

CONCESSION ROAD 3

North Village Secondary Plan Area

HIGHWAY 35 / 115

Context
Area

REGIONAL ROAD 7

Approved
Area

ARTHUR STREET

CANADIAN PACIFIC RAILWAY

Newcastle North Village Secondary Plan

Transportation Report

May 1, 2020





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1. Introduction and Purpose

The Municipality of Clarington has initiated a Secondary Plan for the North Village development. The North Village Secondary Plan (NVSP) Area borders Concession Road 3 to the north, Highway 35/115 to the west, Arthur Street to the east and a planned low-density residential neighbourhood to the south. The Secondary Plan touches on several key priorities: sustainability and climate change, urban design, affordable housing, and community engagement. This report outlines the current state of transportation planning for the project and Study Area. Initially, a background review was completed identifying key planning and policy documents and summarizing the findings for both the lower (Clarington) and upper tier (Durham) municipalities. A review of existing and future links is identified in accordance with relevant policy documents, as well as particular consideration of active transportation opportunities. The second part of the report identifies potential considerations and opportunities to ensure the development of a future robust and well-rounded transportation network to serve the community, as well as potential constraints within the Broader Study Area that should be considered in developing the overall transportation network plan. **Figure 1** presents the Study Area which includes the NVSP Area, Context Area, and Approved Area.



Figure 1: North Village Secondary Plan Study Area



2. Integrated Environmental Assessment Process

The Secondary Plan study also includes an Integrated Environmental Assessment (EA) process in order to document the need and justification for transportation network elements within the Secondary Plan area. The integrated EA approach is a cost-effective method of meeting the requirements of both the Planning Act and Class EA processes and meets the "integrated approach" as set out in Section A.2.9 and Appendix 8 of the Municipal Class Environmental Assessment (MCEA) document prepared by the Municipal Engineers Association (October 2000, as amended in 2007, 2011 and 2015) which addresses combined Planning Act and Environmental Assessment Act requirements.

For this Secondary Plan, the outcomes of the planning process can be applied towards the EA process to reduce duplication of the efforts. The key to this integration is to identify when and how the EA process is addressed to ensure both the Planning and EA criteria are met, and preparation of a supplementary document of this approach in a Monitoring Report. The steps of the integration include:

- **Data Collection and Background Document Review:** Previous and ongoing land use planning and technical environmental documents will be collected and reviewed as evidence of inventory and assessment efforts. These documents and their review will be referenced in the Monitoring Report.
- **Identification of Opportunities and Constraints (Phase 1 EA):** Based on review of the background documents along with public comments received from the Project Kick-off Public Information Centre (PIC), problems and opportunities associated with the development of North Village lands will be used to create the Problem and Opportunity Statement.
- **Identification of Alternative Solutions to Problem or Opportunity (Phase 2 EA):** Alternative methods to address the project need (as identified in Phase 1 EA) will be documented, such as do nothing, limit development, improve transit, build new roads, etc. This will also consider the NVSP's goals to promote a sustainable natural environment through the protection of the identified natural heritage system within an urban setting. In addition, it is the intent of this plan to promote the community planning and design features along with practical road layouts for the Secondary Plan.
- **Notifications:** All project notices and communications will demonstrate clear indication of the integrated approach procedure in regard to the NVSP. Content is incorporated into the combined Planning Notices.
- **Consultation Events & Meetings:** Consultation is a key component for both the Planning and EA process.
- **Consultation Documentation:** Work will be synchronized with the Municipality of Clarington to provide documentation supporting the Planning process in accordance with A.2.9.4 of the MCEA.
- **Monitoring Report:** Work will be coordinated with the Municipality of Clarington to incorporate the commitments made (including Monitoring) into the appropriate planning documents which will serve as the basis of approvals for the associated infrastructure.



3. Existing Conditions

3.1. Existing Roads

Newcastle is a community in the Municipality of Clarington, Ontario located along Highway 401 and east of Highway 35/115. The Study Area is under the municipal jurisdiction of Clarington and the regional jurisdiction of Durham. Some of the pertinent road network elements within the Study Area are displayed in **Figure 2**. This includes the following major roadways:

- **Highway 35/115** is a north-south provincial highway under the jurisdiction of the Ministry of Transportation Ontario (MTO). Highway 35/115 is a four-lane controlled access highway extending from Highway 401 to the Highway 35/115 split, with Highway 115 continuing as a controlled access freeway north of the split to its terminal at Highway 7 / Television Road. The highway operates with a posted speed of 90km/h.
- **Concession Road 3** is an east-west municipal road under the jurisdiction of the Municipality of Clarington within the defined Study Area. Concession Road 3 is a Type B and C Arterial Road, east and west of Regional Road 17, respectively. Concession Road 3 continues as a local road west of Highway 35/115 to Darlington Clarke Townline, and east of Arthur Street to Morgans Road. The posted speed is 70km/h and 60km/h, east and west of Highway 35/115, respectively. No active transportation is currently present.
- **North Street / Manvers Road / Mill Street (Regional Road 17)** is a north-south regional road under the jurisdiction of Durham Region, and is classified as a Type B Arterial Road within the defined Study Area. Regional Road 17 extends from Highway 401 to Concession Road 3 with a posted speed of 60 km/h and 50km/h north and south of Grady Drive, respectively. Sidewalk provisions are present south of Grady Drive.
- **King Avenue (Durham Regional Highway 2)** is an east-west regional road under the jurisdiction of Durham Region, and is classified as a Type A Arterial Road within the defined Study Area. Durham Regional Highway 2 is a major connection between Bowmanville to the west and Newtonville to the east, also acting as a transit spine. King Avenue has a posted speed of 50 km/h within Newcastle with sidewalks on both sides present between Rudell Road and Arthur Street.
- **Arthur Street** is a north-south municipal road under the jurisdiction of the Municipality of Clarington. Arthur Street is classified as a Type C Arterial Road with a posted speed of 70 km/h and 50 km/h, generally north and south of the CP Rail crossing, respectively. Sidewalk provisions and cycling lanes are present south of Andrew Street.
- **Grady Drive / Monroe Street West** is an east-west collector road under the jurisdiction of the Municipality of Clarington with a posted speed limit of 50km/h.

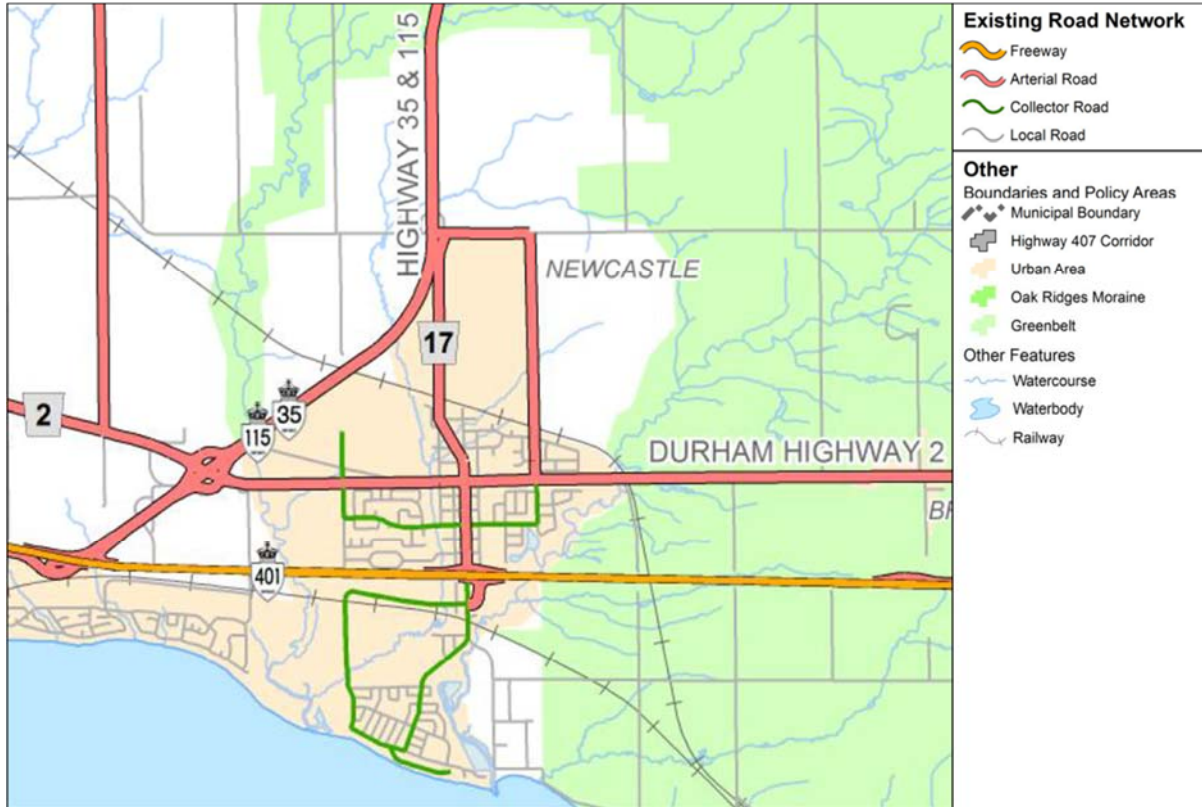


Figure 2: Existing Road Network



3.2. Existing Transit

Currently, within the vicinity of the NVSP Area there are three Durham Region Transit (DRT) bus routes and one GO Transit bus route. These existing routes are displayed in **Figure 3**.

- **DRT Route 506** – Weekday service connecting the Bowmanville Park and Ride and Orono via Newcastle, with two westbound trips and two eastbound trips daily. DRT 2020 Budget and Service Plan will see Route 506 replaced with On-Demand 7-day service as of September 2020.
- **GO Bus Route 90** – 7-day operation with frequent peak period weekday service and hourly off-peak and weekend service. Route connects Union Station and Newcastle primarily via Highway 401 and Highway 2.
- An additional DRT route will be introduced on Highway 2 between Oshawa GO Station, Oshawa Centre Terminal, and Bowmanville. The service will operate with 30 to 60-minute headways.

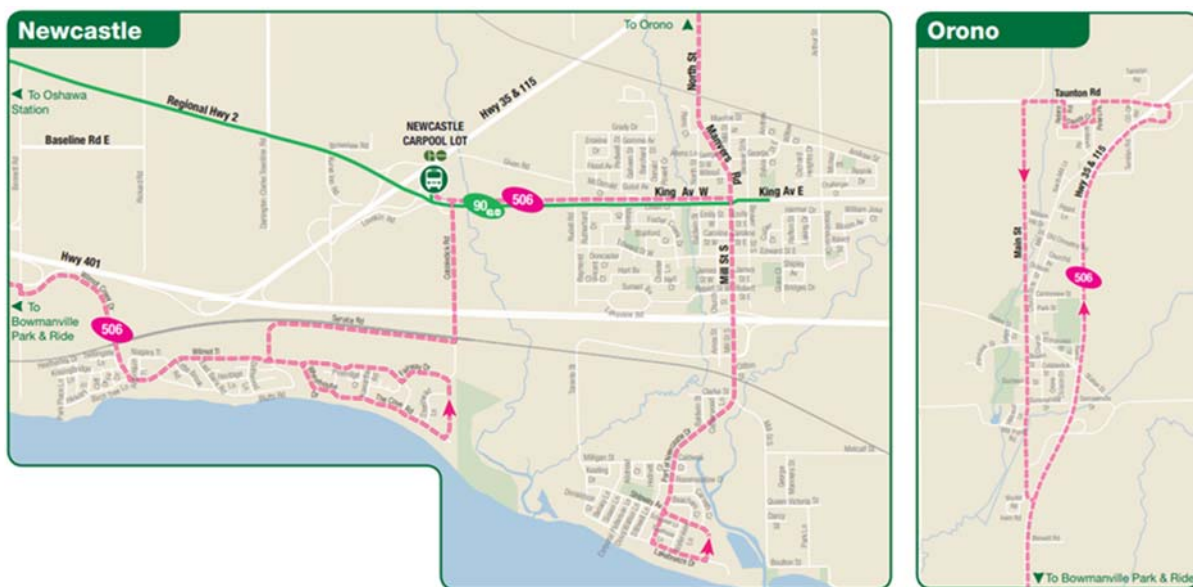


Figure 3: Existing Transit Routes

Figure 4 outlines the location of the nearest transit locations to the North Village Secondary Plan area. The closest transit stop is located at Grady Drive and Regional Road 17 approximately 1 kilometer south of the subject site.



Figure 4: Existing Transit Stop Locations



3.3. Existing Active Transportation

Figure 5 illustrates the existing circulation network, including active transportation facilities and trail network, within the Newcastle Urban Area the NVSP Study Area identified in red. Marked edge line signed cycling routes are shown on Edward Street and sections of Brookhouse Drive and Arthur Street.

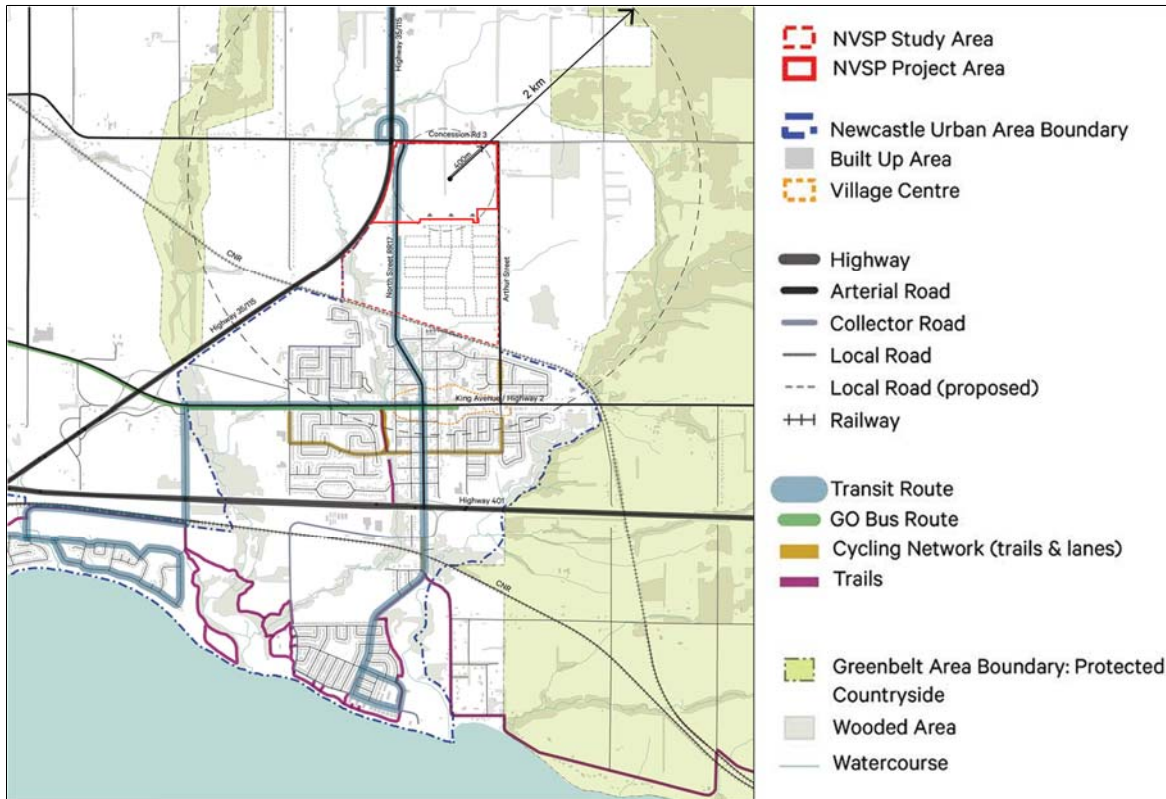


Figure 5: Existing Active Transportation Facilities

3.4. Existing Schools

The North Village Secondary Plan Area is located in Ward 4 of the Municipality of Clarington currently with no existing elementary, middle, or high schools within the NVSP Area. The NVSP is within two major school boards districts, which include the Kawartha Pine Ridge District School Board (KPRDSB) and the Peterborough, Victoria, Northumberland and Clarington Catholic District School Board (PVNCCDSB). Presently, the following schools encompass and serve the Study Area.

Table 1: Existing Relevant Neighborhood Schools

School District	School Name	Grades	Population	Address
KPRDSB	Newcastle Public School	JK to 6	605	50 Glass Court
KPRDSB	The Pines Senior Public School	7 & 8	196	3421 Highway 35/115
KPRDSB	Clarke High School	9 to 12	284	3425 Highway 35/115
PVNCCDSB	St. Francis of Assisi Catholic Elementary School	JK to 8	N/A	1774 Rudell Road
PVNCCDSB	St. Stephen Secondary School	9 to 12	N/A	300 Scugog Street, Bowmanville



3.5. Notable Other Future Developments

Newcastle is experiencing growth in population through other area residential developments. The following developments are proposed or underway within the Newcastle area, and are displayed below within **Figure 6** to **Figure 8**.

- Foster North Development is currently partially built and will consist of approximately 500 low density residential units and multiple parks/open spaces. The development has also forecasted a collector road connection to Grady Drive.
- Foster Northwest Development will consist of approximately 700 residential units of mixed density, a secondary or elementary school and multiple parks/open spaces.
- A residential neighborhood is approved directly south of the NVSP Project Area and will consist of approximately 800 mixed density residential units including single family detached homes and townhouses. The development will also consist of multiple parks and an elementary school.
- A development is proposed at 355 North Street, just south of the CP Rail crossing. The proposed development consists of 29 townhouse units accessed by a private lane that will be part of a common elements plan of a condominium to be applied for at a later date.

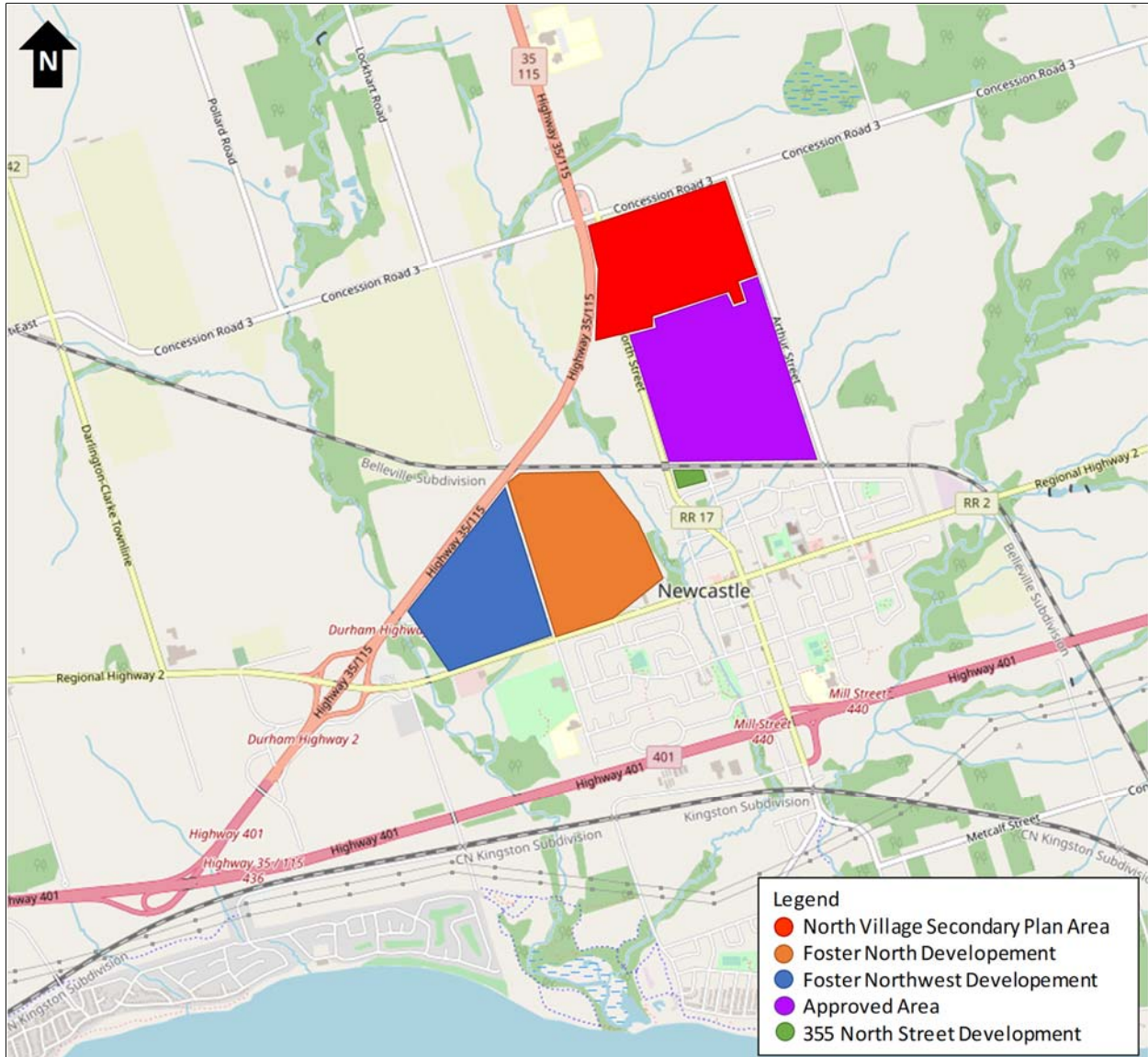


Figure 6: Future Developments



Figure 7: Foster North & Foster Northwest Developments



Figure 8: Approved Development South of the North Village Secondary Plan Area



3.6. Existing At-Grade and Grade-Separated Crossings

Directly south of the Study Area, the CP Rail line spans east-west with multiple at-grade and grade-separated roadway crossings. In addition, a grade separation exists at the Highway 35/115 & Concession Road 3 interchange. **Figure 9** below summarizes these locations. **Figure 10** to **Figure 12** contain displaying photos of each and depict if they are at-grade or grade-separated.



Figure 9: At-Grade and Grade-Separated Crossings within Study Area



Figure 10: North Street & CP Rail Grade-Separated Crossing



Figure 11: Arthur Street & CP Rail At-Grade Crossing



Figure 12: Concession Road 4 & Highway 34/115 Grade-Separated Crossing



3.7. Existing Traffic Operations

Existing Traffic Data

Traffic data for the Study Area intersections was collected by Accu-Traffic Inc. on behalf of AECOM Canada Ltd. The data was collected on January 9th, 2020 for five area intersections during AM (7:00AM – 10:00AM) and PM (4:00PM – 7:00PM) peak periods. The respective AM and PM Peak Hours are summarized in **Table 2**. Turning movement count data can be found in **Appendix A**.

Table 2: Turning Movement Survey Dates and Peak Hours

Intersection	AM Survey Date	AM Peak Hour	PM Survey Date	PM Peak Hour
Concession Road 3 & Highway 35/115 West Interchange	January 9 th , 2020 at 6:00 AM – 9:00 AM	7:15 AM – 8:15 AM	January 9 th , 2020 at 4:00 PM – 7:00 PM	4:15 PM – 5:15 PM
Concession Road 3 & Highway 35/115 East Interchange	January 9 th , 2020 at 6:00 AM – 9:00 AM	7:15 AM – 8:15 AM	January 9 th , 2020 at 4:00 PM – 7:00 PM	4:15 PM – 5:15 PM
Concession Road 3 & Arthur Street	January 9 th , 2020 at 6:00 AM – 9:00 AM	7:45 AM – 8:45 AM	January 9 th , 2020 at 4:00 PM – 7:00 PM	4:15 PM – 5:15 PM
North Street / Manvers Road & Grady Drive / Monroe Street W	January 9 th , 2020 at 6:00 AM – 9:00 AM	7:30 AM – 8:30 AM	January 9 th , 2020 at 4:00 PM – 7:00 PM	4:15 PM – 5:15 PM
Arthur Street & Andrew Street	January 9 th , 2020 at 6:00 AM – 9:00 AM	7:45 AM – 8:45 AM	January 9 th , 2020 at 4:00 PM – 7:00 PM	4:15 PM – 5:15 PM

Traffic Operations Analysis Methodology

Traffic operations were analyzed using Synchro version 9 software. The Highway Capacity Manual (HCM 2000) methodology for signalized intersections was utilized. The Synchro parameters such as peak hour factor, heavy vehicle percentage, and pedestrian volumes for each intersection approach were input based on the available TMC data, with Synchro defaults utilized in instances where the data was unavailable. The intersection level of service (LOS) describes the driver experience during the use of a transportation facility. The LOS criteria for signalized and unsignalized intersections are summarized in **Table 3**.



Table 3: Description of Level of Service

LOS	Description	Signalized Average Delay	Stop Controlled Average Delay
A	Very seldom does a vehicle wait longer than one red light. The approach appears open, turns are easily made, and drivers have freedom of operation.	≤ 10 sec	0 ≤ 10 sec
B	An occasional green light is fully used and many greens approach full use. Many drivers begin to feel somewhat restricted within groups of vehicles approaching the intersection.	≤ 20 sec	10 ≤ 15 sec
C	Intersection operation is stable but often has fully used greens. Drivers feel more restricted and occasionally may wait for more than one red light. Queues may develop behind turning vehicles.	≤ 35 sec	15 ≤ 25 sec
D	Drivers experience increasing restrictions and instability of traffic flow. There are substantial delays to vehicles during short peaks within the peak hour, but there is enough time with loser demand to permit occasional clearing of queues and prevent excessive backups.	≤ 55 sec	25 ≤ 35 sec
E	The capacity of the road is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.	≤ 80 sec	35 ≤ 50 sec
F	Vehicle demand exceeds the available capacity and delays extending through the peak hour are experienced.	>80 sec	>50 sec

The volume-to-capacity (v/c) ratio represents how saturated a road or intersection movement and is based on the actual volume using a movement divided by the maximum volume which could be accommodated by that movement. A v/c ratio between 0.00 and 0.49 means that less than half of the capacity is being used by vehicles; generally, this indicates good operating conditions. As the v/c ratio approaches 1.00, traffic conditions worsen until capacity is reached, at which operations are deemed 'very poor'. Vehicles using an intersection operating near or at capacity will typically see high average delays and/or excessive queueing.

A v/c ratio can theoretically exceed 1.00, indicating oversaturated conditions and extended traffic delays. The critical movements for signalized intersections identified in the capacity analysis summary tables are those having a LOS of "E" or "F" and/or a v/c ratio of 0.85 or greater. Since the analysis is based on actual volumes, a v/c ratio typically should not exceed 1.00. Higher than 1.00 v/c ratios indicate that the counted traffic volumes exceeded the capacity calculated by the analysis procedure/ software. Individual movements at intersections with calculated v/c ratios greater than 1.00 are operating essentially at capacity and can be expected to experience significant recurring queues and congestion during peak period.

Existing Traffic Conditions

The existing traffic conditions were analyzed based on the existing lane configurations and traffic control presented in **Figure 13** and on the basis of the traffic volumes presented below in **Figure 14** and **Figure 15** for AM and PM peak hours, respectively. The traffic figures illustrate the observed turning movement volumes as well as the total sum volume on each intersection leg. It should be noted that the presented traffic volumes represent raw data, as volume balancing was not performed prior to undertaking the existing conditions assessment due to the broad geospatial spacing of the intersections (and intermediate entrances and/or intersections). Link volumes at adjacent intersections are shown to balance well, with the exception of the south leg of Concession Road 3 & Regional Road 17 and the north leg of North Street / Regional Road 17 & Grady Drive / Monroe Street West. The volume imbalance is



likely attributed to pass-by volumes between Highway 35/115 and the McDonald's Restaurant on the southwest corner of the intersection at Concession Road 3. Although operations at Concession Road 3 & Regional Road 17 reflect the volumes to and from this high traffic oriented fast-food establishment, it was noted that the observed intersection operations are good.

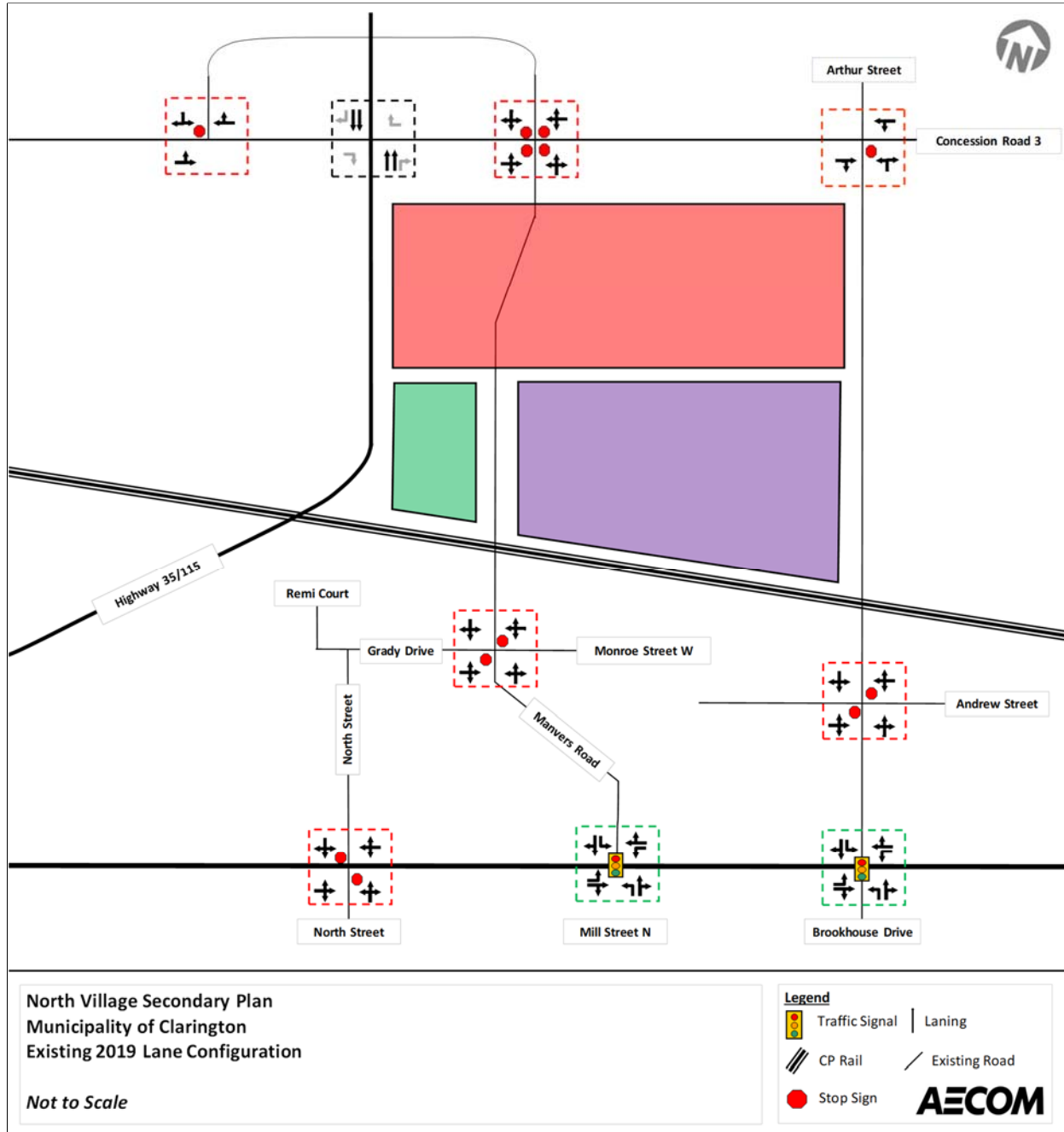


Figure 13: Existing Lane Configurations and Traffic Control



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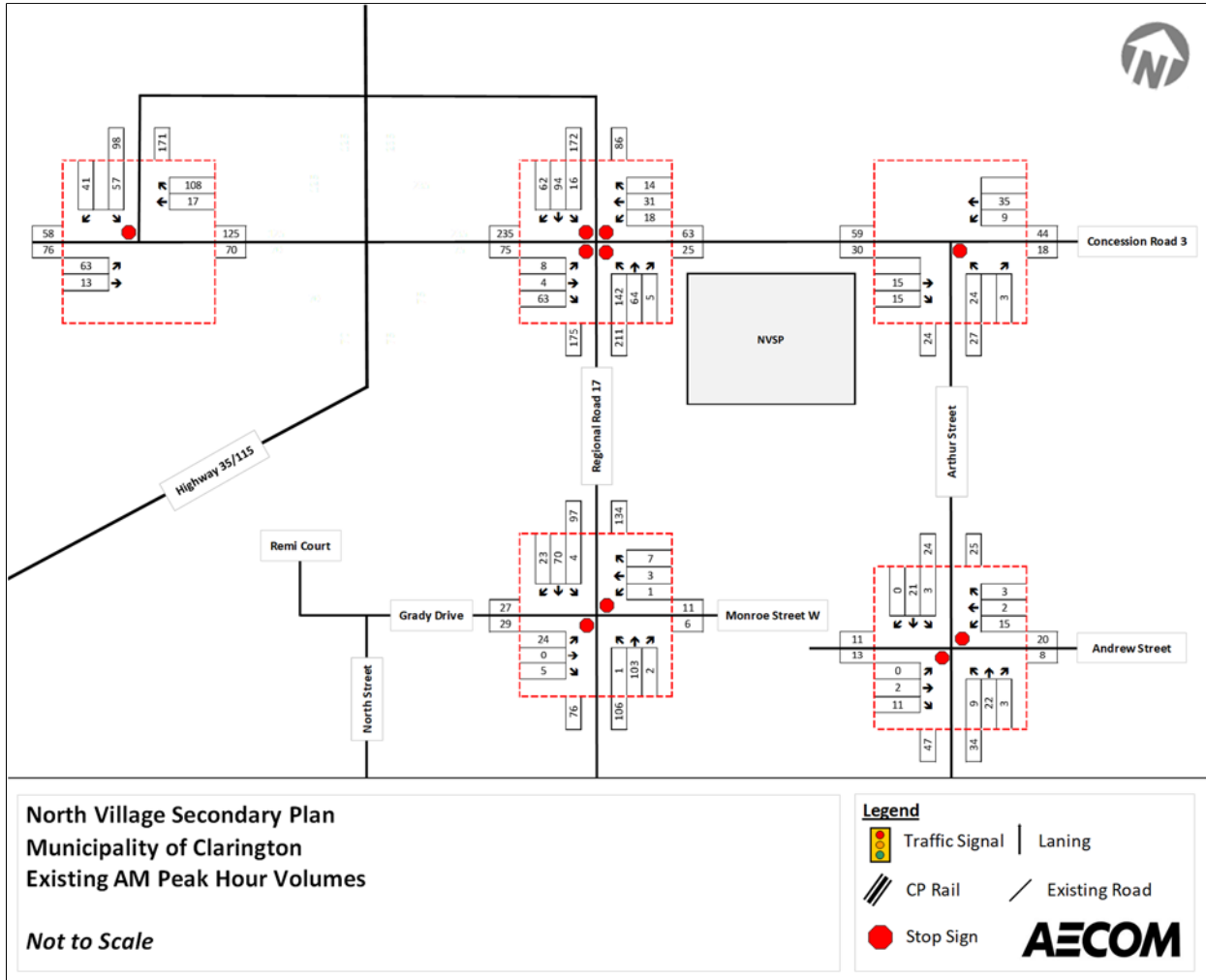


Figure 14: Existing AM Peak Hour Traffic Volumes

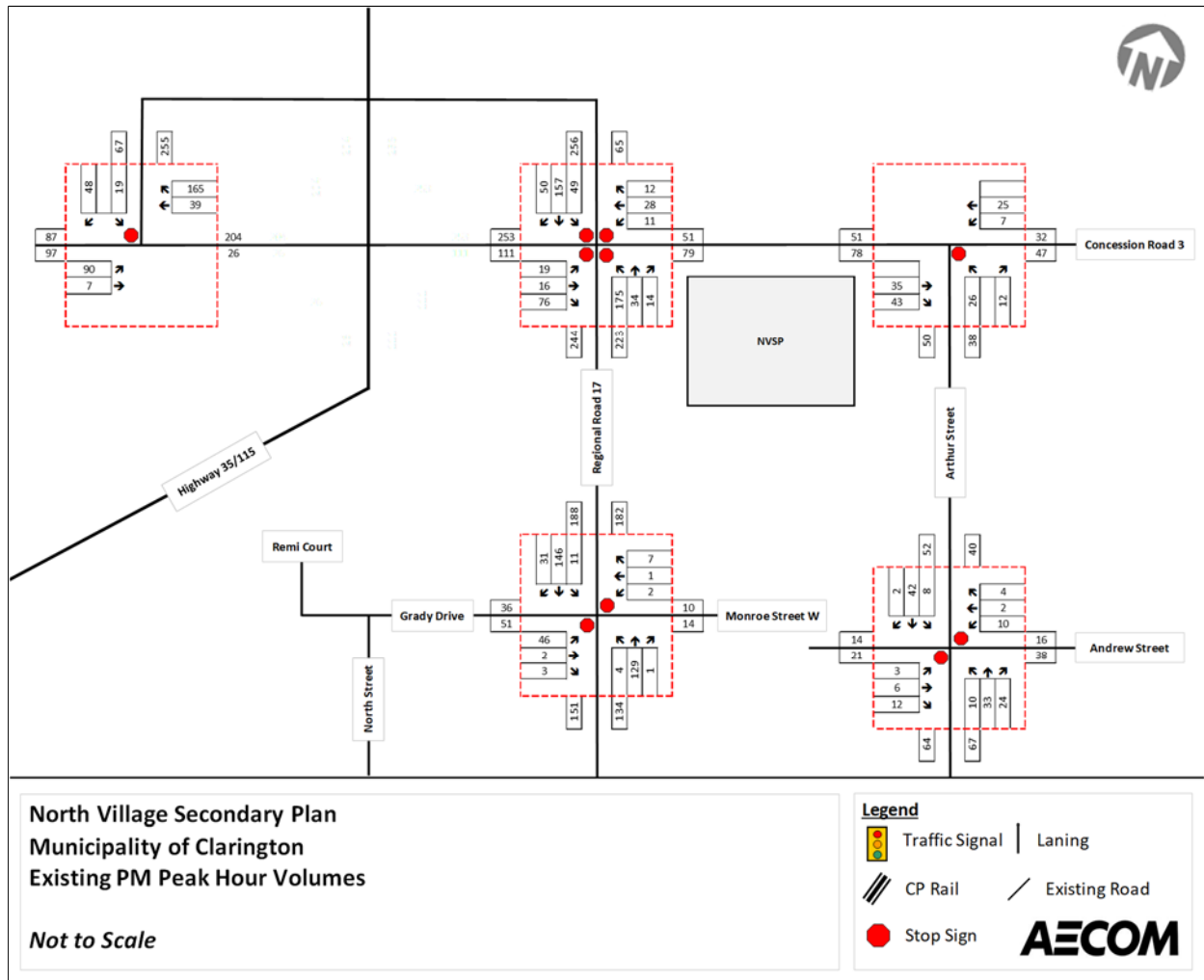


Figure 15: Existing PM Peak Hour Traffic Volumes



Summary and Conclusion

The results of the intersection analysis under existing traffic conditions are summarized in **Table 4** and **Table 5**. The current traffic operations maintain excellent overall Levels of Service (LOS) with no critical movements or major queueing issues.

Table 4: AM Peak Hour Intersections Level of Service Summary

AM Peak Hour Intersection Results		V/C Ratio	Delay (s)	95 th Percentile Queue (m)	LOS
Concession Road 3 & Highway 35/115 West Interchange	EB	0.05	6	1	A
	WB	0.08	0	0	A
	SB	0.14	10	10	B
Concession Road 3 & Highway 35/115 East Interchange (* HCM 2010 TWSC used to analyze)	EB	0.11*	8	0*	A
	WB	0.11*	9	0*	A
	NB	0.32*	10	1*	A
	SB	0.23*	9	1*	A
Concession Road 3 & Arthur Street	EB	0.02	0	0	A
	WB	0.01	2	0	A
	NB	0.04	9	1	A
North Street / Manvers Road & Grady Drive / Monroe Street W	EB	0.04	10	1	B
	WB	0.01	10	0	A
	NB	0.00	0	0	A
	SB	0.00	0	0	A
Arthur Street & Andrew Street	EB	0.02	9	0	A
	WB	0.03	9	1	A
	NB	0.01	2	0	A
	SB	0.00	1	0	A

Table 5: PM Peak Hour Intersections Level of Service Summary

PM Peak Hour Intersection Results		V/C Ratio	Delay (s)	95 th Percentile Queue (m)	LOS
Concession Road 3 & Highway 35/115 West Interchange	EB	0.07	7	2	A
	WB	0.13	0	0	A
	SB	0.09	10	2	A
Concession Road 3 & Highway 35/115 East Interchange (* HCM 2010 TWSC used to analyze)	EB	0.15*	9	1*	A
	WB	0.076*	9	0*	A
	NB	0.31*	10	0*	A
	SB	0.34*	10	2*	A
Concession Road 3 & Arthur Street	EB	0.05	0	0	A
	WB	0.01	2	0	A
	NB	0.05	9	1	A
North Street / Manvers Road & Grady Drive / Monroe Street W	EB	0.10	12	2	B
	WB	0.01	10	0	A
	NB	0.00	0	0	A
	SB	0.01	0	0	A
Arthur Street & Andrew Street	EB	0.03	9	1	A
	WB	0.02	9	0	A
	NB	0.01	1	0	A
	SB	0.01	1	0	A



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As previously mentioned, Highway 35/115 is a controlled access highway that runs north-south to the west of the NVSP Area with connections to Highway 407 and Highway 401 for Newcastle residents. Based on the historical MTO provincial highway traffic data presented in Figure 166, existing Average Annual Daily Traffic (AADT) volumes can be estimated at approximately 24,000 vehicles per day south of Concession Road 3 and just over 31,000 vehicles per day north of Concession Road 3. Steady growth in traffic was observed along this section of Highway 35/115 over the last five recorded years. However, with the recent completion of the Highway 407 Extension connecting to Highway 35/115 to the north, traffic growth on the corridor may change as Highway 407 alters traffic patterns in the area.

MTO classifies the traffic patterns on Highway 35/115 south of Concession Road 3 as Commuter Tourist Recreation (CTR). A review of MTO seasonal variation graphs for CTR traffic patterns indicates variation factors as low as 0.8 in January and as high as 1.3 in July. Thus, traffic on the highway could be as much as 60% higher during the summer months in comparison to the winter months.

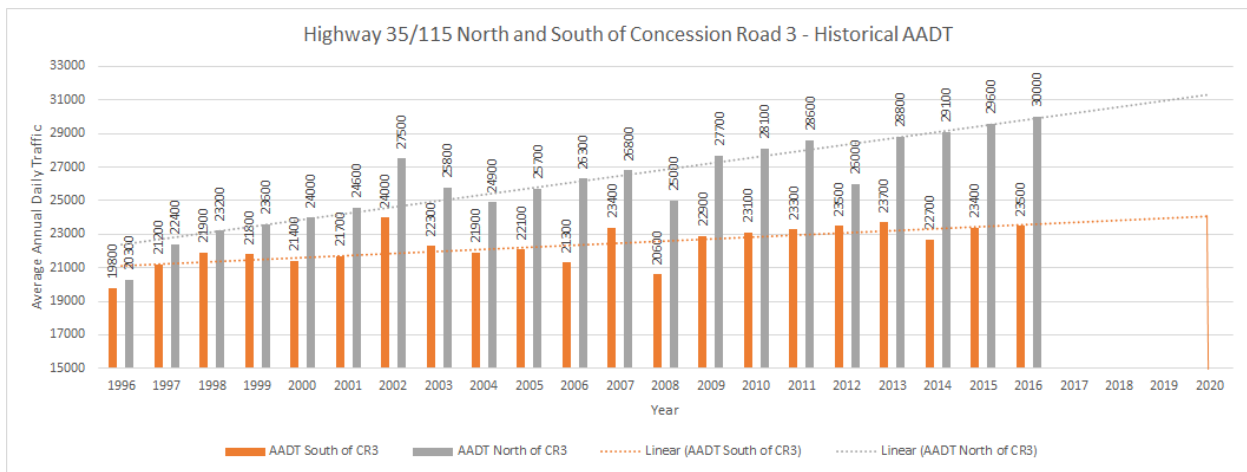


Figure 16: Historical and Forecast AADT on Highway 35/115 at Concession Road 3



4. Policy Direction

4.1. Municipality of Clarington

Official Plan

The Municipality of Clarington Official Plan (OP) provides a discussion on a number of transportation-related items in Section 19, Connected Transportation Systems. The goal of the Official Plan relating to connected transportation systems is to facilitate the movement of people and goods by means of an integrated, accessible, safe, and efficient transportation system, providing a full and practical range of mobility options. Particular to the Study Area, the OP notes how public transportation will be the responsibility of the Province and Region of Durham. Relating to active transportation, the Municipality will be responsible for updating and implementing all plans. Finally, the Municipality will encourage the future growth of Clarington, which can be accommodated through key freeway and arterial roadways, particularly the new Highway 418 directly west of the NVSP Area, and also having Regional Highway 2 as a main commercial goods corridor.

Figure 177 is an extract from the Official Plan illustrating the existing and planned road network in the vicinity of the NVSP Area.

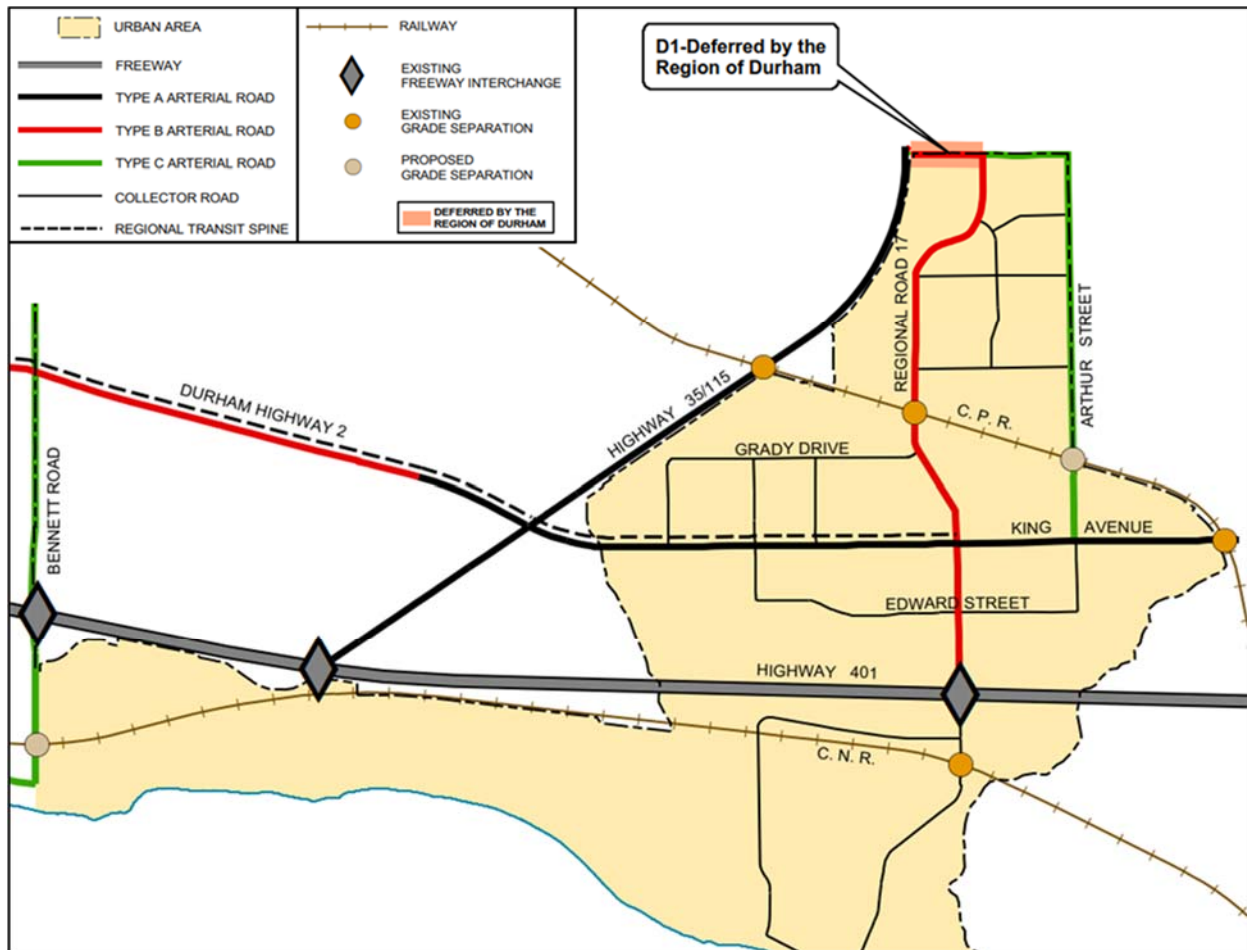


Figure 17: Clarington Official Plan - Map J4 - Transportation Network



Transportation Master Plan

The Clarington Transportation Master Plan identifies several municipal and other road/highway additions. **Figure 18** is an extract from Clarington's Transportation Master Plan (TMP) illustrating the existing and conceptual road network in the vicinity of the NVSP Study Area.



Figure 18: Clarington Transportation Master Plan - Future Recommended Improvements



Active Transportation

Future active transportation policy is a combination of both regional and municipal initiatives. As the majority of infrastructure within the Study Area is without active transportation facilities, the following major works displayed in **Figure 1919** are planned active transportation initiatives for the area:

- Primary cycling spine along North Street / Manvers Road / Mill Street (Regional Road 17) between Concession Road 3 and Edward Street;
- Primary cycling spine along King Avenue between Rudell Road and Arthur Street;
- Cycling lanes or shared route along Arthur Street between King Avenue East and Concession Road 3; and
- Cycling lanes or shared route along Concession Road 3 west of Arthur Street.



Figure 19: Clarington Transportation Master Plan - Future Recommended Active Transportation



Transit

The Clarington TMP emphasizes transit as a major alternative mode of transportation and shares planned improvements meant to promote the use of transit within the region. **Figure 20** illustrates the high-level future improvements to transit in the area, including local and intra-regional DRT service, as well as GO Transit service.

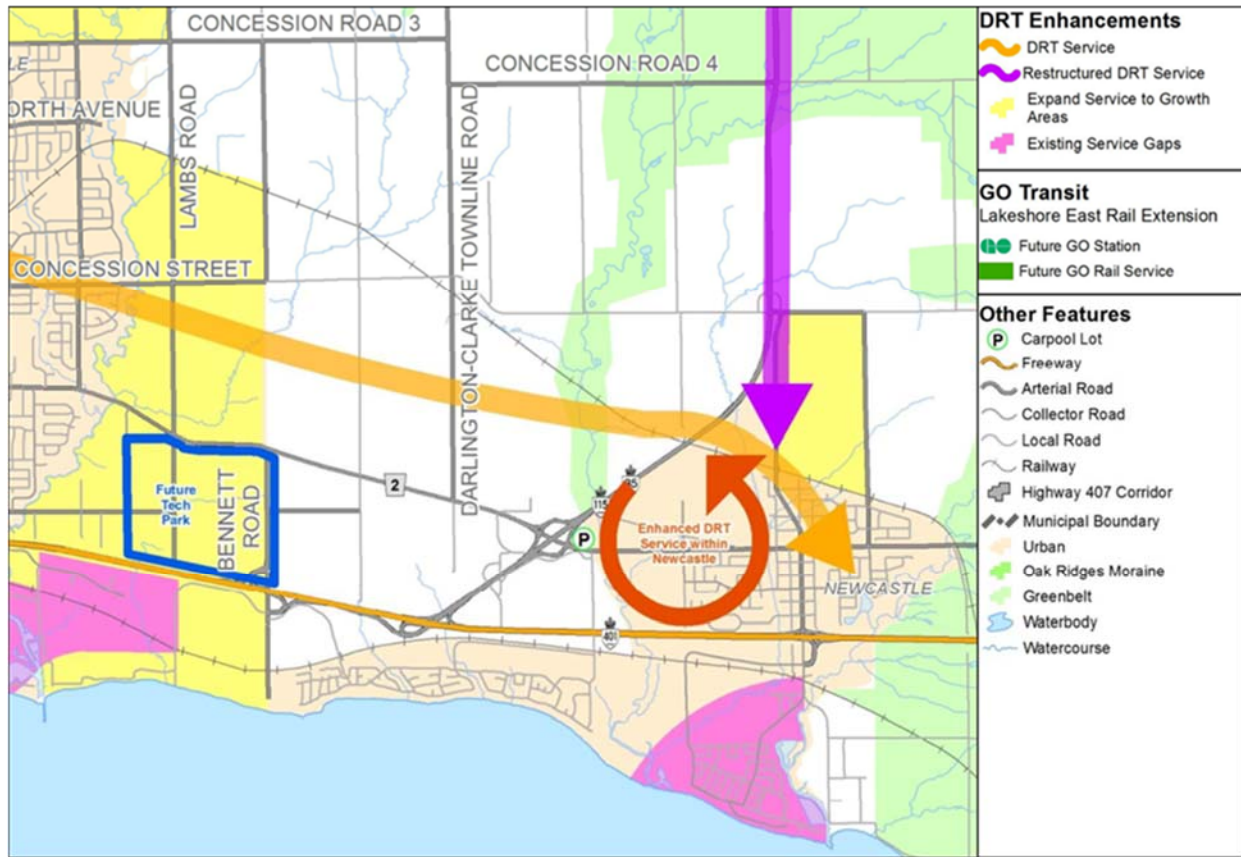


Figure 20: Clarington Transportation Master Plan - Future Transit Plan

Clarington Budget 2020

The Municipality of Clarington documents the annual financial plan as a broad overview of the operations, financial position, and capital and operating budgets of the Municipality. More specifically, the capital budget is a five-year forecast that focuses on infrastructure needs, timing and financing of future projects. Noted notable projects in the capital budget in the vicinity of the NVSP study area include:

- Rudell Road reconstruction (Grady Drive to Highway 35/115) – the road will be built to an urban standard. The project is being advanced at this time to coordinate with the timing of development;
- Regional Road 17 (Mill Street to CPR) – construction of a sidewalk on the east side of Regional Rd 17 (Manvers Road) to service existing and future development and improve safety. This sidewalk will serve as a connection to future development in north Newcastle;
- Streetlighting along Regional Road 17 (North of CPR to Concession Road 3);
- Grady Drive (Foster Creek); and
- Arthur Street reconstruction (CPR level crossing north 1.13km).

It is noted that the above projects may change as the municipality reviews and updates the annual capital budget.



4.2. Region of Durham

A number of documents were reviewed outlining the Region of Durham’s policies and transportation-related growth, specifically the Official Plan (OP) and Transportation Master Plan (TMP) dated May 2017 and December 2017, respectively. The Region does not have a detailed Active Transportation or Transit Plan; however, both areas are outlined in detail within the TMP. The Region of Durham identifies seven directions as goals for the future transportation network within Durham:

- **Direction #1:** Strengthen the relationship between land use and transportation.
- **Direction #2:** Elevate the role of integrated public transit including Rapid Transit.
- **Direction #3:** Make walking and cycling more practical and attractive.
- **Direction #4:** Optimize road infrastructure and operation.
- **Direction #5:** Promote sustainable travel choices.
- **Direction #6:** Invest strategically in the transportation system.
- **Direction #7:** Improve goods movement to support economic development.

Official Plan

The Region of Durham Official Plan identifies a number of goals to guide its regional transportation system into the future. Most importantly, the OP identifies that safe and reliable mobility choices should be made available for all residents with respect to the natural, social, and cultural environments. The Region also notes the importance of the Provincial freeway system and the completion of the Highway 418 connection. **Figure 21** below is an extract from the Durham Official Plan illustrating the existing and planned transportation network in the vicinity of the NVSP Area.

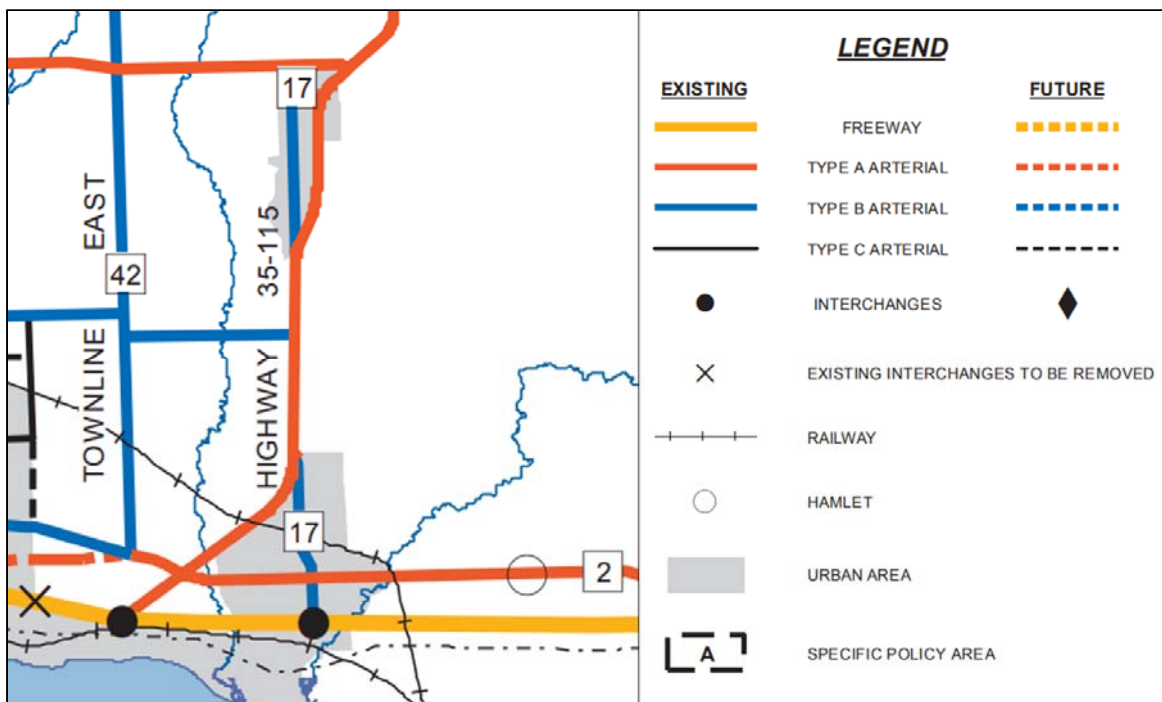


Figure 21: Durham Official Plan - Schedule C - Road Network



Figure 23: Durham Transportation Master Plan - Future Proposed Road Network Beyond 2031

Active Transportation

Active transportation modes are recognized in both the Durham Region Official Plan and Transportation Master Plan as providing significant benefits above and beyond the immediate relief to congestion. These benefits include health, air quality, better spaces and increased public safety amongst others. The TMP identifies a desire for active transportation to see an increase in mode share over the years and recognizes that measures will be required that support objective number three: **Direction #3: Make walking and cycling more practical and attractive.** The TMP identifies the following actions as important in supporting Direction 3:

- Integrate the Primary Cycling Network (PCN) of the 2012 Regional Cycling Plan (RCP), the Regional Trail Network and the Greenbelt Cycling Route into the TMP.
- Prioritize continuous routes within the PCN by identifying Short-Term Cycling Routes (Maps 3a and 3b) to be implemented within 10 years.
- Consider stand-alone infill projects to complete critical links in the Short-Term Cycling Routes in the Region’s annual Regional Road Program Capital Budget and Nine-Year Forecast process.
- Support planning and design for walking and cycling through the development review process and implementation of design and policy documents.
- Provide enhanced active transportation promotion and improved route mapping.

Outlined below in **Figure 24** is an extract from Durham’s Transportation Master Plan illustrating the existing and planned active transportation network in the vicinity of the NVSP Study Area.

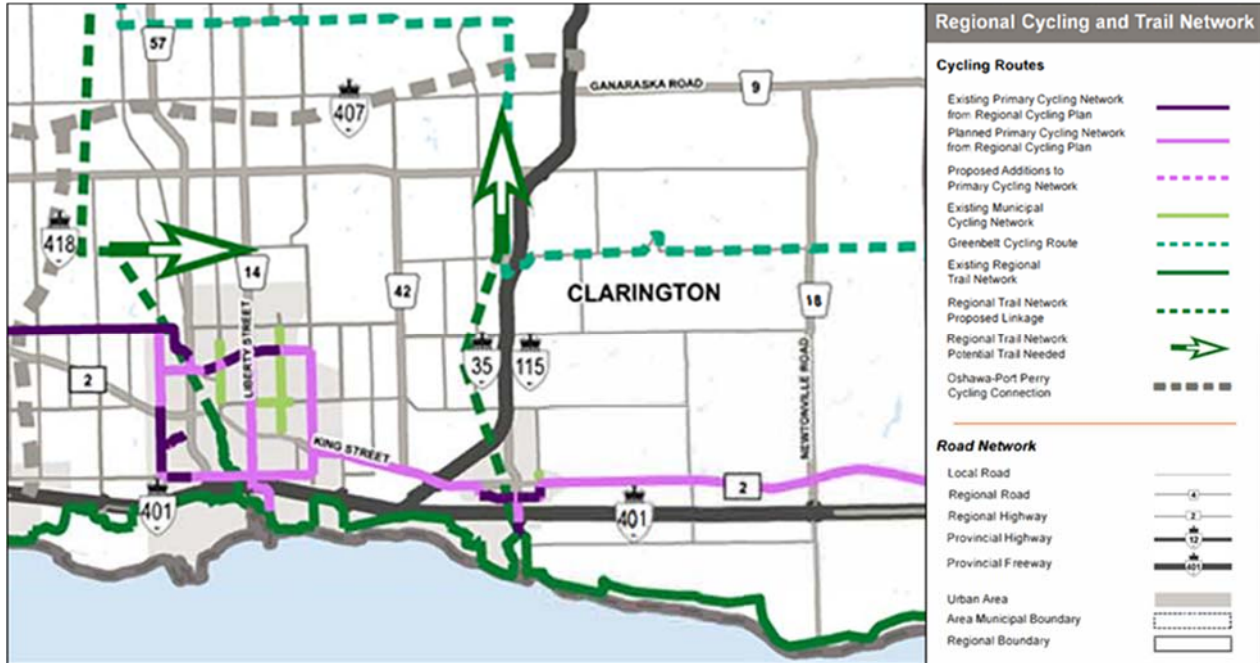


Figure 24: Durham Transportation Master Plan - Active Transportation Network



Transit

Promoting transit as an alternative travel mode via Durham Region Transit (DRT) is one of the key goals for the Region. A number of documents guide transit growth throughout the Region; the TMP, 2010 Long Term Transit Strategy (LTTs) and the DRT Five Year Service Strategy. As identified in the Durham TMP, Highway 2 is a key corridor considered for high-frequency bus service. Dedicated lanes are already provided to western municipalities within the Region. **Figure 25** below displays the Durham TMP future proposed transit.



Figure 25: Durham Transportation Master Plan - Future Proposed Transit Network



4.3. Province of Ontario

Ministry of Transportation (MTO)

The MTO has minimal improvements planned to their infrastructure that would affect the NVSP Area or the immediate area. The Highway 407 Phase 2B construction has been completed and provides a link to Highway 35/115. This recent improvement is north of the Study Area; however, the improvement may have minor impacts to traffic volumes on Highway 35/115 in the vicinity of the subject site. The only other short-term improvement as per the Southern Highways Program is the 2.95 km resurfacing of Highway 35/115 from the Main Street (Durham Road 17) junction near Orono to Newcastle within the 2019-2021 time period. **Figure 26** presents the network of MTO highway network in the vicinity of the NVSP Study Area.

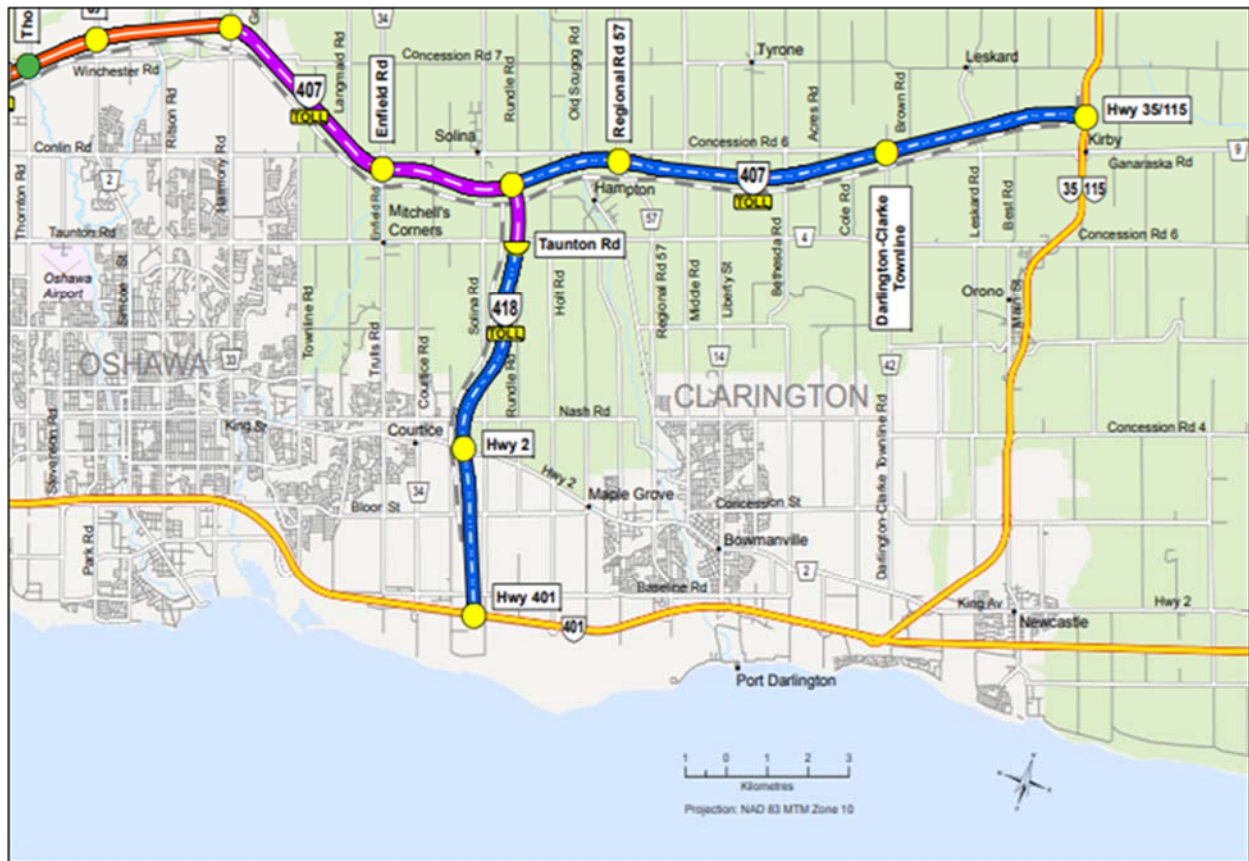


Figure 26: MTO Highway Network

Active Transportation

The MTO has developed its Province-wide Cycling Network alongside the Province’s Cycling Strategy. There are a number of provincial facilities within the Municipality; however, they are located to the south of Highway 401 and to the north along Concession Road 6 and are situated well outside of the NVSP Area.



Metrolinx

As part of the Metrolinx 2041 Regional Transportation Plan (RTP), there is a proposed GO Lakeshore East Rail Extension. This also includes several GO stations:

- Thornton Road, Oshawa
- Ritson Road, Oshawa
- Courtice Road, Courtice
- Bowmanville Avenue, Bowmanville

Although Newcastle is not subject to a new proposed GO Station, GO Transit will be more relevant to Newcastle commuters, and will integrate with enhanced Durham Region Transit service to connect Newcastle and Bowmanville. **Figure 27** illustrates the proposed GO stations along the Lakeshore East GO Line extension as proposed in the February 20, 2020 Initial Business Case Update: Bowmanville Rail Service Extension by Metrolinx.



Figure 27: Metrolinx Future GO Train Stations



5. Opportunities and Constraints

5.1. Opportunities

The planning for the transportation network within the NVSP Area should provide for a robust, connected and flexible network that serves the mobility and accessibility of all road users (motorists, transit, cyclists, and pedestrians). Key planning opportunities and considerations in developing a transportation network to serve the NVSP Area include:

- Build upon the previously contemplated and planned road network elements identified in both Clarington's and Durham's Official Plans and Transportation Master Plans.
- Promote spine road capacity improvements along the existing grid system arterial road network.
- Promote Arterial connections to existing and planned freeway infrastructure.
- Extend Collector roads from existing adjacent planned/developed areas into the NVSP Project Area to create continuous Collector roads that integrate and connect communities.
- Plan Collector road alignments to respect the topography of the NVSP Area and capitalize on view and window corridors adjacent to natural heritage lands or features, where appropriate.
- Create a Collector road network that creates appropriate block sizes that allow for high transit coverage with most residences/jobs within a reasonable walking distance.
- Layout communities to promote walking and cycling in lieu of vehicular movements.
- Plan cycling facilities that reflect the utilitarian versus recreational nature of different cyclists, as well as the variability in cycling skills.
- With development of the North Village Secondary Plan Area, the opportunity exists to realign Regional Road 17 as the existing spacing between Regional Road 17 and Highway 35/115 is only approximately 75m. It is noted that MTO's desirable intersection spacing is 800 metres, and minimum is typically 400 metres. However, the Ministry and Clarington through previous discussions had agreed on a 300-metre spacing distance.
- An opportunity exists to reinforce Arthur Street as a future north-south corridor from Highway 2 to Concession Road 3 for automobile traffic, transit and active transportation.
- A potential trail proceeding north from Newcastle is identified within **Figure 24**. To accommodate a Northern Trail Route without the addition of grade-separated crossing of Highway 35/115, an alignment along RR 17 can be considered.
- An opportunity for an active transportation connection between NVSP and Newcastle Carpool lot and cycling spine.
- With the anticipated Grady Drive bridge connection to the west of the Study Area, an opportunity will exist to revisit operations at the North Street / Manvers Road & Grady Drive / Monroe Street West intersection and identify the need for auxiliary lanes and signalization.



5.2. Constraints

The planning for the NVSP Area should also acknowledge and consider a variety of area constraints that impact the planning of the area transportation network. Key considerations in the NVSP overall area include:

- Noise attenuation measures for Highway 35/115 traffic could pose a constraint on residential and other noise sensitive land uses adjacent to the highway, potentially requiring the provision of a berm or berm/barrier combination, or other noise mitigation measures. If only a noise barrier is required, it could still constrain the flexibility to orient lots and provide outdoor amenity areas that comply with Ministry of Environment, Conservation, and Parks guidelines (NPC-300).
- Maintain acceptable intersection spacing along arterial and collector roads.
- Avoid or minimize intrusion into wetlands, woodlots, and areas of significant natural interest.
- Avoid cultural and built heritage resources, where possible.



6. Summary

The review of the existing transportation conditions within the North Village Secondary Plan Broader Study Area reveals a well operating network with significant potential. The existing road and active transportation networks provide an effective system of connections on which additional growth could be accommodated through new connections and improvements. Many opportunities and considerations were identified to facilitate the growth expected with the region and allow North Village to fit into the Broader Study Area.




Appendix A – Turning Movement Counts

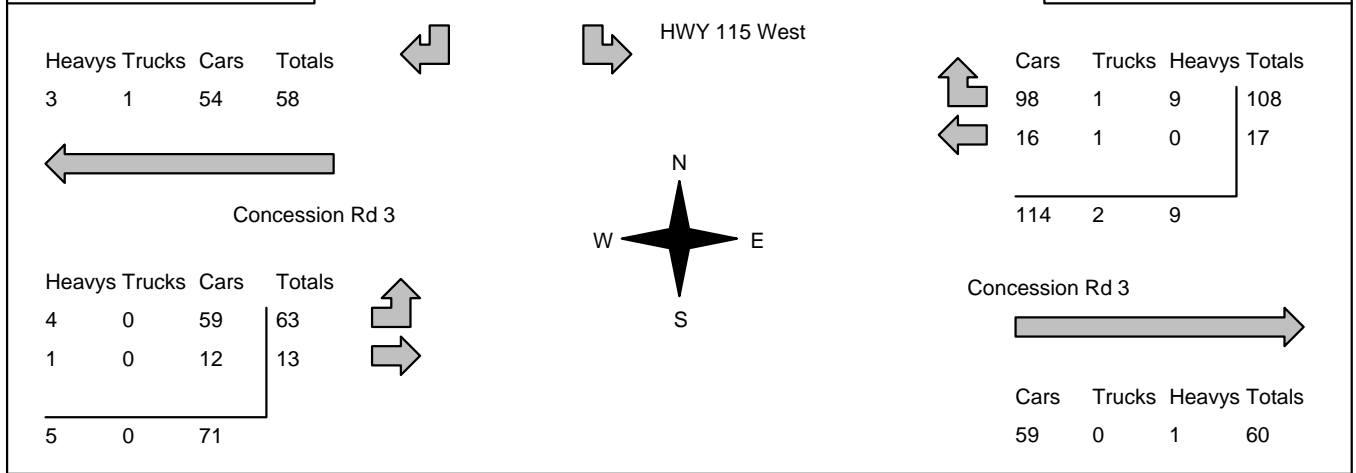
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 9:00:00	One Hour Peak From: 7:15:00 To: 8:15:00
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Municipality: Clarington Site #: 2000800001 Intersection: Concession Rd 3 & HWY 115 West TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
--	---

** Non-Signalized Intersection **	Major Road: Concession Rd 3 runs W/E
--	---

North Leg Total: 259 North Entering: 88 North Peds: 0 Peds Cross: ☒	<table style="margin: auto;"> <tr><td>Heavys</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>38</td><td>47</td><td>85</td></tr> <tr><td>Totals</td><td>41</td><td>47</td><td></td></tr> </table>	Heavys	3	0	3	Trucks	0	0	0	Cars	38	47	85	Totals	41	47			<table style="margin: auto;"> <tr><td>Heavys</td><td>13</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Cars</td><td>157</td></tr> <tr><td>Totals</td><td>171</td></tr> </table>	Heavys	13	Trucks	1	Cars	157	Totals	171	East Leg Total: 185 East Entering: 125 East Peds: 0 Peds Cross: ☒
Heavys	3	0	3																									
Trucks	0	0	0																									
Cars	38	47	85																									
Totals	41	47																										
Heavys	13																											
Trucks	1																											
Cars	157																											
Totals	171																											



Peds Cross: ☒ West Peds: 0 West Entering: 76 West Leg Total: 134	
---	--

Comments

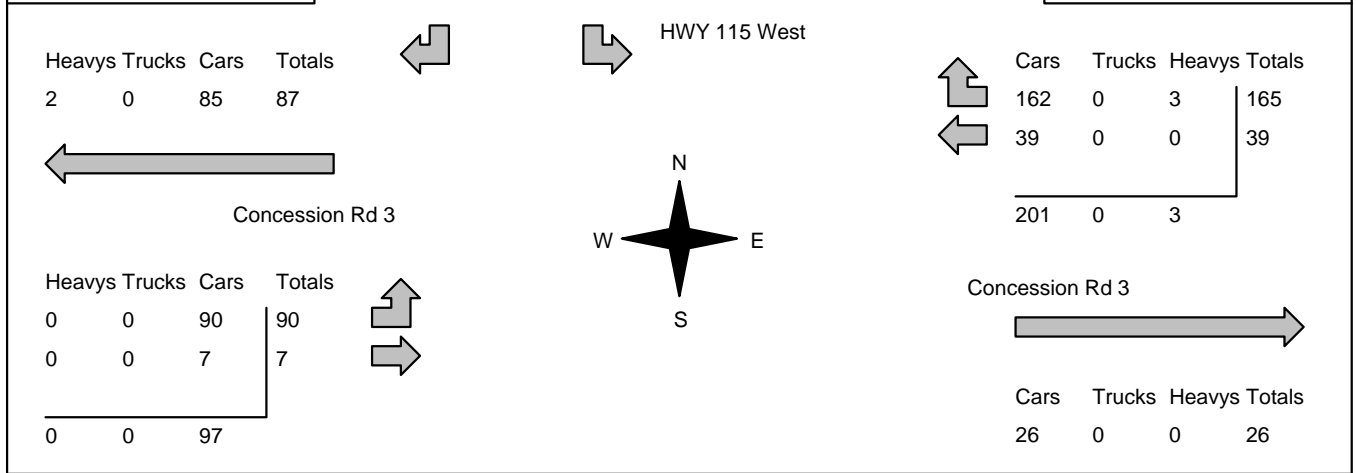
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: Clarington Site #: 2000800001 Intersection: Concession Rd 3 & HWY 115 West TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
--	---

** Non-Signalized Intersection **	Major Road: Concession Rd 3 runs W/E
--	---

North Leg Total: 322 North Entering: 67 North Peds: 0 Peds Cross: ☒	<table style="margin: auto;"> <tr><td>Heavys</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>46</td><td>19</td><td>65</td></tr> <tr><td>Totals</td><td>48</td><td>19</td><td></td></tr> </table>	Heavys	2	0	2	Trucks	0	0	0	Cars	46	19	65	Totals	48	19			<table style="margin: auto;"> <tr><td>Heavys</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>252</td></tr> <tr><td>Totals</td><td>255</td></tr> </table>	Heavys	3	Trucks	0	Cars	252	Totals	255	East Leg Total: 230 East Entering: 204 East Peds: 0 Peds Cross: ☒
Heavys	2	0	2																									
Trucks	0	0	0																									
Cars	46	19	65																									
Totals	48	19																										
Heavys	3																											
Trucks	0																											
Cars	252																											
Totals	255																											



Peds Cross: ☒ West Peds: 0 West Entering: 97 West Leg Total: 184	
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Comments

Accu-Traffic Inc.

Total Count Diagram

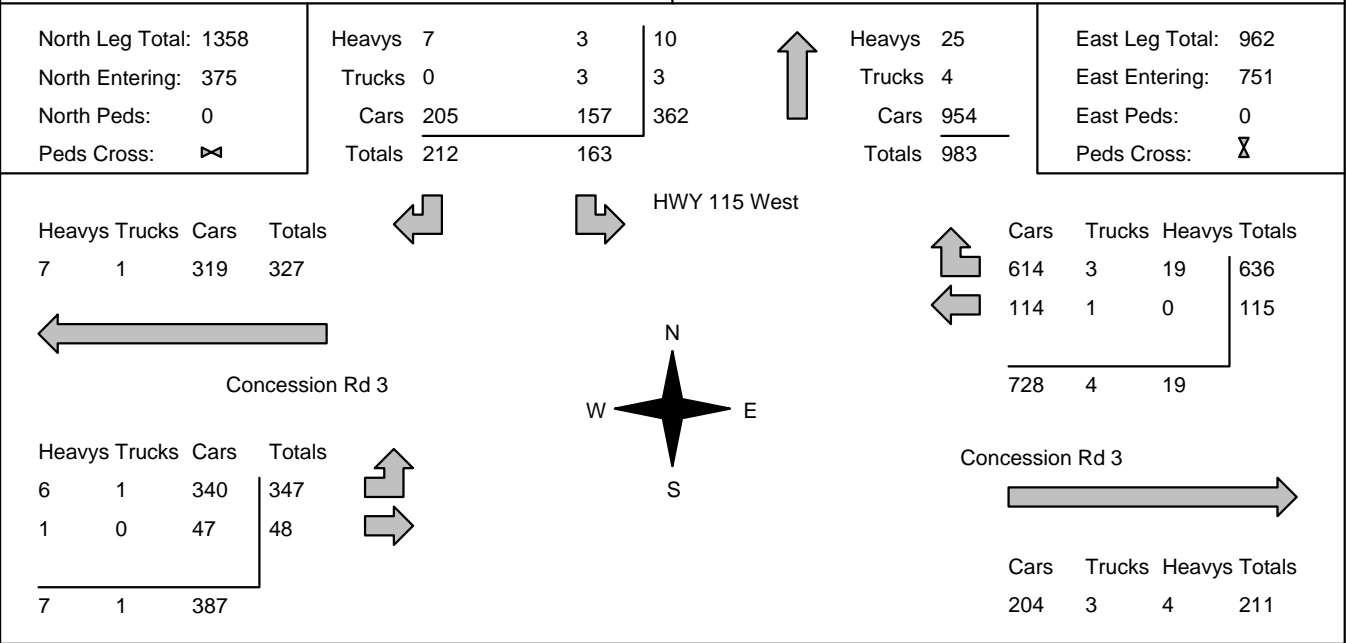
Municipality: Clarington
Site #: 2000800001
Intersection: Concession Rd 3 & HWY 115 West
TFR File #: 1
Count date: 9-Jan-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Concession Rd 3 runs W/E



Peds Cross: \times
 West Peds: 0
 West Entering: 395
 West Leg Total: 722

Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Concession Rd 3 & HWY 115 Wes Count Date: 9-Jan-20 Municipality: Clarington

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	38	0	5	43	0	43	7:00:00	0	0	0	0	0
8:00:00	42	0	40	82	0	82	8:00:00	0	0	0	0	0
9:00:00	32	0	32	64	0	64	9:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	22	0	53	75	0	75	17:00:00	0	0	0	0	0
18:00:00	16	0	49	65	0	65	18:00:00	0	0	0	0	0
19:00:00	13	0	33	46	0	46	19:00:00	0	0	0	0	0
Totals:	163	0	212	375	0	375	S Totals:	0	0	0	0	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	4	39	43	0	88	7:00:00	33	12	0	45	0
8:00:00	0	15	91	106	0	169	8:00:00	46	17	0	63	0
9:00:00	0	14	113	127	0	189	9:00:00	59	3	0	62	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	35	153	188	0	280	17:00:00	85	7	0	92	0
18:00:00	0	32	132	164	0	248	18:00:00	79	5	0	84	0
19:00:00	0	15	108	123	0	172	19:00:00	45	4	0	49	0
Totals:	0	115	636	751	0	1146	W Totals:	347	48	0	395	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	6:00	7:00	8:00	9:00		16:00	17:00	18:00	19:00			
Crossing Values:	0	38	42	32		0	22	16	13			

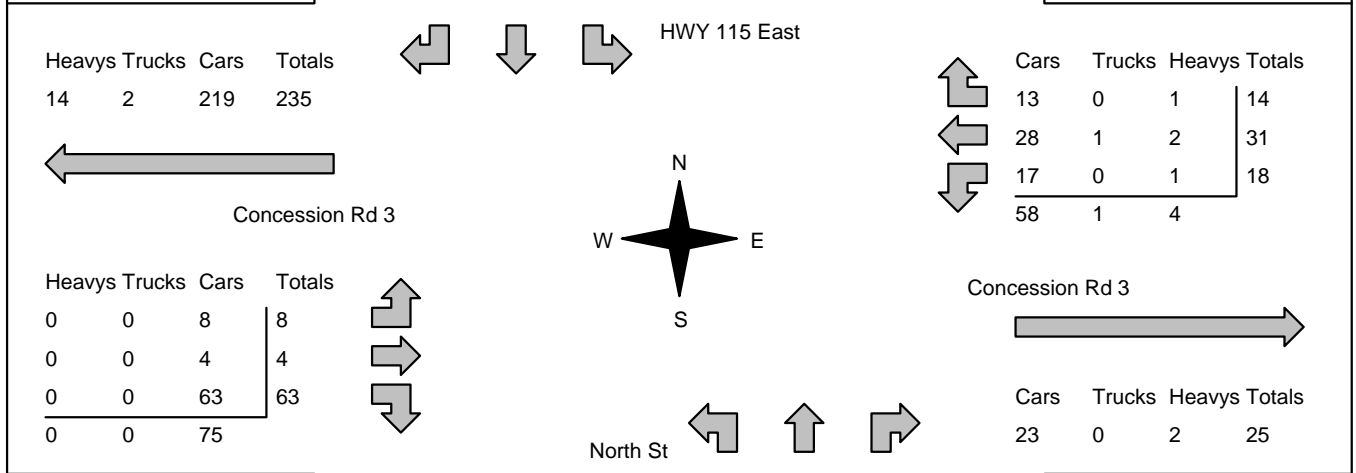
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 9:00:00	One Hour Peak From: 7:15:00 To: 8:15:00
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Municipality: Clarington Site #: 2000800002 Intersection: HWY 115 East & Concession Rd 3 TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: HWY 115 East runs N/S
--	--

North Leg Total: 258 North Entering: 172 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>8</td><td>3</td><td>2</td><td style="border-left: 1px solid black;">13</td></tr> <tr><td>Trucks</td><td>1</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Cars</td><td>53</td><td>91</td><td>14</td><td style="border-left: 1px solid black;">158</td></tr> <tr><td>Totals</td><td>62</td><td>94</td><td>16</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	8	3	2	13	Trucks	1	0	0	1	Cars	53	91	14	158	Totals	62	94	16		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>83</td></tr> <tr><td>Totals</td><td>86</td></tr> </table>	Heavys	3	Trucks	0	Cars	83	Totals	86	East Leg Total: 88 East Entering: 63 East Peds: 0 Peds Cross: ☒
Heavys	8	3	2	13																											
Trucks	1	0	0	1																											
Cars	53	91	14	158																											
Totals	62	94	16																												
Heavys	3																														
Trucks	0																														
Cars	83																														
Totals	86																														



Peds Cross: ☒ West Peds: 0 West Entering: 75 West Leg Total: 310	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>171</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>175</td></tr> </table>	Cars	171	Trucks	0	Heavys	4	Totals	175	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>138</td><td>62</td><td>5</td><td style="border-left: 1px solid black;">205</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Heavys</td><td>4</td><td>2</td><td>0</td><td style="border-left: 1px solid black;">6</td></tr> <tr><td>Totals</td><td>142</td><td>64</td><td>5</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	138	62	5	205	Trucks	0	0	0	0	Heavys	4	2	0	6	Totals	142	64	5		Peds Cross: ☒ South Peds: 0 South Entering: 211 South Leg Total: 386
Cars	171																														
Trucks	0																														
Heavys	4																														
Totals	175																														
Cars	138	62	5	205																											
Trucks	0	0	0	0																											
Heavys	4	2	0	6																											
Totals	142	64	5																												


Comments

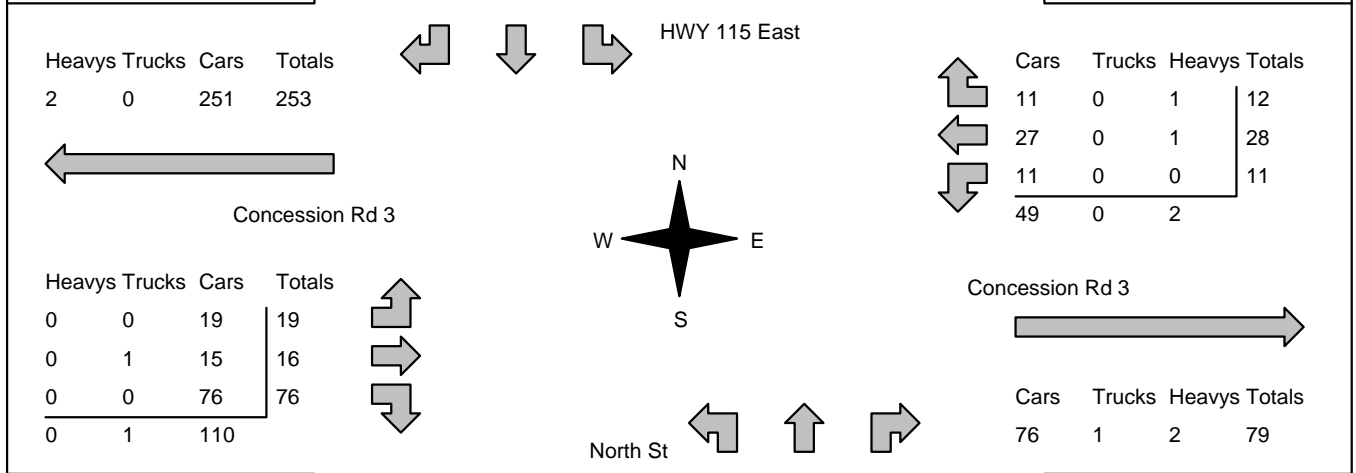
Accu-Traffic Inc.


Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: Clarington Site #: 2000800002 Intersection: HWY 115 East & Concession Rd 3 TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
--	---

** Non-Signalized Intersection **	Major Road: HWY 115 East runs N/S
--	--

North Leg Total: 321 North Entering: 256 North Peds: 0 Peds Cross: ☒	<table style="font-family: monospace; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>2</td><td>2</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>50</td><td>155</td><td>47</td><td>252</td></tr> <tr><td>Totals</td><td>50</td><td>157</td><td>49</td><td></td></tr> </table>	Heavys	0	2	2	4	Trucks	0	0	0	0	Cars	50	155	47	252	Totals	50	157	49			<table style="font-family: monospace; border-collapse: collapse;"> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Cars</td><td>62</td></tr> <tr><td>Totals</td><td>65</td></tr> </table>	Heavys	2	Trucks	1	Cars	62	Totals	65	East Leg Total: 130 East Entering: 51 East Peds: 0 Peds Cross: ☒
Heavys	0	2	2	4																												
Trucks	0	0	0	0																												
Cars	50	155	47	252																												
Totals	50	157	49																													
Heavys	2																															
Trucks	1																															
Cars	62																															
Totals	65																															



Peds Cross: ☒ West Peds: 0 West Entering: 111 West Leg Total: 364	<table style="font-family: monospace; border-collapse: collapse;"> <tr><td>Cars</td><td>242</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Totals</td><td>244</td></tr> </table>	Cars	242	Trucks	0	Heavys	2	Totals	244		<table style="font-family: monospace; border-collapse: collapse;"> <tr><td>Cars</td><td>174</td><td>32</td><td>14</td><td>220</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>1</td><td>1</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>175</td><td>34</td><td>14</td><td></td></tr> </table>	Cars	174	32	14	220	Trucks	0	1	0	1	Heavys	1	1	0	2	Totals	175	34	14		Peds Cross: ☒ South Peds: 0 South Entering: 223 South Leg Total: 467
Cars	242																															
Trucks	0																															
Heavys	2																															
Totals	244																															
Cars	174	32	14	220																												
Trucks	0	1	0	1																												
Heavys	1	1	0	2																												
Totals	175	34	14																													

Comments

Accu-Traffic Inc.

Total Count Diagram

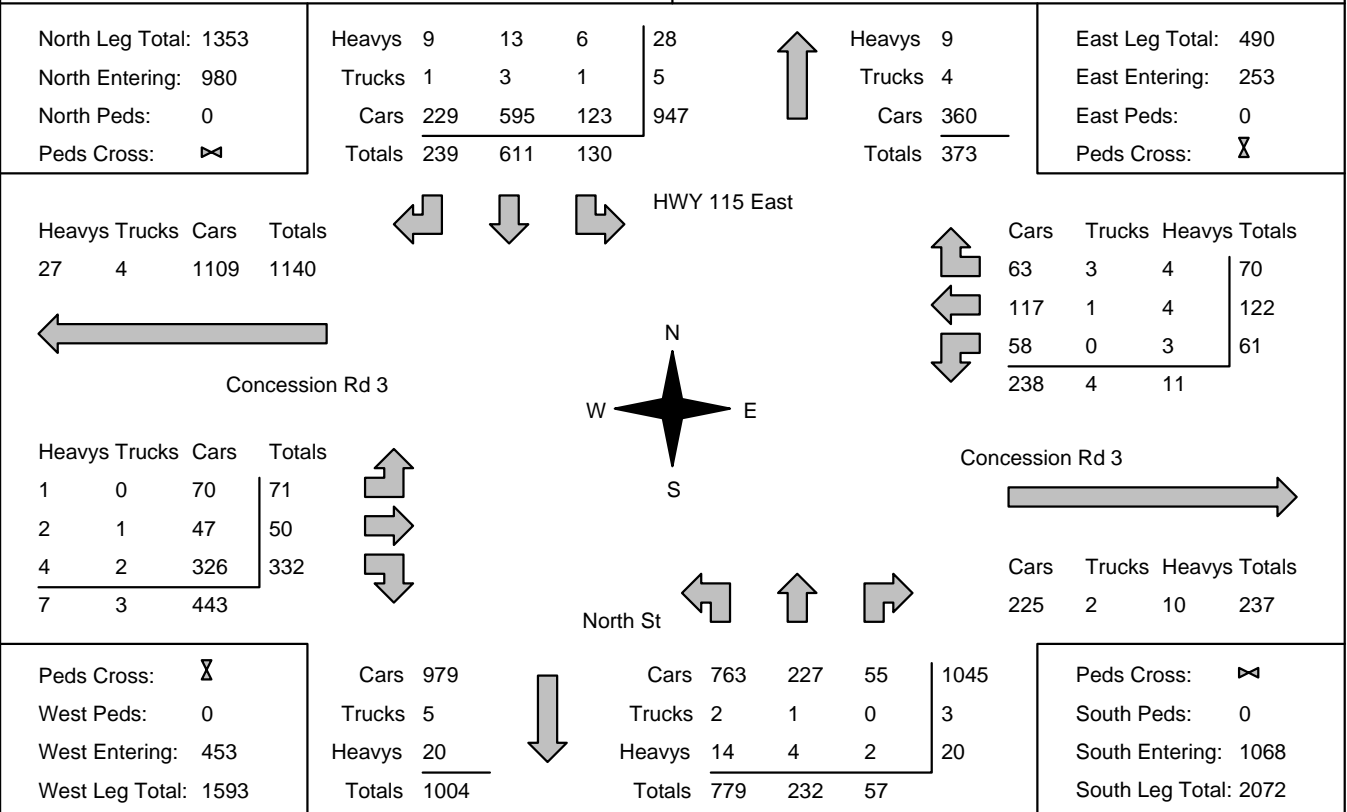
Municipality: Clarington
Site #: 2000800002
Intersection: HWY 115 East & Concession Rd 3
TFR File #: 1
Count date: 9-Jan-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: HWY 115 East runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

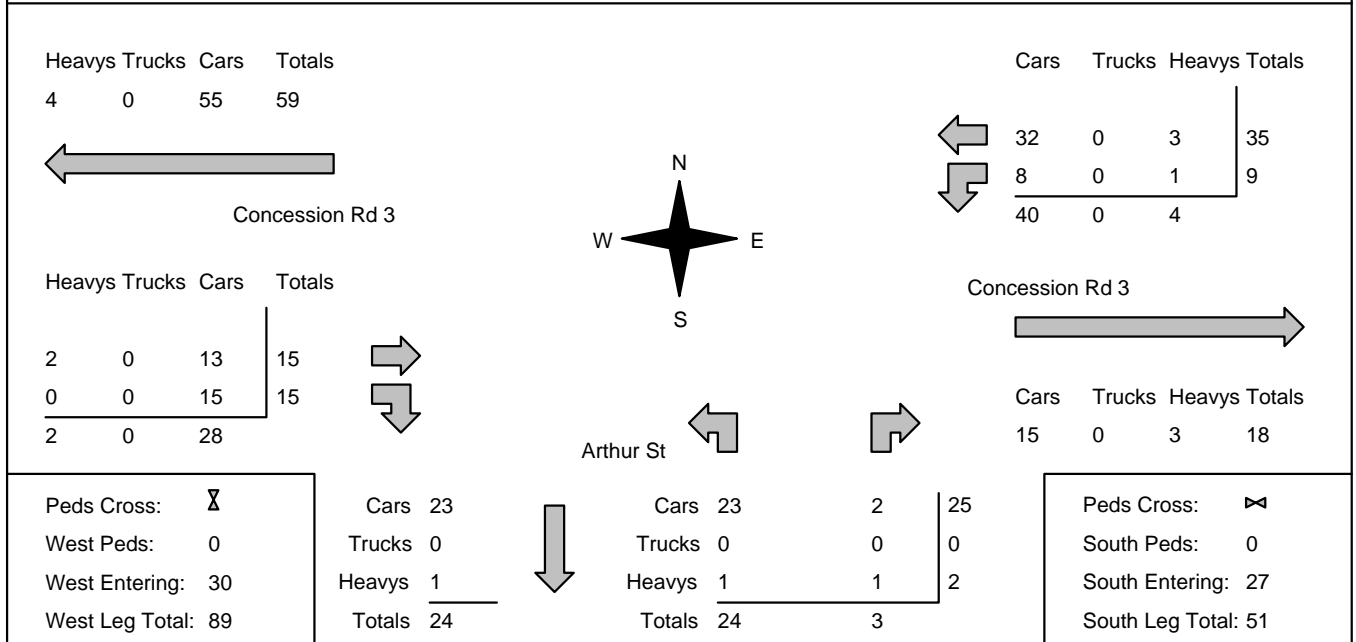
Intersection: HWY 115 East & Concession Rd 3 Count Date: 9-Jan-20 Municipality: Clarington

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	4	47	17	68	0	162	7:00:00	63	30	1	94	0
8:00:00	15	85	39	139	0	328	8:00:00	124	60	5	189	0
9:00:00	15	99	58	172	0	350	9:00:00	132	36	10	178	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	45	147	47	239	0	468	17:00:00	181	36	12	229	0
18:00:00	33	122	57	212	0	433	18:00:00	164	39	18	221	0
19:00:00	18	111	21	150	0	307	19:00:00	115	31	11	157	0
Totals:	130	611	239	980	0	2048	S Totals:	779	232	57	1068	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	8	7	8	23	0	61	7:00:00	5	1	32	38	0
8:00:00	13	21	15	49	0	122	8:00:00	7	3	63	73	0
9:00:00	13	23	18	54	0	109	9:00:00	8	5	42	55	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	9	28	12	49	0	155	17:00:00	26	16	64	106	0
18:00:00	7	31	9	47	0	159	18:00:00	19	15	78	112	0
19:00:00	11	12	8	31	0	100	19:00:00	6	10	53	69	0
Totals:	61	122	70	253	0	706	W Totals:	71	50	332	453	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	6:00	7:00	8:00	9:00		16:00	17:00	18:00	19:00			
Crossing Values:	0	20	41	44		0	63	57	29			

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
Municipality: Clarington Site #: 2000800003 Intersection: Concession Rd 3 & Arthur St TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Concession Rd 3 runs W/E	

	East Leg Total: 62 East Entering: 44 East Peds: 0 Peds Cross: 8
--	--

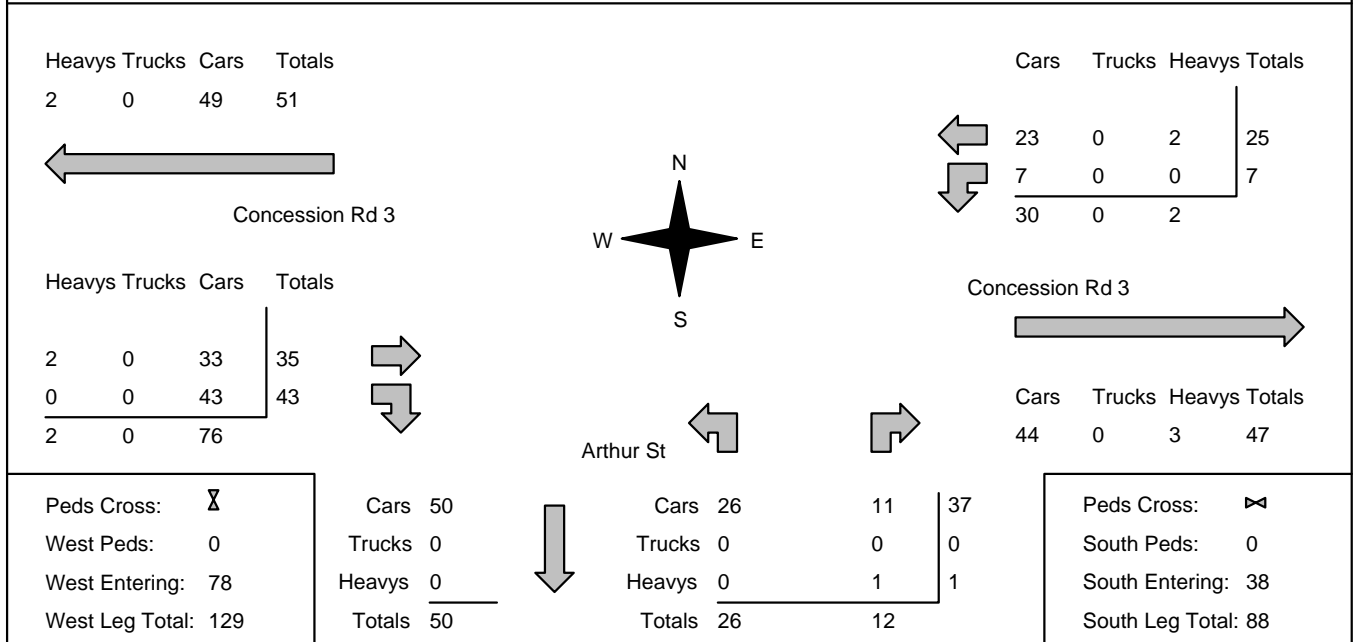


Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
Municipality: Clarington Site #: 2000800003 Intersection: Concession Rd 3 & Arthur St TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Concession Rd 3 runs W/E	

	East Leg Total: 79 East Entering: 32 East Peds: 0 Peds Cross: 8
--	--



Comments

Accu-Traffic Inc.

Total Count Diagram

Municipality: Clarington
Site #: 2000800003
Intersection: Concession Rd 3 & Arthur St
TFR File #: 1
Count date: 9-Jan-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Concession Rd 3 runs W/E

East Leg Total: 313
 East Entering: 173
 East Peds: 0
 Peds Cross: 8

Heavys	Trucks	Cars	Totals
12	2	230	244

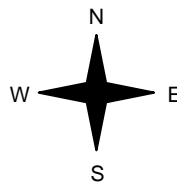


Concession Rd 3

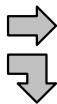
Cars	Trucks	Heavys	Totals
127	2	10	139
32	0	2	34
159	2	12	



127	2	10	139
32	0	2	34
159	2	12	



Heavys	Trucks	Cars	Totals
8	0	111	119
2	0	110	112
10	0	221	



Concession Rd 3

Cars	Trucks	Heavys	Totals
130	0	10	140

Arthur St

Peds Cross: 8
 West Peds: 0
 West Entering: 231
 West Leg Total: 475

Cars	142
Trucks	0
Heavys	4
Totals	146



Cars	103	19	122
Trucks	0	0	0
Heavys	2	2	4
Totals	105	21	

Peds Cross: 8
 South Peds: 0
 South Entering: 126
 South Leg Total: 272

Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Concession Rd 3 & Arthur St Count Date: 9-Jan-20 Municipality: Clarington

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	0	0	0	0	4	7:00:00	4	0	0	4	0
8:00:00	0	0	0	0	0	24	8:00:00	23	0	1	24	0
9:00:00	0	0	0	0	0	20	9:00:00	18	0	2	20	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	38	17:00:00	25	0	13	38	0
18:00:00	0	0	0	0	0	25	18:00:00	22	0	3	25	0
19:00:00	0	0	0	0	0	15	19:00:00	13	0	2	15	0
Totals:	0	0	0	0	0	126	S Totals:	105	0	21	126	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	17	0	17	0	23	7:00:00	0	5	1	6	0
8:00:00	2	28	0	30	0	53	8:00:00	0	13	10	23	0
9:00:00	11	30	0	41	0	69	9:00:00	0	12	16	28	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	8	22	0	30	0	101	17:00:00	0	33	38	71	0
18:00:00	7	26	0	33	0	98	18:00:00	0	35	30	65	0
19:00:00	6	16	0	22	0	60	19:00:00	0	21	17	38	0
Totals:	34	139	0	173	0	404	W Totals:	0	119	112	231	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	6:00	7:00	8:00	9:00		16:00	17:00	18:00	19:00			
Crossing Values:	0	4	23	18		0	25	22	13			

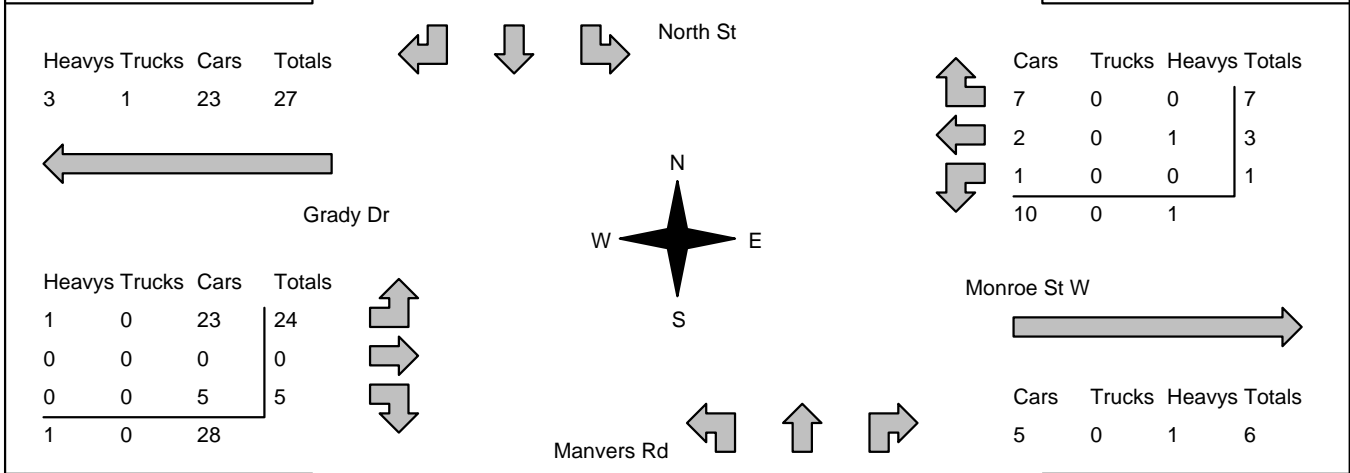
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 6:00:00 To: 9:00:00	One Hour Peak From: 7:30:00 To: 8:30:00
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Municipality: Clarington Site #: 2000800004 Intersection: North St & Grady Dr TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: North St runs N/S
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North Leg Total: 231 North Entering: 97 North Peds: 0 Peds Cross: ☒	<table style="margin: auto;"> <tr><td>Heavys</td><td>2</td><td>2</td><td>0</td><td>4</td></tr> <tr><td>Trucks</td><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>Cars</td><td>20</td><td>68</td><td>4</td><td>92</td></tr> <tr><td>Totals</td><td>23</td><td>70</td><td>4</td><td></td></tr> </table>	Heavys	2	2	0	4	Trucks	1	0	0	1	Cars	20	68	4	92	Totals	23	70	4		<table style="margin: auto;"> <tr><td>Heavys</td><td>5</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>129</td></tr> <tr><td>Totals</td><td>134</td></tr> </table>	Heavys	5	Trucks	0	Cars	129	Totals	134	East Leg Total: 17 East Entering: 11 East Peds: 0 Peds Cross: ☒
Heavys	2	2	0	4																											
Trucks	1	0	0	1																											
Cars	20	68	4	92																											
Totals	23	70	4																												
Heavys	5																														
Trucks	0																														
Cars	129																														
Totals	134																														



Peds Cross: ☒ West Peds: 0 West Entering: 29 West Leg Total: 56	<table style="margin: auto;"> <tr><td>Cars</td><td>74</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Totals</td><td>76</td></tr> </table>	Cars	74	Trucks	0	Heavys	2	Totals	76	<table style="margin: auto;"> <tr><td>Cars</td><td>1</td><td>99</td><td>1</td><td>101</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>4</td><td>1</td><td>5</td></tr> <tr><td>Totals</td><td>1</td><td>103</td><td>2</td><td></td></tr> </table>	Cars	1	99	1	101	Trucks	0	0	0	0	Heavys	0	4	1	5	Totals	1	103	2		Peds Cross: ☒ South Peds: 1 South Entering: 106 South Leg Total: 182
Cars	74																														
Trucks	0																														
Heavys	2																														
Totals	76																														
Cars	1	99	1	101																											
Trucks	0	0	0	0																											
Heavys	0	4	1	5																											
Totals	1	103	2																												

Comments

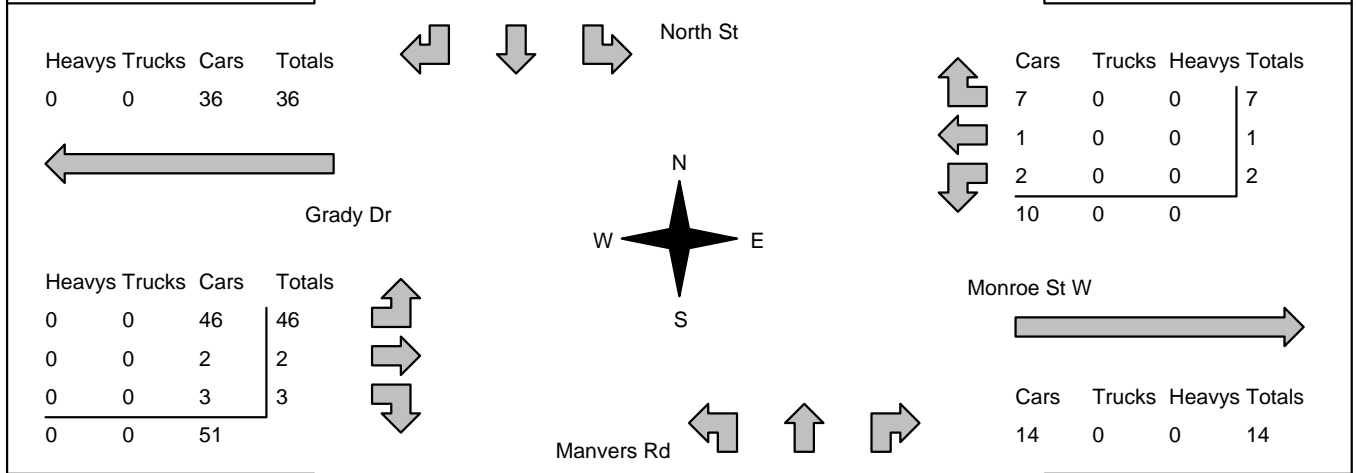
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: Clarington Site #: 2000800004 Intersection: North St & Grady Dr TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: North St runs N/S
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North Leg Total: 370 North Entering: 188 North Peds: 0 Peds Cross: ☒	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Cars</td><td>31</td><td>145</td><td>11</td><td>187</td></tr> <tr><td>Totals</td><td>31</td><td>146</td><td>11</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	1	0	1	Cars	31	145	11	187	Totals	31	146	11		<table style="margin: auto;"> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>180</td></tr> <tr><td>Totals</td><td>182</td></tr> </table>	Heavys	2	Trucks	0	Cars	180	Totals	182	East Leg Total: 24 East Entering: 10 East Peds: 0 Peds Cross: ☒
Heavys	0	0	0	0																											
Trucks	0	1	0	1																											
Cars	31	145	11	187																											
Totals	31	146	11																												
Heavys	2																														
Trucks	0																														
Cars	180																														
Totals	182																														



Peds Cross: ☒ West Peds: 0 West Entering: 51 West Leg Total: 87	<table style="margin: auto;"> <tr><td>Cars</td><td>150</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>151</td></tr> </table>	Cars	150	Trucks	1	Heavys	0	Totals	151	<table style="margin: auto;"> <tr><td>Cars</td><td>4</td><td>127</td><td>1</td><td>132</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>4</td><td>129</td><td>1</td><td></td></tr> </table>	Cars	4	127	1	132	Trucks	0	0	0	0	Heavys	0	2	0	2	Totals	4	129	1		Peds Cross: ☒ South Peds: 0 South Entering: 134 South Leg Total: 285
Cars	150																														
Trucks	1																														
Heavys	0																														
Totals	151																														
Cars	4	127	1	132																											
Trucks	0	0	0	0																											
Heavys	0	2	0	2																											
Totals	4	129	1																												

Comments

Accu-Traffic Inc.

Total Count Diagram

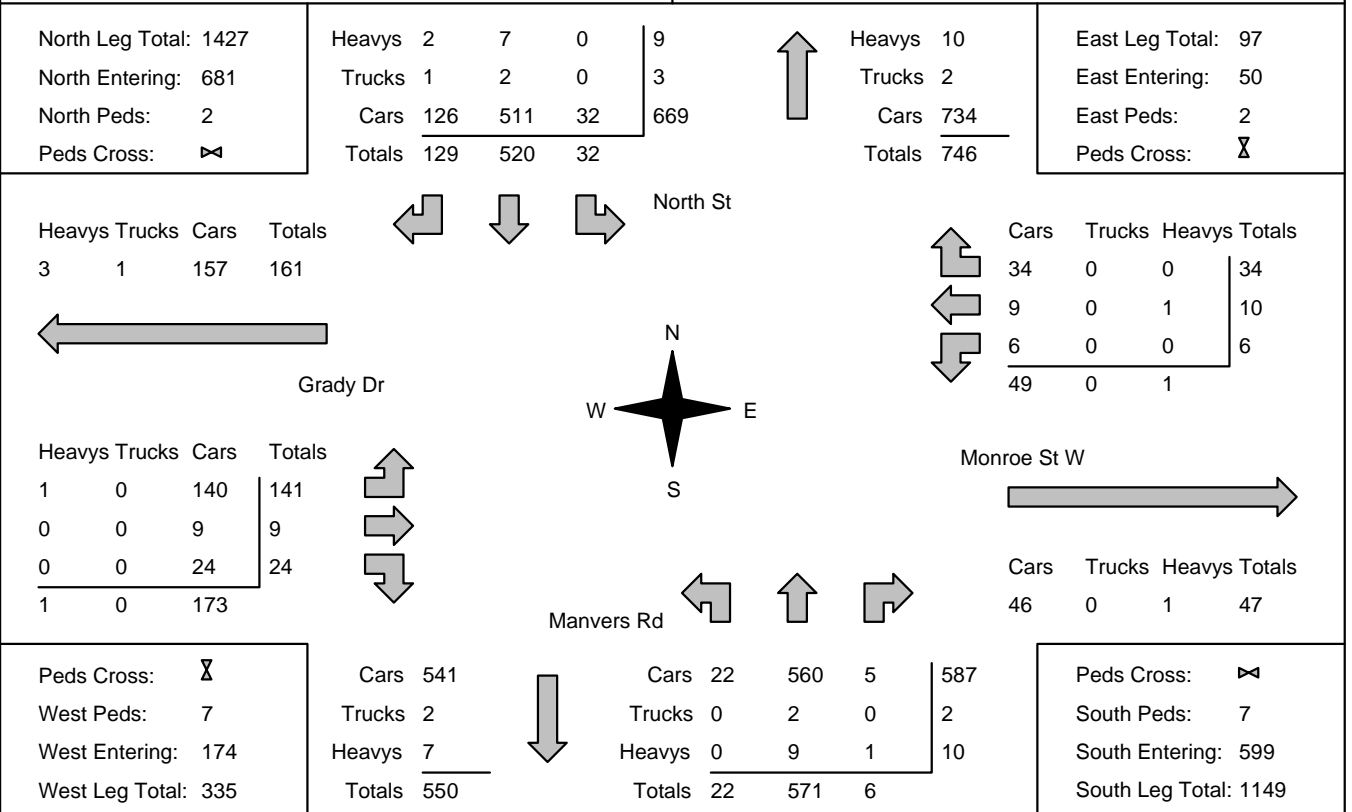
Municipality: Clarington
Site #: 2000800004
Intersection: North St & Grady Dr
TFR File #: 1
Count date: 9-Jan-20

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: North St runs N/S



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: North St & Grady Dr Count Date: 9-Jan-20 Municipality: Clarington


North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	2	24	8	34	0	82	7:00:00	0	47	1	48	0
8:00:00	3	56	17	76	0	161	8:00:00	0	85	0	85	1
9:00:00	3	78	20	101	0	197	9:00:00	3	90	3	96	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	7	135	34	176	0	322	17:00:00	7	138	1	146	3
18:00:00	12	111	26	149	0	286	18:00:00	6	131	0	137	0
19:00:00	5	116	24	145	2	232	19:00:00	6	80	1	87	3
Totals:	32	520	129	681	2	1280	S Totals:	22	571	6	599	7
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	1	3	4	0	10	7:00:00	4	0	2	6	0
8:00:00	1	1	9	11	0	32	8:00:00	14	0	7	21	0
9:00:00	2	5	6	13	0	33	9:00:00	15	1	4	20	4
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	1	0	6	7	0	55	17:00:00	42	2	4	48	3
18:00:00	1	2	4	7	0	57	18:00:00	41	4	5	50	0
19:00:00	1	1	6	8	2	37	19:00:00	25	2	2	29	0
Totals:	6	10	34	50	2	224	W Totals:	141	9	24	174	7
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	6:00	7:00	8:00	9:00		16:00	17:00	18:00	19:00			
Crossing Values:	0	5	17	22		0	48	46	33			

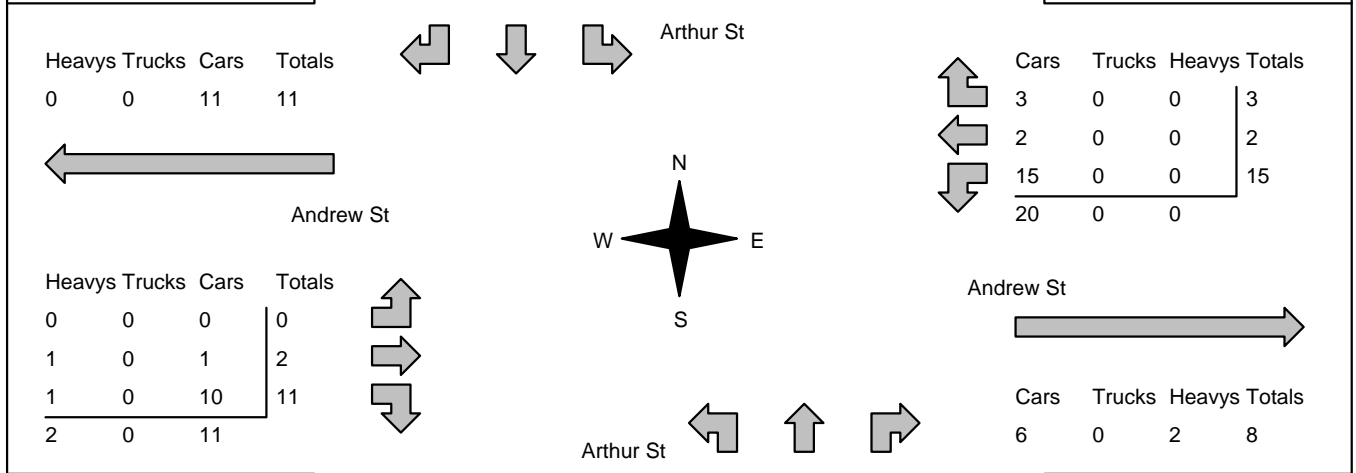
Accu-Traffic Inc.


Morning Peak Diagram	Specified Period From: 6:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
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Municipality: Clarington Site #: 2000800005 Intersection: Arthur St & Andrew St TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Arthur St runs N/S
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North Leg Total: 49 North Entering: 24 North Peds: 2 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>1</td><td>1</td><td style="border-left: 1px solid black;">2</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Cars</td><td>0</td><td>20</td><td>2</td><td style="border-left: 1px solid black;">22</td></tr> <tr><td>Totals</td><td>0</td><td>21</td><td>3</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	1	1	2	Trucks	0	0	0	0	Cars	0	20	2	22	Totals	0	21	3			<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>23</td></tr> <tr><td>Totals</td><td>25</td></tr> </table>	Heavys	2	Trucks	0	Cars	23	Totals	25	East Leg Total: 28 East Entering: 20 East Peds: 0 Peds Cross: ☒
Heavys	0	1	1	2																												
Trucks	0	0	0	0																												
Cars	0	20	2	22																												
Totals	0	21	3																													
Heavys	2																															
Trucks	0																															
Cars	23																															
Totals	25																															



Peds Cross: ☒ West Peds: 1 West Entering: 13 West Leg Total: 24	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>45</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Totals</td><td>47</td></tr> </table>	Cars	45	Trucks	0	Heavys	2	Totals	47		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>9</td><td>20</td><td>3</td><td style="border-left: 1px solid black;">32</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td style="border-left: 1px solid black;">2</td></tr> <tr><td>Totals</td><td>9</td><td>22</td><td>3</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	9	20	3	32	Trucks	0	0	0	0	Heavys	0	2	0	2	Totals	9	22	3		Peds Cross: ☒ South Peds: 1 South Entering: 34 South Leg Total: 81
Cars	45																															
Trucks	0																															
Heavys	2																															
Totals	47																															
Cars	9	20	3	32																												
Trucks	0	0	0	0																												
Heavys	0	2	0	2																												
Totals	9	22	3																													

Comments

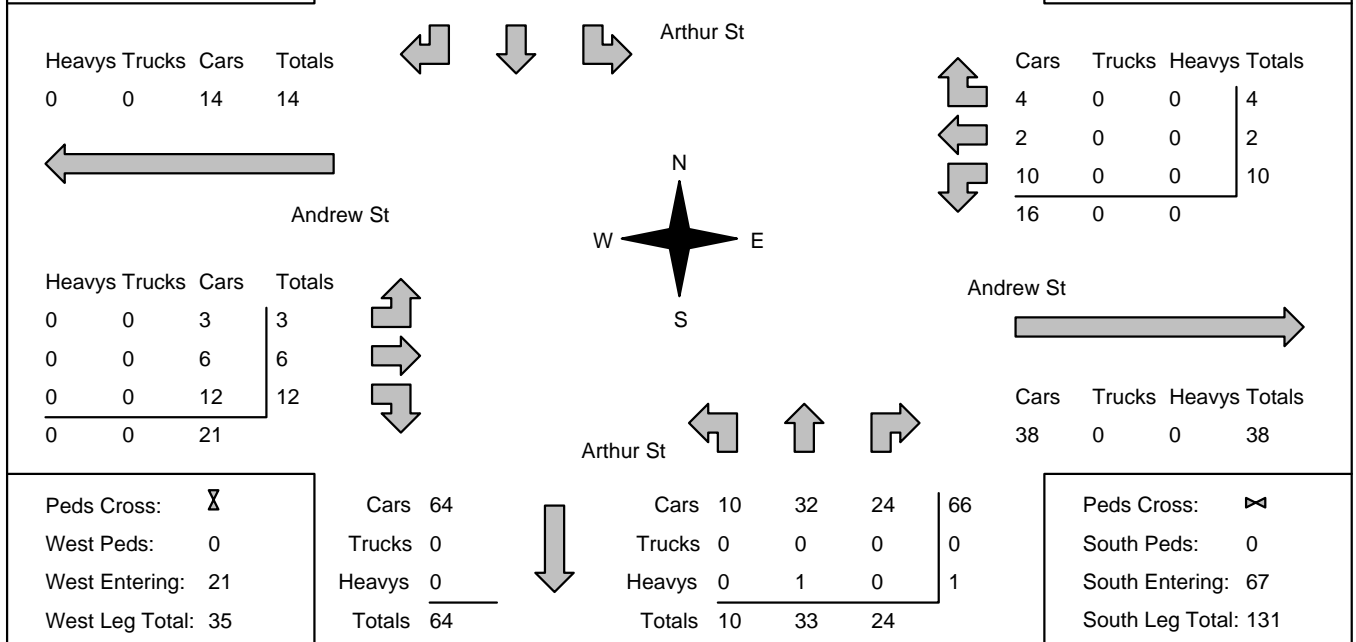
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: Clarington Site #: 2000800005 Intersection: Arthur St & Andrew St TFR File #: 1 Count date: 9-Jan-20	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Arthur St runs N/S
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North Leg Total: 92 North Entering: 52 North Peds: 1 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>2</td><td>42</td><td>8</td><td>52</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>2</td><td>42</td><td>8</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	2	42	8	52	Totals	2	42	8		↑	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>1</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>39</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>40</td></tr> </table>	Heavys	1	Trucks	0	Cars	39	Totals	40	East Leg Total: 54 East Entering: 16 East Peds: 0 Peds Cross: ☒
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	2	42	8	52																												
Totals	2	42	8																													
Heavys	1																															
Trucks	0																															
Cars	39																															
Totals	40																															



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Arthur St & Andrew St Count Date: 9-Jan-20 Municipality: Clarington

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	0	2	0	2	1	9	7:00:00	2	2	3	7	0
8:00:00	3	9	0	12	1	37	8:00:00	9	13	3	25	1
9:00:00	1	23	1	25	10	52	9:00:00	8	17	2	27	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	6	39	1	46	4	107	17:00:00	8	33	20	61	0
18:00:00	5	26	2	33	3	91	18:00:00	13	24	21	58	2
19:00:00	2	22	0	24	1	51	19:00:00	5	14	8	27	1
Totals:	17	121	4	142	20	347	S Totals:	45	103	57	205	6
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
6:00:00	0	0	0	0	0	0	6:00:00	0	0	0	0	0
7:00:00	15	1	1	17	1	26	7:00:00	0	0	9	9	0
8:00:00	14	2	6	22	0	41	8:00:00	3	0	16	19	1
9:00:00	13	2	2	17	8	28	9:00:00	0	2	9	11	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	10	2	3	15	0	37	17:00:00	3	6	13	22	0
18:00:00	13	0	2	15	2	25	18:00:00	1	3	6	10	0
19:00:00	10	0	1	11	1	21	19:00:00	0	2	8	10	1
Totals:	75	7	15	97	12	178	W Totals:	7	13	61	81	2
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	6:00	7:00	8:00	9:00		16:00	17:00	18:00	19:00			
Crossing Values:	0	17	21	27		0	23	22	14			

