

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The following discussion lists the conclusions drawn from background data, field inventories and subsequent analyses of traffic data and collision history within the Fonthill Traffic Study primary and secondary study areas.

1. Based on field inventories conducted on March 24, and 25, 2009, a review of the available departure sight distance at the STOP controlled (two-way and all-way) intersections concluded that the majority of the two-way STOP controlled intersections currently have differing degrees of restricted sight lines, due in most part, to a variety of obstructions within the sight triangles (i.e. trees, bushes, signs, hydro poles, the presence of parked vehicles and building structures). Notable intersections where restricted sight lines are more problematic include Pelham Street at Pelham Town Square (westbound direction) and Station Street at Hurricane Road (northbound direction). In most cases, the recommended sight lines can be improved by removing obstacles within the sight triangles.
2. Roadways carrying the heaviest two-way 24 hour traffic volumes included Regional Road 20 (17,700 vpd), Pelham Street (10,251 vpd), Rice Road (4,940 vpd), Pelham Town Square (3,967 vpd), Port Robinson Road (3,188 vpd), Church Hill (2,847 vpd), Pancake Lane (2,794 vpd), and Station Street (2,077 vpd).
3. Historical and recent spot speed surveys (conducted on April 2, 2009) indicated that drivers traveling on Town and Region roads generally disregard posted speed limits. The average percentage compliance for all roadways combined, was found to be 38 percent with a median value of 42 percent compliance.
4. The operational performance of the existing intersections (signalized and unsignalized) within the study area indicated that the majority of intersections are operating at acceptable levels of service with reasonable delays with the exception of a number of critical movements at several intersections. Notable delays are experienced within the Regional Road 20 corridor in the eastbound (morning peak hour) and westbound (afternoon peak hour) directions due to the higher volumes of traffic exiting and entering Fonthill during peak times with only one through lane in each direction to accommodate the traffic volumes. Due to the lack of available gaps in through traffic, left turn manoeuvres are problematic for Pelham Town Square westbound (PM peak hour), Port Robinson Road westbound (PM peak hour), Pancake Lane eastbound (AM and PM peak hour), and Hurricane Road south-eastbound (all peak hours). Several driveways accesses also experience poor levels of service and longer delays for left turning traffic; however, traffic queues are accommodated within the private sites in each case.
5. The operational performance of the existing intersections (signalized and unsignalized) within the study area including remedial measures and programmed roadway improvements indicated that through movements within the Regional Road 20 corridor will be improved; however, the eastbound (AM peak hour) and westbound (PM peak hour) through movements at the intersection of Pelham Street and Regional Road 20 will experience lower levels of service and longer delays due to the sheer volume of traffic utilizing only one lane in each direction. The length of the eastbound traffic queues may cause blockages from time to time of the Canboro Road/Regional Road 20 intersection during the morning peak hour. Left turn manoeuvres at the unsignalized intersections will be improved; however, the

unsignalized intersection at Hurricane Road and Regional Road 20 will still experience longer delays during the afternoon peak hour.

6. The potential installation of traffic signal control at the Church Hill/Pelham Street intersection can be accommodated. Although signal spacing between Regional Road 20 and Church Hill does not meet minimum standards, from a traffic operations perspective (based on existing 2009 traffic volumes), a traffic signal at this location will operate effectively. Suggested improvements in conjunction with a new traffic signal at this location include a three lane cross section from Regional Road 20 to south of Church Hill and signal coordination with the existing traffic signals at Regional Road 20.
7. A review of traffic control warrants for Port Robinson Road-Brock Street/Pelham Street (potential for the installation of traffic signals), Pancake Lane-John Street/Pelham Street (potential for the installation of traffic signals), Hurricane Road/Station Street (potential for the installation of an All-way STOP control), and Station Street/Port Robinson Road (review of current All-way STOP control) indicated that, based on the collected traffic data, none of the aforementioned intersections currently meet warrants. In the case of a new traffic signal installation at the Port Robinson Road-Brock Street/Pelham Street intersection, additional factors should be considered as part of the justification process beyond the traffic signal warrant including safety issues, traffic operations, physical, and strategic considerations. From a safety perspective, the installation of traffic signals may help slow traffic (based on a review of the spot speed survey on Pelham Street), reduce the probability and severity of collisions involving right-of-way conflicts, and provide a safe crossing for pedestrians and school children. From a traffic operations perspective, new traffic signals would improve traffic operations without exhibiting any detrimental affects to either the intersection or transportation network as a whole.
8. There are a number of Context Sensitive Solutions and traffic calming principles and practices that could be applied to the revitalization of the downtown core encompassing elements associated with roadside design, the traveled way, and intersections. Traffic calming, focused on measures that could be considered to slow traffic speeds, reduce traffic volumes, and reduce pedestrian/traffic conflicts within the downtown core could also be applied where warranted.
9. Based on a review of reported collision data, 135 collisions occurred in the study area of which about 21% occurred at the intersections and about 18% were intersection related. The remaining collisions were either non-intersection related or occurred at a private driveway, parking lot, or other location. There were no fatal collisions reported. Four percent were non-reportable, 14% were non-fatal injuries, and 82% were property damage only collisions. From a statistical significance point of view, only the section of Regional Road 20 from Pelham Street to Station Street was determined to be of concern. The majority of collisions that occurred within the Regional Road 20 corridor were single motor vehicle and rear end collisions (52%) with the remainder being made up of sideswipe, turning movement, or overtaking type collisions. In most cases, the collision experience at each of the intersections and roadway segments was similar to or less than that of the Ontario average collision experience. The two main safety issues are likely to be managing speed along Regional Road 20 and Pelham Street, as motorists transition from rural to urban conditions, and managing access and parking in the commercial part of the study area. On Pelham Street, south of Regional Road 20, the collisions recorded in the commercial area are directly related to accesses, side streets, and parking movements.

10. From a traffic operations perspective, the diversion of traffic away from Regional Road 20 and onto Town roads can be accommodated to a certain degree. However, the impacts of increasing traffic diversion will cause the degradation of service levels at two key intersections—Port Robinson Road at Station Street and at Rice Road—assuming that the pattern of diversion remains away from Regional Road 20 and onto Port Robinson Road and Station Street through the centre of Fonthill. The ability of the existing All-way STOP control at both locations to handle the increased traffic volumes will lessen as the diversion rates increase. The performance of the existing traffic signal controlled intersection at Regional Road 20 and Station Street will improve as traffic is diverted away from Regional Road 20 and on to Town roads.
11. The potential diversion of traffic to Pelham Street, Port Robinson Road, and Station Street should not adversely affect the pavement structure as it is anticipated that larger trucks would not be permitted on the roadways (i.e. used as a truck route). In addition, in light of the anticipated road improvement program, the addition of asphalt overlays and/or eventual reconstruction of these roadways will improve the road surface structural integrity thereby improving the lifespan of the roadways.
12. The majority of on-street parking facilities are provided within the downtown core area on Pelham Street and Regional Road 20 with 45 and 15 parking spaces each respectively, for a total of 60 spaces. Any future modifications to the existing on-street parking should consider the need for proper sight lines at the intersections of Pelham Street, Pelham Town Square and Church Hill with Regional Road 20.
13. Since the initiation of the Pelham Link, a review of the ridership indicated that a total of 3,230 riders have used the transit service from September 2008 to May 2009 inclusive. The total number of users in 2008 was 1,413 and 1,817 in 2009 showing an overall increase in ridership of about 29 percent indicating that the number of users per year is growing at a healthy rate. The majority of riders held Niagara College (N.C.) U-Passes (1,902) while 444 paid cash, 518 held Monthly Passes with the remaining being composed of N.C. Other and Transfers (Trans). Currently, due to the lack of ridership volumes, the existing transit services provided by the City of Welland will cease transit operations in August 2009. The Town continues to look for other feasible ways to provide public transit services which could be explored in the future. There are two schools within the study area that currently have school bus services during school times including Glynn A. Green Public School and St. Alexander Catholic Elementary School.
14. Available pedestrian facilities within the Town consist mainly of hard sidewalks and the trail network. The cycling network within the study area is primarily composed of Regional bikeway routes and the sharing of the Steve Bauer Trail as a Region/Town route. There are a number of cycling routes, both on-road and off-road passing through the study area. The trail system within the Fonthill area is classified into a number of Trail Loops composed of multi-use off road pathways and on road sidewalk or asphalt road facilities. There are seven circle loops and a section of trail link within Fonthill ranging from approximately 2.1 to 7.5 kilometres in length.

8.2 Recommendations

The following discussion lists the recommendations drawn from the various analyses undertaken as part of the Fonthill Traffic Study.

1. Deficient sight lines at the unsignalized intersections, noted for departure sight distance, should be investigated to determine if the removal of obstacles is practical, and if so, the removal of the obstacles should be undertaken to improve existing sight distances. Missing or deficient STOP bars should be reinstated at the unsignalized intersections.
2. Speeding on Town roads and within the Regional Road 20 corridor may be further reviewed to determine if additional speed control measures are necessary including police enforcement, driver awareness programs/signs, and/or traffic calming measures. In the case of motorists speeding on Port Robinson Road between Pelham Street and Station Street, it is recommended that the current regulatory 40 km/h speed limit be increased to 50 km/hr and SCHOOL ZONE MAXIMUM SPEED WHEN FLASHING signs be installed within a distance of 150 metres along the road in either direction beyond the limits of the school property. A 40 km/h maximum speed for the school zone should be designated in conjunction with the flashing signs. The Town of Pelham municipal by-law should indicate the times that the sign is in effect and the variable element (i.e. flashing beacons) are activated. The times should be relevant to the operating hours of Glynn A. Green Public School within the Town's jurisdiction, within the limits of 8 a.m. to 5 p.m. In addition, it is recommended that the appropriate pedestrian warning signs remain and/or be installed in conjunction with the School Zone Maximum Speed When Flashing signs (i.e. School Area and School Crossing Signs, where appropriate).
3. The following remedial measures may be implemented to help improve traffic operations within the Fonthill Traffic Study area:
 - a. Extend northbound left turn storage bay from 25 metres to 40 metres on Pelham Street at Regional Road 20;
 - b. Extend southbound left turn storage bay to 30 metres (if signal timing adjustments are not undertaken), otherwise bay storage length should remain as existing;
 - c. Modify existing traffic signal at Pelham Street/Regional Road 20 from "fixed time" to "fully actuated uncoordinated";
 - d. Modify signal cycle lengths and maximum signal phase splits for existing traffic signals on Regional Road 20 at Pelham Street, Station Street, Sobeys Signalized Entrance and Rice Road; and
 - e. Review the need to adjust the pedestrian crossing times at all existing traffic signal locations.
4. The Town of Pelham should ensure that they are aware and informed of the Region's future reconstruction schedule of Regional Road 20 as well as the Region's traffic management plan during the reconstruction phase(s) in order to better monitor diversionary traffic on Town roads. Based on the current traffic management plan for Regional Road 20, it is not recommended that any localized improvements be carried out on Town roads to accommodate potential diversionary traffic due the reconstruction of Regional Road 20.
5. Recommended improvements to existing pedestrian, cycling and trail facilities in the short-term may include the following:

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- a. Provision of a new north-south pedestrian sidewalk along the west side of Pelham Street from Elizabeth Drive to Brock Street, as a minimum, to tie into the future signalized intersection configuration at the intersection of Pelham Street and Brock Street/Port Robinson Road;
 - b. Provision of a new east-west sidewalk facility with the reconstruction of Brock Street and Elizabeth Drive to ensure pedestrians have safer access to local residential neighbourhoods;
 - c. Upgrading of existing sidewalk facilities (east side of road) and provide additional sidewalk on the west side of Station Street with the future upgrading of the roadway. A future sidewalk on the west side of Station Street could be tied into future upgrades to the Steve Bauer Trail in this location;
 - d. Cycling on Town roads and on existing trail facilities is currently permitted and should be further encouraged through the provision of wider pavements and/or on- and off-street cycling facilities where practical; and
 - e. Formalize and provide connectivity for the Steve Bauer Trail from Regional Road 20 to Port Robinson Road.
6. The installation of a new traffic signal at the Port Robinson Road-Brock Street/Pelham Street intersection would need to be justified based on other factors, beyond a strictly technical justification (i.e. traffic signal warrant), including safety issues, traffic operations, physical, and strategic considerations.
 7. The future installation of a new traffic signal at the Church Hill/Pelham Street intersection could be accommodated from a traffic operations perspective and would provide a safe crossing location for pedestrians within the downtown area. It is recommended that, as part of a future traffic signal installation at this location, the roadway cross section elements on Pelham Street between Regional Road 20 and Church Hill be reviewed along with the need to coordinate the existing traffic signal timings at Regional Road 20 with the future traffic signal timings at Church Hill.