729 | 0 | 0 | 1627 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 14 | | | 48 | | | 29 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.91 | 0.91 | 0.91 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 79 | 95 | 16 | 186 | 222 | 130 | 10 | 157 | 91 | 100 | 371 | 158 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 190 | 0 | 0 | 538 | 0 | 0 | 258 | 0 | 0 | 629 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 16.0 | 16.0 | 0.0 | 20.0 | 20.0 | 0.0 | 59.0 | 59.0 | 0.0 | 59.0 | 59.0 | 0.0 |
| Total Split (%) | 16.8% | 16.8% | 0.0% | 21.1% | 21.1% | 0.0% | 62.1% | 62.1% | 0.0% | 62.1% | 62.1% | 0.0% |
| Maximum Green (s) | 11.0 | 11.0 | | 15.0 | 15.0 | | 54.0 | 54.0 | | 54.0 | 54.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 11.0 | | | 15.3 | | | 33.7 | | | 33.7 | |
| Actuated g/C Ratio | | 0.15 | | | 0.20 | | | 0.45 | | | 0.45 | |
| v/c Ratio | | 0.71 | | | 1.45 | | | 0.32 | | | 0.85 | |
| Control Delay | | 49.7 | | | 244.0 | | | 11.1 | | | 28.6 | |



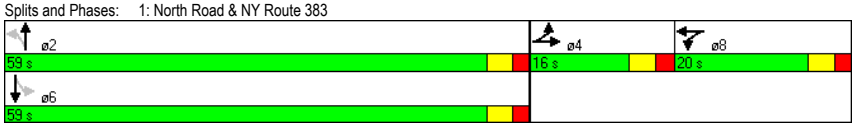
Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions - AM Peak Hour
12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 49.7 | | | 244.0 | | | 11.1 | | | 28.6 | |
| LOS | | D | | | F | | | B | | | C | |
| Approach Delay | | 49.7 | | | 244.0 | | | 11.1 | | | 28.6 | |
| Approach LOS | | D | | | F | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 95 | | | |
| Actuated Cycle Length: 75.4 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 1.45 | | | |
| Intersection Signal Delay: 100.0 | | Intersection LOS: F | |
| Intersection Capacity Utilization 88.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383




Village of Scottsville Traffic Circulation and Safety Study
SRF & Associates

Lanes, Volumes, Timings — 2032 No Build Conditions - AM Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 9 | 54 | 18 | 14 | 128 | 78 | 23 | 78 | 11 | 61 | 70 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.970 | | | 0.952 | | | 0.987 | | | 0.974 | |
| Flt Protected | | 0.994 | | | 0.997 | | | 0.990 | | | 0.982 | |
| Satd. Flow (prot) | 0 | 1796 | 0 | 0 | 1768 | 0 | 0 | 1820 | 0 | 0 | 1782 | 0 |
| Flt Permitted | | 0.994 | | | 0.997 | | | 0.990 | | | 0.982 | |
| Satd. Flow (perm) | 0 | 1796 | 0 | 0 | 1768 | 0 | 0 | 1820 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 50 | | | 30 | | | 30 | | | 55 | |
| Link Distance (ft) | | 468 | | | 1226 | | | 487 | | | 449 | |
| Travel Time (s) | | 6.4 | | | 27.9 | | | 11.1 | | | 5.6 | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.86 | 0.86 | 0.86 | 0.68 | 0.68 | 0.68 | 0.78 | 0.78 | 0.78 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 17 | 100 | 33 | 20 | 179 | 109 | 41 | 138 | 19 | 94 | 108 | 49 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 150 | 0 | 0 | 308 | 0 | 0 | 198 | 0 | 0 | 251 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 41.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



HCM Unsignalized Intersection Capacity Analysis — 2032 No Build Conditions - AM Peak Hour
6: North Road & NY Route 386 — 12/19/2012

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 9 | 54 | 18 | 14 | 128 | 78 | 23 | 78 | 11 | 61 | 70 | 32 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.86 | 0.86 | 0.86 | 0.68 | 0.68 | 0.68 | 0.78 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 17 | 100 | 33 | 20 | 179 | 109 | 41 | 138 | 19 | 94 | 108 | 49 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 747 | 558 | 132 | 632 | 573 | 147 | 157 | | | 157 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 747 | 558 | 132 | 632 | 573 | 147 | 157 | | | 157 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 90 | 75 | 96 | 93 | 54 | 88 | 97 | | | 93 | | |
| cM capacity (veh/h) | 173 | 397 | 917 | 285 | 390 | 900 | 1423 | | | 1423 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 150 | 307 | 198 | 251 |
| Volume Left | 17 | 20 | 41 | 94 |
| Volume Right | 33 | 109 | 19 | 49 |
| cSH | 391 | 474 | 1423 | 1423 |
| Volume to Capacity | 0.38 | 0.65 | 0.03 | 0.07 |
| Queue Length 95th (ft) | 44 | 113 | 2 | 5 |
| Control Delay (s) | 19.8 | 25.5 | 1.8 | 3.2 |
| Lane LOS | C | D | A | A |
| Approach Delay (s) | 19.8 | 25.5 | 1.8 | 3.2 |
| Approach LOS | C | D | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 13.2 | | |
| Intersection Capacity Utilization | | 41.4% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

HCM 2010 Roundabout
6: NY Route 386 & North Road

AM Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.0 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 212 | 202 | 172 | 192 |
| Demand Flow Rate, veh/h | 213 | 204 | 175 | 196 |
| Vehicles Circulating, veh/h | 226 | 143 | 261 | 149 |
| Vehicles Exiting, veh/h | 119 | 293 | 178 | 198 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 6.4 | 5.7 | 6.3 | 5.7 |
| Approach LOS | A | A | A | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 213 | 204 | 175 | 196 |
| Cap Entry Lane, veh/h | 901 | 979 | 870 | 974 |
| Entry HV Adj Factor | 0.993 | 0.991 | 0.984 | 0.980 |
| Flow Entry, veh/h | 212 | 202 | 172 | 192 |
| Cap Entry, veh/h | 895 | 970 | 856 | 954 |
| V/C Ratio | 2.36 | 2.08 | 2.01 | 2.01 |
| Control Delay, s/veh | 6.4 | 5.7 | 6.3 | 5.7 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0.1 | 0.1 | 0.1 | 0.1 |

Baseline

Synchro 8 Report
Page 1

HCM 2010 Roundabout
4: Briarwood Lane/Fairview Road & North Road

AM Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.3 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 365 | 274 | 101 | 24 |
| Demand Flow Rate, veh/h | 368 | 276 | 102 | 24 |
| Vehicles Circulating, veh/h | 57 | 30 | 357 | 301 |
| Vehicles Exiting, veh/h | 268 | 429 | 68 | 5 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 6.9 | 5.7 | 5.9 | 4.6 |
| Approach LOS | A | A | A | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 368 | 276 | 102 | 24 |
| Cap Entry Lane, veh/h | 1067 | 1097 | 791 | 836 |
| Entry HV Adj Factor | 0.991 | 0.992 | 0.990 | 0.999 |
| Flow Entry, veh/h | 365 | 274 | 101 | 24 |
| Cap Entry, veh/h | 1058 | 1087 | 783 | 836 |
| V/C Ratio | 3.45 | 2.52 | 1.29 | 0.29 |
| Control Delay, s/veh | 6.9 | 5.7 | 5.9 | 4.6 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0.2 | 0.1 | 0.0 | 0.0 |

Baseline

Synchro 8 Report
Page 1

HCM 2010 Roundabout
2: Browns Avenue/Browns Road & North Road

AM Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.8 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 454 | 181 | 53 | 68 |
| Demand Flow Rate, veh/h | 458 | 183 | 53 | 68 |
| Vehicles Circulating, veh/h | 42 | 64 | 448 | 198 |
| Vehicles Exiting, veh/h | 224 | 437 | 52 | 49 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 7.9 | 5.0 | 5.8 | 4.6 |
| Approach LOS | A | A | A | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 458 | 183 | 53 | 68 |
| Cap Entry Lane, veh/h | 1083 | 1060 | 722 | 927 |
| Entry HV Adj Factor | 0.991 | 0.991 | 0.998 | 0.999 |
| Flow Entry, veh/h | 454 | 181 | 53 | 68 |
| Cap Entry, veh/h | 1074 | 1050 | 721 | 926 |
| V/C Ratio | 4.23 | 1.73 | 0.73 | 0.73 |
| Control Delay, s/veh | 7.9 | 5.0 | 5.8 | 4.6 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0.2 | 0.1 | 0.0 | 0.0 |



HCM 2010 Roundabout
6: NY Route 386 & North Road

MD Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.4 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 96 | 348 | 138 | 153 |
| Demand Flow Rate, veh/h | 97 | 355 | 141 | 156 |
| Vehicles Circulating, veh/h | 179 | 123 | 178 | 268 |
| Vehicles Exiting, veh/h | 245 | 196 | 98 | 210 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 4.8 | 7.5 | 5.3 | 6.1 |
| Approach LOS | A | A | A | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 97 | 355 | 141 | 156 |
| Cap Entry Lane, veh/h | 945 | 999 | 946 | 864 |
| Entry HV Adj Factor | 0.985 | 0.980 | 0.981 | 0.981 |
| Flow Entry, veh/h | 96 | 348 | 138 | 153 |
| Cap Entry, veh/h | 931 | 979 | 927 | 848 |
| V/C Ratio | 1.03 | 3.55 | 1.49 | 1.80 |
| Control Delay, s/veh | 4.8 | 7.5 | 5.3 | 6.1 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0.0 | 0.2 | 0.1 | 0.1 |

HCM 2010 Roundabout
4: Briarwood Lane/Fairview Road & North Road

MD Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9.5 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 285 | 327 | 492 | 10 |
| Demand Flow Rate, veh/h | 290 | 333 | 501 | 10 |
| Vehicles Circulating, veh/h | 111 | 236 | 232 | 552 |
| Vehicles Exiting, veh/h | 451 | 497 | 169 | 17 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 6.5 | 8.4 | 11.9 | 5.7 |
| Approach LOS | A | A | B | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 290 | 333 | 501 | 10 |
| Cap Entry Lane, veh/h | 1011 | 892 | 896 | 651 |
| Entry HV Adj Factor | 0.982 | 0.981 | 0.982 | 1.000 |
| Flow Entry, veh/h | 285 | 327 | 492 | 10 |
| Cap Entry, veh/h | 993 | 875 | 880 | 651 |
| V/C Ratio | 2.87 | 3.73 | 5.59 | 0.15 |
| Control Delay, s/veh | 6.5 | 8.4 | 11.9 | 5.7 |
| LOS | A | A | B | A |
| 95th %tile Queue, veh | 0.1 | 0.2 | 0.4 | 0.0 |

Baseline

Synchro 8 Report
Page 1

HCM 2010 Roundabout
2: Browns Avenue/Browns Road & North Road

MD Roundabouts
1/10/2013

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 6.2 |
| Intersection LOS | A |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Entry Lanes | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 344 | 267 | 77 | 43 |
| Demand Flow Rate, veh/h | 350 | 272 | 79 | 43 |
| Vehicles Circulating, veh/h | 34 | 84 | 330 | 293 |
| Vehicles Exiting, veh/h | 302 | 325 | 54 | 63 |
| Follow-Up Headway, s | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 6.5 | 6.1 | 5.5 | 4.8 |
| Approach LOS | A | A | A | A |

| Lane | Left | Left | Left | Left |
|---|---|---|---|---|
| Designated Moves | LTR | LTR | LTR | LTR |
| Assumed Moves | LTR | LTR | LTR | LTR |
| RT Channelized | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 350 | 272 | 79 | 43 |
| Cap Entry Lane, veh/h | 1092 | 1039 | 812 | 843 |
| Entry HV Adj Factor | 0.983 | 0.982 | 0.980 | 0.992 |
| Flow Entry, veh/h | 344 | 267 | 77 | 43 |
| Cap Entry, veh/h | 1074 | 1020 | 796 | 836 |
| V/C Ratio | 3.20 | 2.62 | 0.97 | 0.51 |
| Control Delay, s/veh | 6.5 | 6.1 | 5.5 | 4.8 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0.1 | 0.1 | 0.0 | 0.0 |

Baseline

Synchro 8 Report
Page 1

HCM 2010 Roundabout
6: NY Route 386 & North Road 1/10/2013

| Intersection | | | | | |
|---|---|---|---|---|---|
| Intersection Delay, s/veh | 6.9 | | | | |
| Intersection LOS | A | | | | |
| **Approach** | | **EB** | **WB** | **NB** | **SB** |
| Entry Lanes | | 1 | 1 | 1 | 1 |
| Conflicting Circle Lanes | | 1 | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | | 150 | 308 | 198 | 251 |
| Demand Flow Rate, veh/h | | 153 | 314 | 202 | 256 |
| Vehicles Circulating, veh/h | | 226 | 200 | 215 | 245 |
| Vehicles Exiting, veh/h | | 275 | 217 | 164 | 269 |
| Follow-Up Headway, s | | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h | | 0 | 0 | 0 | 0 |
| Ped Cap Adj | | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | | 5.8 | 7.7 | 6.3 | 7.3 |
| Approach LOS | | A | A | A | A |
| **Lane** | **Left** | **Left** | **Left** | **Left** | |
| Designated Moves | LTR | LTR | LTR | LTR | |
| Assumed Moves | LTR | LTR | LTR | LTR | |
| RT Channelized | | | | | |
| Lane Util | 1.000 | 1.000 | 1.000 | 1.000 | |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 | |
| Entry Flow, veh/h | 153 | 314 | 202 | 256 | |
| Cap Entry Lane, veh/h | 901 | 925 | 911 | 884 | |
| Entry HV Adj Factor | 0.980 | 0.982 | 0.981 | 0.980 | |
| Flow Entry, veh/h | 150 | 308 | 198 | 251 | |
| Cap Entry, veh/h | 884 | 909 | 894 | 867 | |
| V/C Ratio | 1.70 | 3.39 | 2.22 | 2.89 | |
| Control Delay, s/veh | 5.8 | 7.7 | 6.3 | 7.3 | |
| LOS | A | A | A | A | |
| 95th %tile Queue, veh | 0.1 | 0.2 | 0.1 | 0.1 | |

Baseline

Synchro 8 Report
Page 1

Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 1 - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 93 | 123 | 17 | 31 | 64 | 35 | 9 | 247 | 123 | 36 | 72 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.990 | | | 0.964 | | | | 0.850 | | | 0.850 |
| Flt Protected | | 0.980 | | | 0.988 | | | 0.998 | | | 0.984 | |
| Satd. Flow (prot) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1859 | 1583 | 0 | 1833 | 1583 |
| Flt Permitted | | 0.980 | | | 0.988 | | | 0.988 | | | 0.663 | |
| Satd. Flow (perm) | 0 | 1825 | 0 | 0 | 1792 | 0 | 0 | 1840 | 1583 | 0 | 1235 | 1583 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 17 | | | | 166 | | | 46 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.76 | 0.76 | 0.76 | 0.89 | 0.89 | 0.89 | 0.81 | 0.81 | 0.81 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 145 | 192 | 26 | 49 | 101 | 55 | 12 | 333 | 166 | 53 | 107 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 363 | 0 | 0 | 205 | 0 | 0 | 345 | 166 | 0 | 160 | 46 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | pm+ov | Perm | | pm+ov |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | 8 | | 6 | 4 |
| Permitted Phases | | | | | | | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | 8 | 6 | 6 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 24.0 | 24.0 | 0.0 | 17.0 | 17.0 | 0.0 | 49.0 | 49.0 | 17.0 | 49.0 | 49.0 | 24.0 |
| Total Split (%) | 26.7% | 26.7% | 0.0% | 18.9% | 18.9% | 0.0% | 54.4% | 54.4% | 18.9% | 54.4% | 54.4% | 26.7% |
| Maximum Green (s) | 19.0 | 19.0 | | 12.0 | 12.0 | | 44.0 | 44.0 | 12.0 | 44.0 | 44.0 | 19.0 |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | None | None | None | None | None |
| Act Effct Green (s) | | 17.9 | | | 11.1 | | | 16.7 | 32.9 | | 16.7 | 39.7 |
| Actuated g/C Ratio | | 0.29 | | | 0.18 | | | 0.27 | 0.54 | | 0.27 | 0.65 |
| v/c Ratio | | 0.67 | | | 0.60 | | | 0.68 | 0.18 | | 0.47 | 0.04 |



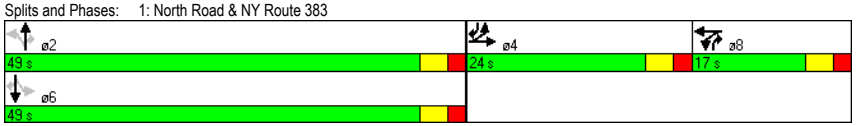
Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 1 - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | | 27.9 | | | 31.2 | | | 27.6 | 1.8 | | 23.8 | 1.4 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 27.9 | | | 31.2 | | | 27.6 | 1.8 | | 23.8 | 1.4 |
| LOS | | C | | | C | | | C | A | | C | A |
| Approach Delay | | 27.9 | | | 31.2 | | | 19.2 | | | 18.8 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 61 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.68 | | | |
| Intersection Signal Delay: 23.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 57.5% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Condition Alternative 2 - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 93 | 123 | 17 | 31 | 64 | 35 | 9 | 247 | 123 | 36 | 72 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 150 | | 0 | 150 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.982 | | | 0.947 | | | 0.956 | | | 0.970 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.999 | | | 0.987 | |
| Satd. Flow (prot) | 1787 | 1847 | 0 | 1787 | 1781 | 0 | 0 | 1779 | 0 | 0 | 1783 | 0 |
| Flt Permitted | 0.658 | | | 0.622 | | | | 0.991 | | | 0.821 | |
| Satd. Flow (perm) | 1238 | 1847 | 0 | 1170 | 1781 | 0 | 0 | 1765 | 0 | 0 | 1483 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 9 | | | 36 | | | 67 | | | 40 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.76 | 0.76 | 0.76 | 0.89 | 0.89 | 0.89 | 0.81 | 0.81 | 0.81 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 145 | 192 | 26 | 49 | 101 | 55 | 12 | 333 | 166 | 53 | 107 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 145 | 218 | 0 | 49 | 156 | 0 | 0 | 511 | 0 | 0 | 206 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 21.0 | 21.0 | 0.0 | 21.0 | 21.0 | 0.0 | 49.0 | 49.0 | 0.0 | 49.0 | 49.0 | 0.0 |
| Total Split (%) | 30.0% | 30.0% | 0.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 0.0% |
| Maximum Green (s) | 16.0 | 16.0 | | 16.0 | 16.0 | | 44.0 | 44.0 | | 44.0 | 44.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Condition Alternative 2 - AM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Act Effct Green (s) | 10.0 | 10.0 | | 10.0 | 10.0 | | | 15.6 | | | 15.6 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.28 | 0.28 | | | 0.43 | | | 0.43 | |
| v/c Ratio | 0.43 | 0.42 | | 0.15 | 0.30 | | | 0.64 | | | 0.31 | |
| Control Delay | 16.7 | 14.3 | | 12.9 | 11.2 | | | 11.3 | | | 7.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 16.7 | 14.3 | | 12.9 | 11.2 | | | 11.3 | | | 7.0 | |
| LOS | B | B | | B | B | | | B | | | A | |
| Approach Delay | | 15.3 | | | 11.6 | | | 11.3 | | | 7.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 36.2 | | | |
| Natural Cycle: 45 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.64 | | | |
| Intersection Signal Delay: 11.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 57.0% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383

Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 1 - MD Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 72 | 78 | 16 | 71 | 86 | 40 | 8 | 107 | 63 | 26 | 142 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.987 | | | 0.973 | | | | 0.850 | | | 0.850 |
| Flt Protected | | 0.979 | | | 0.982 | | | 0.997 | | | 0.992 | |
| Satd. Flow (prot) | 0 | 1800 | 0 | 0 | 1780 | 0 | 0 | 1857 | 1583 | 0 | 1848 | 1583 |
| Flt Permitted | | 0.979 | | | 0.982 | | | 0.968 | | | 0.926 | |
| Satd. Flow (perm) | 0 | 1800 | 0 | 0 | 1780 | 0 | 0 | 1803 | 1583 | 0 | 1725 | 1583 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 13 | | | | 88 | | | 99 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.80 | 0.80 | 0.80 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 139 | 151 | 31 | 99 | 120 | 56 | 11 | 149 | 88 | 39 | 213 | 99 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 321 | 0 | 0 | 275 | 0 | 0 | 160 | 88 | 0 | 252 | 99 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | | | Split | | | Perm | | pm+ov | Perm | | pm+ov |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | 8 | | 6 | 4 |
| Permitted Phases | | | | | | | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | 8 | 6 | 6 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 20.0 | 20.0 | 0.0 | 22.0 | 22.0 | 0.0 | 48.0 | 48.0 | 22.0 | 48.0 | 48.0 | 20.0 |
| Total Split (%) | 22.2% | 22.2% | 0.0% | 24.4% | 24.4% | 0.0% | 53.3% | 53.3% | 24.4% | 53.3% | 53.3% | 22.2% |
| Maximum Green (s) | 15.0 | 15.0 | | 17.0 | 17.0 | | 43.0 | 43.0 | 17.0 | 43.0 | 43.0 | 15.0 |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | None | None | None | None | None |
| Act Effct Green (s) | | 15.2 | | | 13.9 | | | 13.7 | 32.6 | | 13.7 | 33.9 |
| Actuated g/C Ratio | | 0.26 | | | 0.24 | | | 0.24 | 0.56 | | 0.24 | 0.59 |
| v/c Ratio | | 0.67 | | | 0.63 | | | 0.38 | 0.09 | | 0.62 | 0.10 |
| Control Delay | | 30.1 | | | 26.5 | | | 21.7 | 1.6 | | 27.4 | 1.8 |



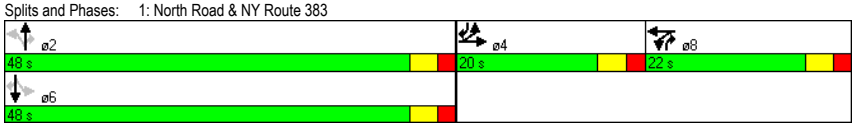
Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 1 - MD Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 30.1 | | | 26.5 | | | 21.7 | 1.6 | | 27.4 | 1.8 |
| LOS | | C | | | C | | | C | A | | C | A |
| Approach Delay | | 30.1 | | | 26.5 | | | 14.6 | | | 20.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 90 | | | |
| Actuated Cycle Length: 57.9 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.67 | | | |
| Intersection Signal Delay: 23.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 46.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 2 - MD Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 72 | 78 | 16 | 71 | 86 | 40 | 8 | 107 | 63 | 26 | 142 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 150 | | 0 | 150 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.974 | | | 0.952 | | | 0.952 | | | 0.962 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.998 | | | 0.994 | |
| Satd. Flow (prot) | 1770 | 1814 | 0 | 1770 | 1773 | 0 | 0 | 1770 | 0 | 0 | 1781 | 0 |
| Flt Permitted | 0.646 | | | 0.643 | | | | 0.976 | | | 0.940 | |
| Satd. Flow (perm) | 1203 | 1814 | 0 | 1198 | 1773 | 0 | 0 | 1731 | 0 | 0 | 1684 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 31 | | | 76 | | | 54 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.80 | 0.80 | 0.80 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 139 | 151 | 31 | 99 | 120 | 56 | 11 | 149 | 88 | 39 | 213 | 99 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 139 | 182 | 0 | 99 | 176 | 0 | 0 | 248 | 0 | 0 | 351 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 21.0 | 21.0 | 0.0 | 21.0 | 21.0 | 0.0 | 49.0 | 49.0 | 0.0 | 49.0 | 49.0 | 0.0 |
| Total Split (%) | 30.0% | 30.0% | 0.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 0.0% |
| Maximum Green (s) | 16.0 | 16.0 | | 16.0 | 16.0 | | 44.0 | 44.0 | | 44.0 | 44.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | 10.0 | 10.0 | | 9.8 | 9.8 | | | 12.2 | | | 12.2 | |



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 2 - MD Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuated g/C Ratio | 0.34 | 0.34 | | 0.34 | 0.34 | | | 0.42 | | | 0.42 | |
| v/c Ratio | 0.34 | 0.29 | | 0.24 | 0.28 | | | 0.32 | | | 0.47 | |
| Control Delay | 12.2 | 9.9 | | 11.0 | 9.2 | | | 6.6 | | | 9.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 12.2 | 9.9 | | 11.0 | 9.2 | | | 6.6 | | | 9.1 | |
| LOS | B | A | | B | A | | | A | | | A | |
| Approach Delay | | 10.9 | | | 9.8 | | | 6.6 | | | 9.1 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 29.1 | | | |
| Natural Cycle: 45 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.47 | | | |
| Intersection Signal Delay: 9.3 | | Intersection LOS: A | |
| Intersection Capacity Utilization 51.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383

Lanes, Volumes, Timings — 2032 No Build Conditions Alternative 1 - PM Peak Hour
1: North Road & NY Route 383 — 2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 70 | 12 | 135 | 161 | 94 | 7 | 115 | 67 | 76 | 281 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 0 | | 150 | 0 | | 150 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.989 | | | 0.967 | | | | 0.850 | | | 0.850 |
| Flt Protected | | 0.980 | | | 0.983 | | | 0.997 | | | 0.989 | |
| Satd. Flow (prot) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1857 | 1583 | 0 | 1842 | 1583 |
| Flt Permitted | | 0.980 | | | 0.983 | | | 0.968 | | | 0.889 | |
| Satd. Flow (perm) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1803 | 1583 | 0 | 1656 | 1583 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 14 | | | | 91 | | | 158 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.91 | 0.91 | 0.91 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 79 | 95 | 16 | 186 | 222 | 130 | 10 | 157 | 91 | 100 | 371 | 158 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 190 | 0 | 0 | 538 | 0 | 0 | 167 | 91 | 0 | 471 | 158 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Split | | | Split | | | Perm | | pm+ov | Perm | | pm+ov |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | 8 | | 6 | 4 |
| Permitted Phases | | | | | | | 2 | | 2 | 6 | | 6 |

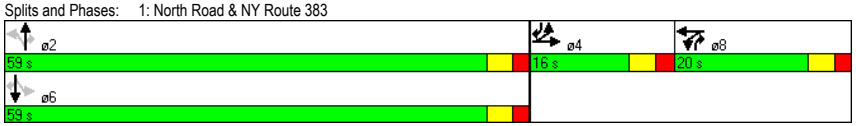


Lanes, Volumes, Timings — 2032 No Build Conditions Alternative 1 - PM Peak Hour
1: North Road & NY Route 383 — 2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | 8 | 6 | 6 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 16.0 | 16.0 | 0.0 | 20.0 | 20.0 | 0.0 | 59.0 | 59.0 | 20.0 | 59.0 | 59.0 | 16.0 |
| Total Split (%) | 16.8% | 16.8% | 0.0% | 21.1% | 21.1% | 0.0% | 62.1% | 62.1% | 21.1% | 62.1% | 62.1% | 16.8% |
| Maximum Green (s) | 11.0 | 11.0 | | 15.0 | 15.0 | | 54.0 | 54.0 | 15.0 | 54.0 | 54.0 | 11.0 |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | None | None | None | None | None |
| Act Effct Green (s) | | 10.9 | | | 15.2 | | | 23.6 | 43.8 | | 23.6 | 39.5 |
| Actuated g/C Ratio | | 0.17 | | | 0.23 | | | 0.36 | 0.68 | | 0.36 | 0.61 |
| v/c Ratio | | 0.62 | | | 1.26 | | | 0.25 | 0.08 | | 0.78 | 0.15 |
| Control Delay | | 37.3 | | | 163.0 | | | 14.8 | 1.0 | | 28.0 | 1.3 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 37.3 | | | 163.0 | | | 14.8 | 1.0 | | 28.0 | 1.3 |
| LOS | | D | | | F | | | B | A | | C | A |
| Approach Delay | | 37.3 | | | 163.0 | | | 10.0 | | | 21.3 | |
| Approach LOS | | D | | | F | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 95 | | | |
| Actuated Cycle Length: 64.8 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 1.26 | | | |
| Intersection Signal Delay: 68.6 | | Intersection LOS: E | |
| Intersection Capacity Utilization 74.5% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 2 - PM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 70 | 12 | 135 | 161 | 94 | 7 | 115 | 67 | 76 | 281 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 150 | | 0 | 150 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.978 | | | 0.945 | | | 0.952 | | | 0.966 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.998 | | | 0.992 | |
| Satd. Flow (prot) | 1770 | 1822 | 0 | 1770 | 1760 | 0 | 0 | 1770 | 0 | 0 | 1785 | 0 |
| Flt Permitted | 0.423 | | | 0.685 | | | | 0.975 | | | 0.904 | |
| Satd. Flow (perm) | 788 | 1822 | 0 | 1276 | 1760 | 0 | 0 | 1729 | 0 | 0 | 1627 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 39 | | | 75 | | | 46 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.91 | 0.91 | 0.91 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 79 | 95 | 16 | 186 | 222 | 130 | 10 | 157 | 91 | 100 | 371 | 158 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 79 | 111 | 0 | 186 | 352 | 0 | 0 | 258 | 0 | 0 | 629 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |



Lanes, Volumes, Timings
1: North Road & NY Route 383

2032 No Build Conditions Alternative 2 - PM Peak Hour
2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 21.0 | 21.0 | 0.0 | 21.0 | 21.0 | 0.0 | 49.0 | 49.0 | 0.0 | 49.0 | 49.0 | 0.0 |
| Total Split (%) | 30.0% | 30.0% | 0.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 0.0% |
| Maximum Green (s) | 16.0 | 16.0 | | 16.0 | 16.0 | | 44.0 | 44.0 | | 44.0 | 44.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | 13.9 | 13.9 | | 13.9 | 13.9 | | | 23.7 | | | 23.7 | |
| Actuated g/C Ratio | 0.29 | 0.29 | | 0.29 | 0.29 | | | 0.49 | | | 0.49 | |
| v/c Ratio | 0.35 | 0.21 | | 0.51 | 0.66 | | | 0.29 | | | 0.76 | |
| Control Delay | 22.0 | 15.8 | | 22.8 | 23.3 | | | 5.7 | | | 15.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 22.0 | 15.8 | | 22.8 | 23.3 | | | 5.7 | | | 15.9 | |
| LOS | C | B | | C | C | | | A | | | B | |
| Approach Delay | | 18.4 | | | 23.1 | | | 5.7 | | | 15.9 | |
| Approach LOS | | B | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 48.2 | | | |
| Natural Cycle: 55 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.76 | | | |
| Intersection Signal Delay: 17.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 81.8% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383

Lanes, Volumes, Timings 2032 No Build Conditions Signal Timing Alternative - PM Peak Hour
1: North Road & NY Route 383 2/11/2013

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 70 | 12 | 135 | 161 | 94 | 7 | 115 | 67 | 76 | 281 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 0 | | 150 | 0 | | 150 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.989 | | | 0.967 | | | 0.952 | | | 0.966 | |
| Flt Protected | | 0.980 | | | 0.983 | | | 0.998 | | | 0.992 | |
| Satd. Flow (prot) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1770 | 0 | 0 | 1785 | 0 |
| Flt Permitted | | 0.980 | | | 0.983 | | | 0.974 | | | 0.895 | |
| Satd. Flow (perm) | 0 | 1805 | 0 | 0 | 1771 | 0 | 0 | 1727 | 0 | 0 | 1610 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 16 | | | 36 | | | 22 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 1890 | | | 515 | | | 396 | | | 392 | |
| Travel Time (s) | | 43.0 | | | 11.7 | | | 9.0 | | | 8.9 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.91 | 0.91 | 0.91 |
| Growth Factor | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% | 120% |
| Adj. Flow (vph) | 79 | 95 | 16 | 186 | 222 | 130 | 10 | 157 | 91 | 100 | 371 | 158 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 190 | 0 | 0 | 538 | 0 | 0 | 258 | 0 | 0 | 629 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Split | | | Split | | | Perm | | | Perm | | |
| Protected Phases | 4 | 4 | | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |

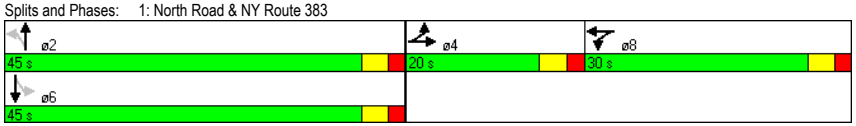


Lanes, Volumes, Timings 2032 No Build Conditions Signal Timing Alternative - PM Peak Hour
1: North Road & NY Route 383 2/11/2013

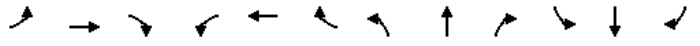
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Total Split (s) | 20.0 | 20.0 | 0.0 | 30.0 | 30.0 | 0.0 | 45.0 | 45.0 | 0.0 | 45.0 | 45.0 | 0.0 |
| Total Split (%) | 21.1% | 21.1% | 0.0% | 31.6% | 31.6% | 0.0% | 47.4% | 47.4% | 0.0% | 47.4% | 47.4% | 0.0% |
| Maximum Green (s) | 15.0 | 15.0 | | 25.0 | 25.0 | | 40.0 | 40.0 | | 40.0 | 40.0 | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | None | | None | None | |
| Act Effct Green (s) | | 13.2 | | | 25.2 | | | 37.0 | | | 37.0 | |
| Actuated g/C Ratio | | 0.15 | | | 0.28 | | | 0.41 | | | 0.41 | |
| v/c Ratio | | 0.71 | | | 1.07 | | | 0.35 | | | 0.94 | |
| Control Delay | | 52.5 | | | 92.4 | | | 17.4 | | | 48.4 | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | | 52.5 | | | 92.4 | | | 17.4 | | | 48.4 | |
| LOS | | D | | | F | | | B | | | D | |
| Approach Delay | | 52.5 | | | 92.4 | | | 17.4 | | | 48.4 | |
| Approach LOS | | D | | | F | | | B | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 95 | | | |
| Actuated Cycle Length: 90.4 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 1.07 | | | |
| Intersection Signal Delay: 58.6 | | Intersection LOS: E | |
| Intersection Capacity Utilization 88.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: North Road & NY Route 383



HCM Unsignalized Intersection Capacity Analysis 2032 No Build Conditions AWS - AM Peak Hour
6: North Road & NY Route 386 2/11/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 22 | 102 | 26 | 26 | 54 | 46 | 13 | 59 | 41 | 61 | 71 | 9 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 31 | 144 | 37 | 42 | 86 | 74 | 20 | 90 | 62 | 83 | 97 | 12 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 212 | 202 | 172 | 192 |
| Volume Left (vph) | 31 | 42 | 20 | 83 |
| Volume Right (vph) | 37 | 74 | 62 | 12 |
| Hadj (s) | -0.06 | -0.16 | -0.16 | 0.08 |
| Departure Headway (s) | 5.1 | 5.1 | 5.1 | 5.3 |
| Degree Utilization, x | 0.30 | 0.28 | 0.25 | 0.29 |
| Capacity (veh/h) | 646 | 655 | 630 | 619 |
| Control Delay (s) | 10.3 | 10.0 | 9.8 | 10.5 |
| Approach Delay (s) | 10.3 | 10.0 | 9.8 | 10.5 |
| Approach LOS | B | B | A | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.2 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

HCM Unsignalized Intersection Capacity Analysis 2032 No Build Conditions AWS - MD Peak Hour
6: North Road & NY Route 386 2/11/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 50 | 8 | 23 | 119 | 61 | 14 | 61 | 22 | 57 | 29 | 11 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.70 | 0.70 | 0.70 | 0.84 | 0.84 | 0.84 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 14 | 71 | 11 | 39 | 204 | 105 | 20 | 87 | 31 | 90 | 46 | 17 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 96 | 348 | 139 | 153 |
| Volume Left (vph) | 14 | 39 | 20 | 90 |
| Volume Right (vph) | 11 | 105 | 31 | 17 |
| Hadj (s) | -0.01 | -0.12 | -0.07 | 0.08 |
| Departure Headway (s) | 5.1 | 4.7 | 5.2 | 5.3 |
| Degree Utilization, x | 0.14 | 0.45 | 0.20 | 0.23 |
| Capacity (veh/h) | 633 | 727 | 632 | 618 |
| Control Delay (s) | 9.0 | 11.5 | 9.4 | 9.8 |
| Approach Delay (s) | 9.0 | 11.5 | 9.4 | 9.8 |
| Approach LOS | A | B | A | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.5 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

HCM Unsignalized Intersection Capacity Analysis 2032 No Build Conditions AWS - PM Peak Hour
6: North Road & NY Route 386 2/11/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 9 | 54 | 18 | 14 | 128 | 78 | 23 | 78 | 11 | 61 | 70 | 32 |
| Peak Hour Factor | 0.65 | 0.65 | 0.65 | 0.86 | 0.86 | 0.86 | 0.68 | 0.68 | 0.68 | 0.78 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 17 | 100 | 33 | 20 | 179 | 109 | 41 | 138 | 19 | 94 | 108 | 49 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 150 | 307 | 198 | 251 |
| Volume Left (vph) | 17 | 20 | 41 | 94 |
| Volume Right (vph) | 33 | 109 | 19 | 49 |
| Hadj (s) | -0.08 | -0.17 | 0.02 | -0.01 |
| Departure Headway (s) | 5.6 | 5.3 | 5.6 | 5.5 |
| Degree Utilization, x | 0.23 | 0.45 | 0.31 | 0.38 |
| Capacity (veh/h) | 567 | 635 | 576 | 601 |
| Control Delay (s) | 10.3 | 12.5 | 11.1 | 11.9 |
| Approach Delay (s) | 10.3 | 12.5 | 11.1 | 11.9 |
| Approach LOS | B | B | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 11.7 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 41.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

## North Road Planning Level Cost Estimates

### Detailed Summary

Tuesday, March 19, 2013

**Immdediate to Near-term**

| **Share the Road Signs** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | W11-1 | EA | 4 | $ 450.00 | $ 1,800 |
| | W16-1 | EA | 4 | $ 225.00 | $ 900 |
| | | | *Estimated Total Cost (roundup)* | | *$ 2,700* |

| **Rectangular Rapid Flashing Beacon** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | Set of two signs | EA | 1 | $ 15,000.00 | $ 15,000 |

| **Speed Trailer** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | | EA | 2 | $ 10,000.00 | $ 20,000 |
| | -OR- | | | | |
| **Speed Feedback Sign** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
| | | EA | 2 | $ 4,000.00 | $ 8,000 |

| **High Visibility Crosswalks** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | Intersections of Browns, Briarwood, Routes 383 and 386 | LF | 5700 | $ 2.25 | $ 12,900 |

| **Pedestrian Crossing Signage** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | W11-2 | EA | 4 | $ 450.00 | $ 1,800 |
| | W16-1 | EA | 4 | $ 225.00 | $ 900 |
| | | | *Estimated Total Cost (roundup)* | | *$ 2,700* |

| **Pedestrian Improvements at Rail Crossing** | | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|---|
| | ADA Detectable Warning Pad | EA | 4 | $ 300.00 | $ 1,200 |
| | Sidewalk | SY | 20 | $ 55.00 | $ 2,000 |
| | | | *Estimated Total Cost (roundup)* | | *$ 3,200* |

| | | | |
|---|---|---|---|
| *Immdediate to Near-term Sub-total* | *Estimated Total Cost (roundup)* | | *$ 65,000* |

**Medium-term**

| **Browns Ave/Rd Mini-roundabout** | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|
| Total Cost (includes preparation, installation, pavement markings, and signage) | - | - | - | $ 50,000 |
| Approach splitter Islands (TrafficPatterns) | SF | 555 | $ 14.00 | $ 7,800 |
| Shoulder striping - 4" white | LF | 375 | $ 0.25 | $ 100 |
| Pavement marking arrows - combined thru/left | EA | 4 | $ 175.00 | $ 700 |
| Painted pavement marking yield line - 24"x36" | EA | 20 | $ 21.00 | $ 500 |
| *Subtotal* | | | | *$ 59,100* |
| Contingencies | 40% of Subtotal | | | $ 23,700 |
| ***Total Cost*** | | | | **$ 83,000** |

| **Briarwood Lane Mini-roundabout** | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|
| Total Cost (includes preparation, installation, pavement markings, and signage) | - | - | - | $ 50,000 |
| Approach splitter Islands (TrafficPatterns) | SF | 550 | $ 14.00 | $ 7,700 |
| Shoulder striping - 4" white | LF | 130 | $ 0.25 | $ 100 |
| Traversable shoulder (TrafficPatterns) | SF | 325 | $ 14.00 | $ 4,600 |
| Pavement marking arrows - combined thru/left | EA | 4 | $ 175.00 | $ 700 |
| Painted pavement marking yield line - 24"x36" | EA | 20 | $ 21.00 | $ 500 |
| *Subtotal* | | | | *$ 63,600* |
| Contingencies | 40% of Subtotal | | | $ 25,500 |
| ***Total Cost*** | | | | **$ 90,000** |

| **Resurface North Road** | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|
| Mill | SY | 18245 | $ 3.00 | $ 55,000 |
| Paving | SY | 18245 | $ 9.00 | $ 165,000 |
| Pavement marking - 4" yellow striping | LF | 11810 | $ 0.25 | $ 3,000 |
| Pavement marking - 4" white striping | LF | 11400 | $ 0.25 | $ 2,900 |
| Shared lane marking - "Sharrows" | EA | 27 | $ 350.00 | $ 9,500 |
| Stop bars | LF | 120 | $ 2.25 | $ 300 |
| *Subtotal 1* | | | | *$ 235,700* |
| MPT and Mobilization | 15% of Subtotal 1 | | | $ 35,400 |
| *Subtotal 2* | | | | *$ 271,100* |
| Contingencies | 40% of Subtotal 2 | | | $ 108,500 |
| *Subtotal of Construction* | | | | *$ 379,600* |
| Engineering | 35% of Subtotal of Construction | | | $ 132,900 |
| Construction Inspection | 12% of Subtotal of Construction | | | $ 45,600 |
| ***Total Cost*** | | | | **$ 559,000** |

| **North Side Sidewalk** | *Unit* | *Estimated Quantity* | *Unit Price* | *Cost* |
|---|---|---|---|---|
| Removal | CY | 350 | $ 20.00 | $ 7,000 |
| Sidewalk | SY | 2250 | $ 55.00 | $ 124,000 |
| ADA compliant curb ramps | EA | 8 | $ 800.00 | $ 6,400 |
| *Subtotal 1* | | | | *$ 137,400* |
| MPT and Mobilization | 15% of Subtotal 1 | | | $ 20,700 |
| *Subtotal 2* | | | | *$ 158,100* |
| Contingencies | 40% of Subtotal 2 | | | $ 63,300 |
| *Subtotal of Construction* | | | | *$ 221,400* |
| Engineering | 35% of Subtotal of Construction | | | $ 77,500 |
| Construction Inspection | 12% of Subtotal of Construction | | | $ 26,600 |
| ***Total Cost*** | | | | **$ 326,000** |

**Long-term**

| **North Road/Rochester Street Realignment** | *Unit* | *Estimated Quantity* | *Unit Cost* | *Estimate* |
|---|---|---|---|---|
| *Removal of existing features* | | | | |
| Roadway, Sidewalk, Asphalt area, Gutter, Green space, Landscaping | CY | 1848 | $ 25.00 | $ 47,000 |
| *Installation of new features* | *Unit* | *Estimated Quantity* | *Unit Cost* | *Estimate* |
| Roadway - assume 2' depth | CY | 1430 | $ 100.00 | $ 143,000 |
| Curb | LF | 350 | $ 25.00 | $ 8,800 |
| Drainage | LF | 200 | $ 14.00 | $ 2,800 |
| Sidewalks | SY | 225 | $ 55.00 | $ 12,400 |
| Tree lawn | | | | $ - |
| ADA compliant curb ramps | EA | 4 | $ 800.00 | $ 3,200 |
| Pavement marking - double yellow centerline | LF | 370 | $ 0.50 | $ 200 |
| Pavement marking - 4" white striping | LF | 300 | $ 0.25 | $ 100 |
| Pavement marking - 4" white skip striping | LF | 50 | $ 0.16 | $ 10 |
| Stop bars | LF | 180 | $ 2.25 | $ 500 |
| Crosswalks- 24" stripe | LF | 1140 | $ 2.25 | $ 2,600 |
| *Subtotal 1* | | | | $ *173,610* |
| MPT and Mobilization | 15% of Subtotal 1 | | | $ 26,100 |
| *Subtotal 2* | | | | $ *199,710* |
| Contingencies | 40% of Subtotal 2 | | | $ 79,900 |
| *Subtotal of Construction* | | | | $ *279,610* |
| Engineering | 35% of Subtotal of Construction | | | $ 97,900 |
| Construction Inspection | 12% of Subtotal of Construction | | | $ 33,600 |
| ***Total Cost*** | | | | **$ 420,000** |

| **Complete Street Alternative** | *Unit* | *Estimated Quantity* | *Unit Cost* | *Estimate* |
|---|---|---|---|---|
| *Removal of existing features* | | | | |
| Roadway<br>Sidewalks<br>Asphalt area<br>Gutter<br>Green space | CY | 24200 | $ 25.00 | $ 605,000 |
| *Installation of new features* | *Unit* | *Estimated Quantity* | *Unit Cost* | *Estimate* |
| Roadway - assume 2' depth | CY | 14500 | $ 100.00 | $ 1,450,000 |
| Curb | LF | 12000 | $ 25.00 | $ 300,000 |
| Drainage | LF | 13000 | $ 14.00 | $ 182,000 |
| Sidewalk (both sides) | SY | 4500 | $ 55.00 | $ 247,500 |
| Tree lawn | | | | $ - |
| ADA compliant curb ramps | EA | 15 | $ 800.00 | $ 12,000 |
| Pavement marking - double yellow centerline | LF | 5905 | $ 0.50 | $ 3,000 |
| Pavement marking - 4" white striping | LF | 11400 | $ 0.25 | $ 2,900 |
| Pavement marking - 4" white skip striping | LF | 400 | $ 0.16 | $ 100 |
| Pavement marking - bike symbol | EA | | $ 225.00 | $ - |
| Stop bars | LF | 180 | $ 2.25 | $ 500 |
| Crosswalks- 24" stripe | LF | 3800 | $ 2.25 | $ 8,600 |
| *Subtotal 1* | | | | $ *2,811,600* |
| MPT and Mobilization | 15% of Subtotal 1 | | | $ 421,800 |
| *Subtotal 2* | | | | $ *3,233,400* |
| Contingencies | 40% of Subtotal 2 | | | $ 1,293,400 |
| *Subtotal of Construction* | | | | $ *4,526,800* |
| Engineering | 35% of Subtotal of Construction | | | $ 1,584,400 |
| Construction Inspection | 12% of Subtotal of Construction | | | $ 543,300 |
| ***Total Cost*** | | | | **$ 6,660,000** |