Memo

To: Bryan Purins, C.E.T. – City of Hamilton

From: Ravi Bhim, Wood
Joseph Gowrie, Wood

Date: June 3, 2019

Project Ref: TPB186045

cc:

Re: **Westdale Neighbourhood Traffic Management Review – Identification of Alternatives Memo**

1. INTRODUCTION

The City of Hamilton is undertaking a Traffic Management Study for the Westdale neighbourhood area to identify and recommend potential transportation-related improvements that will benefit all road-users. The study will be completed as a Master Plan addressing Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) process as shown in Figure 1. This study will follow Approach No. 2 of the Master Planning Process where the level of investigation, consultation and documentation are sufficient to fulfil the requirements of Schedule 'B' projects.

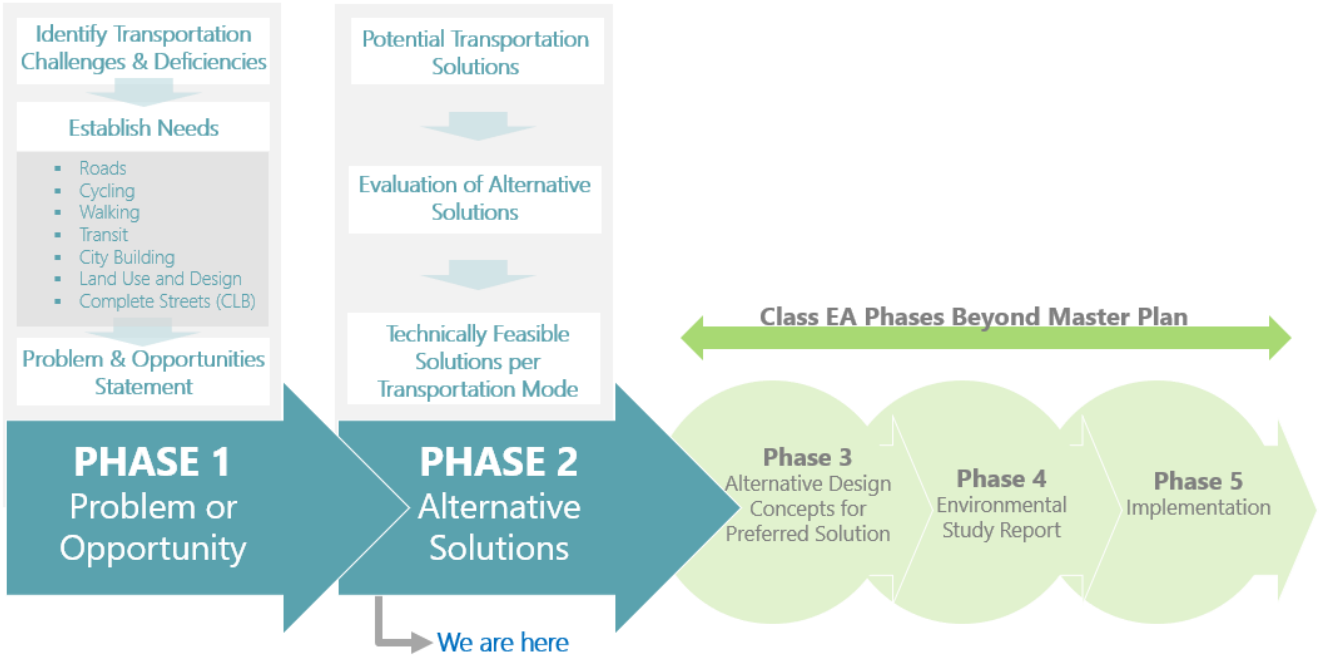


Figure 1: Municipal Class Environmental Assessment Process

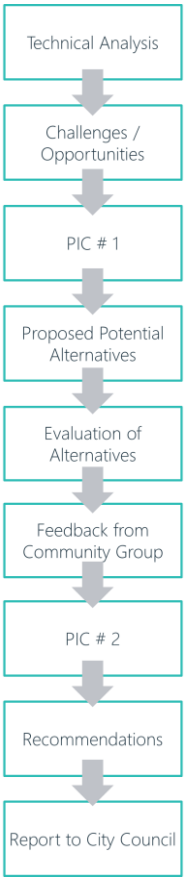
The purpose of this memorandum is to document the potential alternative solutions that were developed to address traffic challenges and opportunities identified in or from

- *Existing Conditions Final Report*;
- *Future Conditions Report* (provided in **Appendix A**);
- Site observations; and,
- Input obtained from local residents.

The project team carried out an evaluation process to assess the feasibility of these alternatives including their potential advantages and disadvantages in supporting the study's transportation goals and objectives. Evaluation of alternatives criteria and methodology will be discussed and confirmed in consultation with City staff to ensure the process has captured the required quantifiable and qualitative criteria and recommendations are justified.

2. METHODOLOGY

The key steps in the study process is shown on the right. Transportation related challenges and opportunities were identified and documented in the Existing Condition Report (available under separate cover). Localized concerns were identified and reviewed based on technical analysis, field investigation and comments provided by local residents at the public information centre (PIC). The project team then synthesized all information for developing feasible potential alternatives for the Ainslie Wood neighbourhood.



The development of potential alternatives incorporates a multi-modal approach to ensure designs are context-sensitive and balance the needs of all mode user types. As a result, the following City guidelines and transportation demand management (TDM) strategies/policies were considered in developing potential improvements:

- Traffic Calming/Management Policy
- Complete Streets Design Guidelines
- Pedestrian Mobility Plan
- Strategic Road Safety Program with emphasis on intersections and vulnerable road users
- Neighbourhood Action Plans
- Vision Zero concept
- City Wide Transportation Master Plan
- Cycling Master Plan

A description of these guidelines and their relevance to the study area are discussed in the *Planning Context Report*.

3. IDENTIFIED CONCERNS AND POTENTIAL SOLUTIONS

During the first phase of this study, several residents and key stakeholders attended a Public Information Centre (PIC #1) on June 21, 2018 to identify their transportation challenges and opportunities for Westdale. In addition, several residents identified potential alternative solutions to address the community's transportation challenges. **Figure 2** is a location plan showing all the locations within the Westdale neighbourhood where either a problem or opportunity was identified through the project. These locations are referenced in the same manner in **Table 2**, that documents the proposed alternative solutions by location. As part of the City-wide traffic calming and management policy, the development of alternative solutions will reflect the principles and concepts of the *Complete Liveable Streets* design approach.

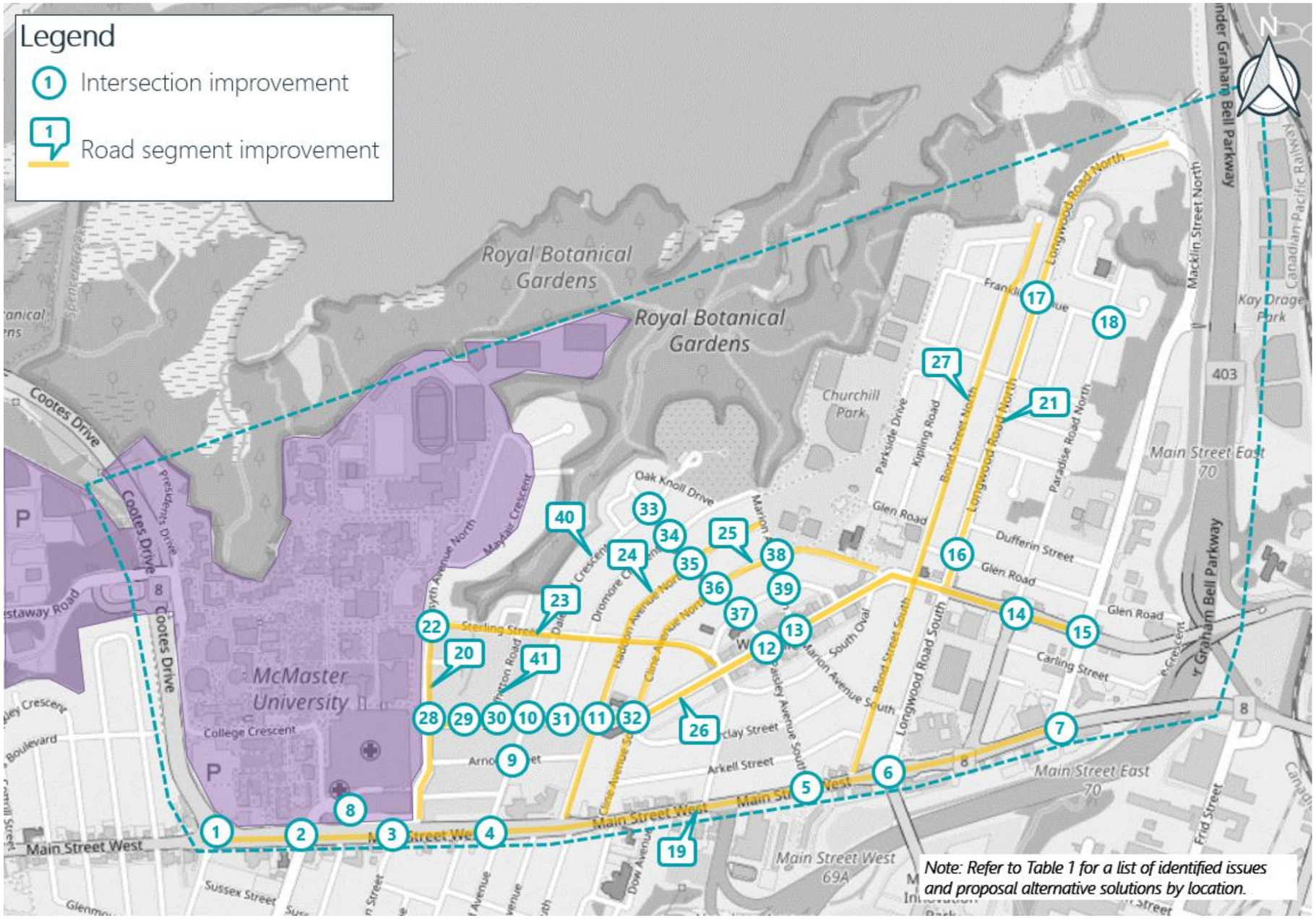


Figure 2: Locations of Identified Problems or Opportunities

Table 1 provides a description for each problem or opportunity that was identified within the neighbourhood and lists their potential solutions.

Table 1: Issues and Alternative Solutions

Reference No.	Location	Issue	Potential Alternative Solutions
General	Westdale	• Mobility concern for elderly drivers especially with the implementation of active transportation measures. • Consider protected cycling lanes installed in the neighbourhood • Will the bus traffic on Emerson Street continue once light rail transit (LRT) begins to operate? • How will LRT and buses cohabitate in the study area and in the rest of Hamilton? • Keep King bus in Westdale Village. • The advanced walk sign on King Street West and Newton Avenue is great and should be applied to other locations. • Several McMaster students park their cars in the neighbourhood and take a bus to campus. A large parking structure on campus would alleviate this issue. • Consider implementing chicanes, but not speed bumps. • Curb extension/bulb-outs are needed in all residential neighbourhoods. • Narrowing streets and other residual cues essential to slow cars in residential areas. • Poor pavement surface conditions	--
1	Main Street West & Cootes Drive	• Predominate impact types are rear-end (11 out of 27) and left-turns (8 out of 27). • Westbound right turn is channelized with a large radius resulting in high speed vehicles proceeding through two uncontrolled pedestrian crossings (pedestrians must "wait for gap").	• Alter lane designation. • Higher order pedestrian crossing treatment.

Reference No.	Location	Issue	Potential Alternative Solutions
2	Main Street West & Emerson Street	• Southbound traffic is prohibited from making right turns on red significantly reducing capacity. • Right turns on green which conflicts with pedestrians crossing the street (location exhibits high pedestrian volumes). • Predominate impact types are rear-end (14 out of 26) followed by pedestrian (5 out of 26). • Potential illumination issues at Main Street and Emerson Street since all of the pedestrian/vehicle collisions were recorded under dark light condition. • High collision risk for vulnerable road user-related collisions.	Implement pedestrian signage Add crosswalk markings. • Improve street lighting.
3	Main Street West & Bowman Street	• Southbound traffic is prohibited from making right turns on red significantly reducing capacity - right turns on green which conflicts with pedestrians crossing the street (location exhibits high pedestrian volumes). • During AM peak hour, southbound-left and southbound-through movements operate at LOS F. • Predominate impact types are rear-end (14 out of 26) followed by pedestrian-related collisions (5 out of 26).	• Add crosswalk markings.
4	Main Street West & Dalewood Avenue	• Pedestrian crossing is 3-stage and ignored. Pedestrians cross unstriped north/west leg of intersection. • Pedestrians walk down wide center median on Main St to next signal to the west. • Pavement marking and signage do not match.	• Match signage with pavement markings. • Install pedestrian barriers on median.
5	Main Street West & Paisley Avenue	• Pedestrian clearance times seem too short (too quick to cross safely).	• Implement pedestrian signage. • Prohibit vehicles from making through movement in the right lane (buses excepted).

Reference No.	Location	Issue	Potential Alternative Solutions
6	Main Street West & Longwood Road	• High proportion of rear-end collision in eastbound direction. • LOS F for southbound-left and southbound-through.	• Add signage indicating bus stops ahead in eastbound direction west of the intersection. • Signal timing modification.
7	Main Street West & Macklin Street	• The lane reduction in west approach could be attributable to turning sideswipe collisions recorded at this intersection.	• New intersection configuration.
8	Forsyth Avenue & University Avenue	• Perceived Pedestrian ROW on University Ave as pedestrian treatment provided. At least one student hit by car there recently.	• Install higher order pedestrian crossing .treatment with new signage.
9	Arnold Street & Dalewood Avenue	• Zebra striping on 3 approaches and faded lines on north side. • Traffic is free-flow NB/SB even though crossing is striped.	• Add crosswalk markings. • All-way-stop warrant. • Implement pedestrian signage.
10	King Street West & Dalewood Avenue	• Traffic delay and queuing issues.	• Signal warrant. • Signal timing modification.
11	King Street West & Haddon Avenue	• All-way stop request noted in Terms of Reference for project under "currently identified issues".	• Add crosswalk markings. • All-way-stop warrant. • Raised intersection. • Implement pedestrian signage.

Reference No.	Location	Issue	Potential Alternative Solutions
12	King Street West & Paisley Avenue	• Safety concerns with pedestrian crosswalk.	• Add crosswalk markings. • Implement pedestrian signage.
13	King Street West & Marion Avenue	• Many pedestrians who walk by the Westdale Theatre (by the Second Cup) do not look before crossing the street. This "near miss" happens once a week.	• Implement signage.
14	King Street West & Paradise Road	• Pedestrian and cycling safety issues. • Cycling lane continuity issues at King Street West and Paradise Road. • More prone to Single-Motor-Vehicle collisions with poor illumination (all collision is occurred close to or after midnight) as well as icy or wet road surface conditions being potential causal factors.	• Implement pedestrian signage. • Add pavement markings. • Improve street lighting (east side of Paradise Rd N and S, west side is already illuminated).
15	King Street West & Macklin Street	• Predominate impact type was angle collisions (27% or 6 out of 22).	• A signal clearance review demonstrated that amber and red times are currently sufficient. However, vehicle clearance times should continue to be monitored to ensure adequate amber and red times are provided for meeting the high traffic demand along King Street. *No alternative solution is required at this time.*
16	Glen Road & Longwood Road	• Inconsistent crosswalk treatments.	• Add crosswalk markings. • All-way-stop warrant.
17	Franklin Avenue & Longwood Road	• All-way stop request noted in Terms of Reference for project under "currently identified issues".	• Add crosswalk markings. • All-way-stop warrant. • Raised intersection.

Reference No.	Location	Issue	Potential Alternative Solutions
18	Franklin Avenue & Paradise Road	• Stop compliance issues.	• Add crosswalk markings. • Raised intersection. • Implement Speed humps.
19	Main Street West	• Speeding concerns.	• Reduce speed limit.
20	Forsyth Avenue	• Speeding concerns.	• Implement flexible bollards along centerline. • Implement speed humps. • Reduce speed limit.
21	Longwood Road	• Low speed limit compliance (21%) along Longwood Road. Traffic calming measures may need required.	• Install flexible bollards along centerline • Implement speed monitoring system • Implement chicanes **or** speed humps
22	Forsyth Avenue & Sterling Street	• Potential closure of North McMaster entrance.	• McMaster's transportation plan has a goal of a vehicle-free core campus. One of the plan's policy directions is to eliminate vehicle access on Sterling Street west of Stearn Drive (with the exception of emergency and university vehicles). Such closure will require further studies and discussion with McMaster University.
23	Sterling Street	• High traffic volumes on Sterling Street.	• High traffic volumes due to trips entering and exiting McMaster University as Sterling Street is the main access from the east. Potential closure of the north entrance (see location 23) will reduce traffic volumes on Sterling Street.
24	Haddon Avenue	• Speeding concerns raised by the public.	• Issue is further validated through field surveys which indicated 80% of vehicle are speed compliant. No alternative solution is required.

Reference No.	Location	Issue	Potential Alternative Solutions
25	Cline Avenue	• Speeding concerns raised by the public.	• Issue is further validated through field surveys which indicated 96% of vehicle are speed compliant. No alternative solution is required.
26	King Street West	• The King Street West bicycle lanes are discontinuous between Haddon Avenue and Cline Avenue wherein cyclists and motorists share a lane of travel.	• Consider extending cycling lanes down to King Street West.
27	Bond Street	• Speeding concerns raised by the public.	• Issue is further validated through field surveys which indicated 92% of vehicle are speed compliant. No alternative solution is required.

The alternatives identified in **Table 2** are evaluated using the evaluation criteria in **Table 2** in **Table 3**.

4. SCREENING CRITERIA

As part of a rigorous assessment to evaluate the potential solutions, the project team developed several criteria to gauge key differences and impacts amongst the alternatives.

In consultation with the City, a set of evaluation criteria and indicators that are reflective of local conditions and applicable to the study area are presented in **Table 2**.

Table 2: Evaluation Criteria and Indicators

Category	Criteria	Measures/Indicators
Technical	Change in Level of Transportation Service	• Improvements to Level of Service (LOS) and capacity (i.e. delay and volume/capacity ratios)
	Supportiveness of Other Transportation Modes	• Supportive of other transportation modes (e.g. walking, cycling, carpooling, transit etc.) • Consistent with Pedestrian Mobility Plan (PMP), Cycling Master Plan (CMP), HSR Operations Plans, and Health-by-Design (Public Health)
	Efficiency of Use of Existing Infrastructure	• Accommodating all modes of transportation within the confines of the existing transportation system (i.e. creation of complete streets within the limits of existing road rights-of-way)
	Safety	• Reflective of Hamilton Road Safety Program (i.e. safety, behaviors, enforcement levels, etc.) • Consistent with Vision Zero
Conformity with City's Direction / Policies	Compatibility with City Plans	• Consistency with City policy objectives included in the Transportation Master Plan (TMP) • Consistent with Complete, Liveable, Better (CLB) Streets concepts and elements
	Implementation Feasibility	• General assessment of feasibility of implementation by the City • Constructability of features • Impact of features on other operations (e.g. winter control, emergency service response) • Compatibility with proposed LRT
Estimated Costs	Estimated Costs	• Estimated capital costs (discriminating implementation and maintenance costs) • Consideration of timing with other City projects/priorities to ensure efficiency in expenditures • Compatibility with budget planning process

5. EVALUATION OF ALTERNATIVES AND RECOMMENDATIONS

A data-driven approach was used to evaluate the proposed alternatives against the criteria established in **Section 4**. **Table 3** provides a summary of the evaluation for each recommended solution. Both the carried forward and screened-out alternatives were documented with clear justification and explanation as to the recommendation.

As there are many combinations of requested and/or potential improvements to address the deficiencies, an implementation plan was developed to identify the timing and phasing of implementing these improvement (short, medium and long-term solutions). The timeframe for implementation was established based on a number of factors including; capital budget, complexity of solutions, coordination efforts and neighbourhood consultation.

Additionally, transportation alternatives were proposed along Main Street based on existing conditions analysis findings and comments received from the local residents. Considering the future implementation of the Hamilton LRT; however, any medium to long-term recommendations along Main Street will likely be reviewed and revisited by the City when further studies on the LRT are being conducted.

For ease of review and the nature of traffic calming improvements, the like-type improvements are grouped and evaluated together in the table. This method allows a pragmatic implementation approach as it is more time-efficient and cost-effective to implement like-type improvements within the community simultaneously (e.g. road rehabilitation, signage installation, etc.). In addition, a single location may have been identified with multiple issues/opportunities and, as such, may appear in more than one location.

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Signal Timing Modification	King Street West & Dalewood Avenue / Dalewood Crescent	4	Signal is currently pre-timed. Actuation for the north approach is recommended.	Significantly decrease unnecessary EB & WB delays by extending green time when there is no SB demand. Reduce intersection LOS from B to A and delay from 11.7 to 8.1 seconds in the AM peak. Reduce intersection LOS from B to A and delay from 15.1 to 13.8 seconds in the PM peak. 	Supports pedestrians by providing opportunity to call a NB/SB pedestrian phase. Would benefit approximately 19 pedestrians in AM peak and 25 pedestrians in PM peak based on existing demand. 	Enhance the use of facility with minor modification to existing infrastructure by implementing actuation (vehicle detection, pedestrian detection (push buttons) 	Improve pedesetrian safety by providing a pedestrian call phase and reduce potential conflicts between pedestrian and vehicle movements. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement (requires some technical resources/short duration). New signal infrastructure required including detector and wiring. Minor impact to traffic during installation. 	Medium Cost 	Carried Forward	Short Term (1-3 years)
				1.00	**1.00**	**0.75**	**0.75**	**1.00**	**0.75**	**0.50**	**0.82**	
	King Street West & Macklin Street	15	Review signal clearance.	Clearance times are sufficient. Signal timing is optimized in its current state							No Action (Compliance Check)	
Implement Signage	University Avenue & Forsyth Avenue South	8	Add signage to make it more obvious that pedestrians have the ROW	No impact on LOS 	Supports pedestrian safety 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Consistent with City's Complete-Livable-Better Streets Policy/Framework (2018 TMP Update). Particularly to promote context sensitive design that puts more emaphsis on sustainable modes of travel. Also aligns with adopting the concept of a walkable city as per 2012 Pedestrian Mobility Plan. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	Arnold Street & Dalewood Avenue	9	Implement "vehicles yield to pedestrians" sign on North approach.	No significant impact on LOS 	Supports pedestrian comfort in the area in establishing who has ROW 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Consistent with City's Complete-Livable-Better Streets Policy/Framework (2018 TMP Update). Particularly to promote context sensitive design that puts more emaphsis on sustainable modes of travel. Also aligns with adopting the concept of a walkable city as per 2012 Pedestrian Mobility Plan. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	King Street West & Paisley Avenue	12	"Yield to pedestrian" signage for WB taffic in the right lane (turning right onto Paisley Ave)	Minimal increase in delay if there is a pedestrian demand surge as right turning vehicle is required to yield to many peds which may potentially form traffic queues (one WB lane for all movements) 	Supports pedestrian safety. There are approximately 30 pedestrians during the AM peak and 76 during the PM peak crossing at this location. 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Consistent with City's Complete-Livable-Better Streets Policy/Framework (2018 TMP Update). Particularly to promote context sensitive design that puts more emaphsis on sustainable modes of travel. Also aligns with adopting the concept of a walkable city as per 2012 Pedestrian Mobility Plan. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.25	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.79**	

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Implement Signage	King Street West & Marion Avenue	13	Add signage to direct pedestrians to north leg pedestrian crossing of intersection	No impact on LOS 	Supports pedestrian safety 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improves pedestrian safety by directing peds to correct/designated crossing area and reduces conflicts between pedestrians and motorists. 	While the alternative protects for pedestrian safety, it does not improve the accesibility of transportation infrastructure as part of promoting healthy and safe communities as described in the 2018 TMP Update. Not increasing inclusive mobility as noted in 2012 Step Forward: Pedestrian Mobility Plan. 	Very Easy to implement. Important to locate signage correctly to capture pedestrianss currently crossing incorrectly 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.75**	**0.75**	**0.50**	**1.00**	**0.75**	**0.75**	
	King Street West & Haddon Avenue	11	Add signage indicating that peds do not have ROW for crossing King St	No impact on LOS 	Supports pedestrian safety as approximately 60 and 26 pedestrians cross King St during the AM and PM peaks respectively. 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	While the alternative protects for pedestrian safety, it does not improve the accesibility of transportation infrastructure as part fo promoting healthy and safe communities as described in the 2018 TMP Update. 	Feasible - Easy implementation. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.75**	**0.75**	**0.50**	**1.00**	**0.75**	**0.75**	
	King Street West & Paradise Road	14	Add signage to indicate that pedestrians must wait for a gap in traffic to safely cross at designated locations	No impact on LOS 	Supports pedestrians and cyclists 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	While the alternative protects for pedestrian safety, it does not improve the accesibility of transportation infrastructure as part fo promoting healthy and safe communities as described in the 2018 TMP Update. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.75**	**0.75**	**0.50**	**1.00**	**0.75**	**0.75**	
	King Street West & Macklin Street	15	Add signage indicating which lanes exit to Main St and which lane continues on King St	No impact on LOS 	No impact on other modes 	Enhance the use of pedestrian crossing with minor modification to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improves safety for motorists. Reuce potential collision risks as motorists are aware, in advance, of which lane they should be in to travel to their desired destination 	Aligns with 2018 TMP Update (Ch 5) in reaching City's vision and in creating healthy and safe communities. Road Safety is identified as a priority which includes implementation of traffic calming and management measures. Demonstrates consistency with Vision Zero initiative as proposed alternative would prevent vehicles from changing lanes at the last second which may cause collisions. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost 	Carried Forward	Short Term (1-3 years)
				0.50	**0.50**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.75**	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Add Pavement Markings	King Street West & Paradise Road	14	Add zebra striping where pedestrians should cross to increase pedestrian visibility / driver awareness	No impact on LOS 	Supports pedestrians by increasing their visibility to motorists. 	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement 	Low Cost 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2027
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	Arnold Street & Dalewood Avenue	9	For consistency, add zebra striping to north cross walk	No impact on LOS 	Supports pedestrians by increasing their visibility to motorists. 	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking. 	Consistency of crosswalk markings will improve safety of pedestrians by clarifying who has ROW (peds). Potential reduction in all collision types (2 collisions over the last 5 years) by 65%. 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement 	Low Cost 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	King Street West & Paisley Avenue	12	Add zebra striping for both E-W crossings to increase visibility	No impact on LOS 	Supports pedestrians as approximately 76 pedestrians and 128 pedestrians cross in the east-west direction during the AM and PM peaks reseoctivelv. 	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking. 	Improve safety for pedestrians by making them / the crossing more visible (more likely their ROW will be respected/noticed) 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement - paint overnight to avoid heavy traffic during the day 	Low Cost 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	King Street West & Haddon Avenue	11	For consistency, add zebra striping to east cross walk	No impact on LOS 	Supports pedestrians as approximately 7 pedestrians and 12 pedestrians cross at the eastern cross walk during the AM and PM peaks reseptively. 	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking. 	Consistency of crosswalk markings will improve safety of pedestrians by clarifying who has ROW (peds). Potential reduction in all collision types (1 collision over the last 5 years) by 65%. 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement 	Low Cost 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	Longwood Road North & Franklin Avenue	17	Add pedestrian crossing treatment (i.e. zebra striping) for crossing Franklin Ave	Very minor increase in delay if vehicle yields to many peds and results in queue formation. 	Supports pedestrians as approximately 30 pedestrians and 31 pedestrians cross at the intersection during the AM and PM peaks reseptively. 	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking. 	Improve safety for pedestrians by making them / the crossing more visible (more likely their ROW will be respected/noticed). Potential reduction of 40% in vehicle-pedestrian collisions. 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement 	Low Cost 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.25	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.79**	

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Add Pavement Markings	Longwood Road North & Glen Road	16	For consistency, add zebra striping to north cross walk	No impact on LOS	Supports pedestrians by increasing their visibility to motorists.	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking.	Consistency of crosswalk markings will improve safety of pedestrians by clarifying who has ROW (peds). Potential reduction in all collision types (1 collision in the last 5 years) by 65%.	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update.	Very easy to implement.	Low Cost	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
	Paradise Road North & Franklin Avenue (stop compliance issues included in ToR)	18	Add zebra striping on all approaches to further indicate that the intersection is stop controlled	No significant impact on LOS	Supports pedestrians as approximately 9 pedestrians and 4 pedestrians cross at the intersection during the AM and PM peaks reseoctivelv.	Enhance the use of existing pedestrian crossing facility with painted crosswalk marking.	Potential improvement of stop compliance, which will improve safety of all road users. Potential reduction of 40% in vehicle-pedestrian collisions.	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update.	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction.	Low Cost	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2028
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.82**	
All-Way Stop Control (see completed warrants)	Arnold Street & Dalewood Avenue	9	All-Way Stop Control Warrant - Not Warranted according to Hamilton Policy	Currently TWSC therefore may be a small decrease in LOS / increase in delay when SB vehicles are required to stop.	Supports pedestrians - all vehicles required to stop therefore pedestrians has the ROW to cross.	No changes to existing infrastructure required, only signage implementation	Improves safety for pedestrians by giving them opportunity for ROW (note that this intersection is located adjacent to Dalewood Middle School). Potential reduction in all collision types (2 collisions in the last 5 years) by 70%.	Not consistent with Hamilton Policy based on AWSC warrant results. However, this recommendation protects for pedestrian safety by providing for extra opportunity for pedestrian right of way at crosswalk. Promotes healthy and safe communities as described in the 2018 TMP Update.	Very easy to implement Will require signs with "new" tab to alert drivers to new all-way stop.	Low Cost	Carried Forward- can be justified based on safety due to close proximity to a public school.	
				0.25	**1.00**	**0.75**	**1.00**	**0.25**	**1.00**	**0.75**	**0.71**	
	Longwood Road North & Franklin Avenue (identified in ToR)	17	All-Way Stop Control Warrant - Not Warranted according to Hamilton Policy	Moderate Negative Impact. Currently TWSC. No change in LOS (A to A) and increase in delay from 6.2s to 7s for AM peak. No change in LOS (A to A) and increase in delay from 4.4s to 7.1s for PM peak.	Supports pedestrians - all vehicles required to stop therefore pedestrians free to walk, although relatively low volume of pedestrians (30 in the AM peak and 31 in the PM peak)	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction.	Improves safety for pedestrians by giving them opportunity for ROW. Potential reduction in all collision types by 70%.	Not consistent with Hamilton Policy based on AWSC warrant results. However, this recommendation protects for pedestrian safety by providing for extra opportunity for pedestrian right of way at crosswalk. Promotes healthy and safe communities as described in the 2018 TMP Update.	Very easy to Implement. Will require signs with "new" tab to alert drivers to new all-way stop.	Medium Cost.	Screened Out - Not Warranted according to Hamilton Policy and not justified based on safety	
				0.25	**1.00**	**0.50**	**0.75**	**0.50**	**1.00**	**0.50**	**0.64**	
	King Street West & Haddon Avenue (identified in ToR)	11	All-Way Stop Control Warrant - Not Warranted according to Hamilton Policy	Moderate Negative Impact. Currently TWSC therefore may be a small decrease in LOS / increase in delay when EB/WB vehicles are required to stop	Supports pedestrians - all vehicles required to stop therefore pedestrians free to walk. High volume of pedestrians using this intersection (177 during the AM peak and 113 during the PM peak)	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction.	Improves safety for pedestrians by giving them opportunity for ROW (note that poor sightlines exist for drivers travelling westbound). Potential reduction in angled collisions (4 90 degree collisions in the last 5 years) by 75%.	Protects for pedestrian safety by providing for extra opportunity for pedestrian right of way at crosswalk. Promotes healthy and safe communities as described in the 2018 TMP Update.	Very easy to Implement. Will require signs with "new" tab to alert drivers to new all-way stop.	Medium Cost.	Carried Forward- can be justified based on safety due to the high pedestrian demand and the potential for reducing angle collisions which typically result in more severe impacts (supports vision zero concepts)	
				0.25	**1.00**	**0.50**	**0.75**	**1.00**	**0.75**	**0.50**	**0.68**	

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Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
All-Way Stop Control (see completed warrants)	Longwood Road North & Glen Road	16	All-Way Stop Control Warrant - Not Warranted according to Hamilton Policy	Moderate Negative Impact. Currently TWSC therefore may be a small decrease in LOS / increase in delay when NB/SB vehicles are required to stop 	Supports pedestrians - all vehicles required to stop therefore pedestrians free to walk 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improves safety for pedestrians by giving them opportunity for ROW (note that this intersection is located near the Cootes Paradise Elementary School). Potential reduction in all collision types (1 in the last 5 years) by 70%. 	Protects for pedestrian safety by providing for extra opportunity for pedestrian right of way at crosswalk. Promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to Implement. Will require signs with "new" tab to alert drivers to new all-way stop. 	Medium Cost. 	Carried Forward- can be justified based on safety due to close proximity to a public school.	
				0.25	**1.00**	**0.50**	**0.75**	**1.00**	**0.75**	**0.50**	**0.68**	
Signal Warrant	King Street West & Dalewood Avenue / Dalewood Crescent	10	Currently signalized.	Currently signalized. According to the signal warrant as noted in OTM Book 12, a signal is still required.							No Action (Compliance Check)	
General	All		General request to consider lowering speed limits through the neighbourhood	Moderate Negative Impact to Traffic Operations (capacity) *Additional speed surveys and speed limit reviews are required to justify any posted speed limit reduction.* Reduction in posted speed may decrease traffic capacity albeit such impact can be minimal for streets with low vehicular demand. 	Creates a safer environment for pedestrians and cyclists. 	No change to existing infrastructure. 	Potential to improve safety for all road users. Severity of collisions reduce significantly as speeds are reduced. 	Consistent with City's Strategic Road Safety Program for speed lmit reduction 	Very easy to implement - include "new" tab on speed limit signs 	Low Cost. 	Carried Forward	Short-term (1-3 Years) Consider speed enforcement and speed radar monitoring system. Continual monitoring is required and consider the implementation of Slow Down Safety Zone as part of public safety education led by the Hamilton Strategic Road Safety Program
				0.25	**1.00**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.79**	
Introduce Speed Monitoring System	Longwood Road	21	Speed indication display (and consider camera enforcement)	Moderate Negative Impact. Potential minor decrease in capacity due to decrease in speed 	Potential to create a safer environment for pedestrians and cyclists (reduced speeds) 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Prompt driver to become aware of excessive speed. Improves safety for active transportation users by discouraging high speeds. Latest speed survey indicates 37% of compliance. 	Aligns with 2018 TMP Update (Ch 5) in reaching City's vision and in creating healthy and safe communities. Road Safety is identified as a priority which includes implementation of traffic calming and management measures. Demonstrates consistency with Vision Zero initiative. Could be implemented through Portable Radar Message Board Program (Road Safety Program). 	Easy to implement. Equipment set up is required. Could be portable speed radar speed sign or mounted on existing poles. 	Low Cost 	Carried Forward	Short-term (1-3 Years) Enforcement, Speed monitors
				0.25	**0.75**	**0.50**	**0.75**	**1.00**	**0.75**	**0.75**	**0.68**	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Install higher order pedestrian treatment (Level 2 Type B)	Main Street West & Cootes Drive (channelized right turn with high traffic operating speed)	1	Remove south crossing location and convert north crossing with pedestrian crossover Level 2 Type D (OTM Book 15)	Minimal impact to traffic capacity and LOS. Current LOS A can be maintained. 	Improve the pedestrian and cyclist environment by increasing the visibility of crossing facility. High volume crossing area with approximately 286 pedestrians crossing during the AM peak and 202 crossing during the PM peak. 	Enhance the use of facility with minor modification to existing infrastructure: removing south crossing and the addition of the following components to the north crossing: Signage installation on roadside, pavement markings (crosswalk and Yield to Pedestrian Line) and illumination. 	Alert driver of pedestrian crossing ahead with warning (Wc-27R) and regulatory (Ra-5R) signage and increased visibility with painted crosswalk and illumination. The retro reflective white triangles located at a distance of 6.0m in advance of the crosswalks increases driver's awareness and provides visibility as well as additional space for pedestrian crossing. High-visibility crosswalk can result in a potential reduction of 40% of vulnerable related collisions. 4 vulnerable road user collisions at this intersection in the last 5 years. 	Consistent with City policy objectives to minimize safety risks for vulnerable road users (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. stallation of warning (Wc-27R) and advance (Ra-5R) signage and pavement markings which include painted crosswalk and Yield to Pedestrian Line. Minimal impact to traffic during installation. 	Medium Cost 	Carried Forward	Short-term (1-3 Years)
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**0.75**	**0.50**	**0.75**	
	University Avenue & Forsyth Avenue South (and Bowman Street)	8	Improve the mid-block crossing treatment at University Ave/ Forsyth Ave	Minimal impact to traffic capacity and LOS. Temporary queues could be formed during demand surges from alighting transit passengers. 	Improve the pedestrian and cyclist environment by providing higher level of crossing treatment and subsequently increasing the visibility of crossing facility. 	Enhance the use of facility with minor modification to existing infrastructure: Requires the addition of the following components: Ladder crosswalk marking, Yield to Pedestrian Line, signage, actuated double-sided rectangle rapid flashing beacon and push button mounted above each set of pedestrian crossover signs and illumination. 	Prohibiting vehicles to stop 6.0m in advance with retro reflective white triangles (Yield to Pedestrian Line) increases driver's awareness and provides visibility as well as additional space for pedestrian crossing.. Flashing beacon above sign and illumination increases the visibility of pedestrian crossing. High-visibility crosswalk can result in a potential reduction of 40% of 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report). Future LRT implementation along Main Street will likely increase the pedestrian demand at this crossing location due to higher transit capacity. Improving transit access and safety at this location is desired. 	Easy to implement. Installation of warning (Wc-27R) and advance (Ra-5R) signage and pavement markings which include painted crosswalk and Yield to Pedestrian Line. Wiring is required for push button and flashing beacon mounted above signs. Minimal impact to traffic during installation. 	Medium Cost. 	Carried Forward	Short-term (1-3 Years)
				0.50	**1.00**	**0.75**	**0.75**	**1.00**	**0.75**	**0.50**	**0.75**	
Raised Intersection	King Street West & Haddon Avenue	11		Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists. High volume of pedestrians using this intersection would benefit (177 during the AM peak and 113 during the PM peak) 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Difficult to implement (requires some technical resources/long duration). Potential winter maintenance issue. 	High Cost. 	Carried Forward	Medium-term (3-5 Years)
				0.25	**1.00**	**0.75**	**1.00**	**1.00**	**0.25**	**0.25**	**0.64**	
	Longwood Road North & Franklin Avenue	17		Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists. Low volume of pedestrians (30 during AM peak and 31 PM peak) 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Difficult to implement (requires some technical resources/long duration). Potential winter maintenance issue. 	High Cost. 	Carried Forward	Medium-term (3-5 Years)
				0.25	**1.00**	**0.75**	**1.00**	**1.00**	**0.25**	**0.25**	**0.64**	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Raised Intersection	Paradise Road North & Franklin Avenue	18		Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists. Low volume of pedestrians (9 during AM peak and 4 during PM peak).	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Difficult to implement (requires some technical resources/long duration). Potential winter maintenance issue.	High Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	1.00	0.75	1.00	1.00	0.25	0.25	0.64	
Curb Bump-outs	Paradise Road & Franklin Avenue	18	South East and South West Quandrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Medium Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.50	0.68	
	Longwood Road North & Franklin Avenue	17	South East and South West Quandrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Medium Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.50	0.68	
	Forsyth Avenue North & Sterling Street	28	North East Quadrant	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Oakwood Place & Sterling Street	29	North West Quadrant	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Whitton Road & Sterling Street	30	North East and West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Medium-term (3-5 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Curb Bump-outs	Dalewood Crescent & Sterling Street	10	North East and West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Dromore Crescent & Sterling Street	31	North East and West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Haddon Avenue & Sterling Street	11	North East and West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Cline Avenue & Sterling Street	32	North East and West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	
	Paisley Avenue North & Dalewood Crescent	33	North West and South East Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	0.75	0.75	0.75	1.00	0.75	0.75	0.71	

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Curb Bump-outs	Paisley Avenue North & Dromore Crescent	34	North West and South East Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Requires simple design task and minor construction. 	Low Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	
	Paisley Avenue North & Haddon Avenue North	35	North East and South West Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Requires simple design task and minor construction. 	Low Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	
	Paisley Avenue North & Cline Avenue North	36	North West and South East Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Requires simple design task and minor construction. 	Low Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	
	Paisley Avenue North & North Oval	37	North West and South East Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Requires simple design task and minor construction. 	Low Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	
	Marion Avenue & Cline Avenue North	38	North East Quadrant	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. 	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians. 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Requires simple design task and minor construction. 	Low Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	
	Marion Avenue & North Oval	39	North West and South East Quadrants	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of facility with minor modification to existing infrastructure.	Intended to reduce overall vehicle speeds, thereby improving safety of all road users. Also reduces crossing distances for pedestrians.	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report)	Easy to implement. Requires simple design task and minor construction.	Low Cost.	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.75**	**0.75**	**0.71**	

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Physical Chicanes	Longwood Road	21	Traffic calming measure	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure. Requires rebuild of curb in some places. Minor impact on existing infrastructure 	Improves safety of active transportation users by ensuring motorists speeds are lower 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Difficult to implement (requires some technical resources/long duration). Potential winter control and emergency response. 	Medium Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	1	0.75	0.75	1.00	0.25	0.50	0.64	
	General		Traffic calming measure	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Requires rebuild of curb in some places. Minor impact on existing infrastructure 	Improves safety of active transportation users by ensuring motorists speeds are lower 	Consistent with City policy objectives (i.e. Traffic calming suggested in Vision Zero section of Road Safety Background report) 	Difficult to implement (requires some technical resources/long duration). Potential winter control and emergency response. 	Medium Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	1	0.75	0.75	1.00	0.25	0.50	0.64	
Speed Cushions	Longwood Road	21	Traffic calming measure	Moderate Negative Impact. Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (42 collisions at Longwood intersections in the last 5 years) by 40-50%. 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	
	Paradise Road North & Franklin Avenue	18	Implement segmented speed humps	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists. Low volume of pedestrians (9 during AM peak and 4 during PM peak). 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (2 collisions in the last 5 years) by 40-50%. 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost. 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.75	0.71	
	Forsyth Drive	20	Traffic calming measure	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (11 collisions at Forsyth intersections in the last 5 years) by 40-50%. 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	

Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements

Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Speed Cushions	Dalewood Crescent	40	Traffic calming measure. Two cushions between Sterling Street and Paisley Avenue North.	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (13 collisions at Dalewood Crescent intersections in the last 5 years) by 40-50% 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	
	Whitton Road	41	Traffic calming measure. Two cushions between King Street West and Sterling Street.	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (1 collisions at Whitton intersections in the last 5 years) by 40-50%. 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	
	Cline Avenue North	25	Traffic calming measure. One cushion between Marion Avenue North and King Street West.	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists. In the vicinty of Cootes Paradise Elementary school and would support vulnerable road users (children). 	Minor modification to existing infrastructure (road surface) with no direct enhancement of facility. 	Improves safety of active transportation users by ensuring motorists speeds are lower. Potential reduction in all collision types (15 collisions at Cline intersections in the last 5 years) by 40-50%. Would be in the vicinty of an elementary school and would therefor increase safety for vulnerable users. 	Consistent with City policy objectives (i.e. Traffic calming technique suggested in Vision Zero section of Road Safety Background report) 	Easy to implement. Potential winter maintenance issue. 	Medium Cost 	Carried Forward	Short-term (1-3 Years)
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	
Street Narrowing	General		Traffic calming measure	Potential for small decrease in capacity and small increase in delays (slower speeds) 	Supports pedestrians and cyclists 	Enhance the use of facility with minor modification to existing infrastructure (narrow road, rebuild curb). 	Improves safety of active transportation users by lowering vehicular speeds. 	Consistent with City's Road Safety Program vision as narrowing would fall under traffic calming and management. 	Difficult to implement (requires some technical resources/long duration). Can present issues with respect to winter control and emergency response 	High Cost. 	Carried Forward	
				0.25	1.00	0.75	0.75	1.00	0.25	0.25	0.61	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Flexible Bollards	Longwood Road	21	Traffic calming measure	Moderate Negative Impact. Potential for minor decrease in capacity and minor increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of existing cycling facility with minor modification to existing infrastructure.	Improves safety of active transportation users and reduce overall collision severity due to lower travel speeds.	Consistent with long-term recommendations as outlined in the Ainslie Wood / Westdale Transportation Master Plan (2003) for considering traffic calming measures on neighbourhood streets. Also aligns with Ainslie Wood Westdale Walkability Report for investing in traffic calming initiative.	Easy to implement. Potential winter maintenance issue.	Medium Cost (depends on barrier style).	Carried Forward	Short-term (1-3 Years)
				0.25	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.50**	**0.71**	
	Forsyth Drive	20	Traffic calming measure	Moderate Negative Impact. Potential for minor decrease in capacity and minor increase in delays (slower speeds)	Supports pedestrians and cyclists	Enhance the use of existing cycling facility with minor modification to existing infrastructure.	Improves safety of active transportation users and reduce overall collision severity due to lower travel speeds.	Consistent with long-term recommendations as outlined in the Ainslie Wood / Westdale Transportation Master Plan (2003) for considering traffic calming measures on neighbourhood streets. Also aligns with Ainslie Wood Westdale Walkability Report for investing in traffic calming initiative.	Easy to implement. Potential winter maintenance issue.	Medium Cost (depends on barrier style).	Carried Forward	Short Term (1-3 years)
				0.25	**0.75**	0.75	**1.00**	**1.00**	0.75	**0.50**	**0.71**	
Pavement Re-surfacing	General		Throughout neighbourhood	Moderate Negative Impact. Potential for small increase in LOS. Vehicles not required to travel slowly through areas with poor pavement conditions.	Potential to improve conditions for cyclists travelling on the road	Enhance the use of existing cycling facility with minor modification to existing infrastructure (re-paving).	Improves safety and elevates the comfort of cyclists. Eliminates need to swerve around potholes. Vehicles and cyclists will travel more smoothly on re-surfaced road	Consistent with City policy objectives (i.e. pavement re-surfacing is included in yearly infrastructure budgets)	Somewhat difficult to implement. Requires detours/lane closures during re-surfacing. Can be a short term solution (i.e. shave & pave).	Medium Cost.	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2027
				0.75	**0.75**	**0.50**	**0.75**	**1.00**	**0.25**	**0.50**	**0.64**	
New Intersection Configuration	King Street West & Paradise Road	14	Change intersection configuration for Cyclist Safety	Significant positive impact to traffic operations. Potential to improve LOS and increase capacity	Potential to improve pedestrian and cyclist movement / interactions with vehicles	Requires significant modification to existing infrastructure with some direct enhancement of facility.	Improves safety of motorists, cyclists, and pedestrians.	Consistent with City policy objectives by protecting cyclist safety with increased vibility and clarity as to where vehicles may expect cyclists. Promotes healthy and safe communities as described in the 2018 TMP Update.	Very difficult to implement. Requires significant design. May involve relocation of subsurface/at grade utilities.	High Cost.	Carried Forward	Long-term (>5 Years)
				1.00	**1.00**	**0.25**	**1.00**	**1.00**	**0.00**	**0.25**	**0.64**	
Signal Timing Modification	Main Street West & Cootes Drive	1		Signals are already optimized along Main St. Not feasible to improve timing if LRT will change all timings in the near future.							Screened Out	
	Main Street West & Emerson Street	2		Signals are already optimized along Main St. Not feasible to improve timing if LRT will change all timings in the near future.							Screened Out	
	Main Street West & Dalewood Avenue	4		Signals are already optimized along Main St. Not feasible to improve timing if LRT will change all timings in the near future.							Screened Out	
	Main Street West & Paisley Avenue	5		Signals are already optimized along Main St. Not feasible to improve timing if LRT will change all timings in the near future.							Screened Out	

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Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Implement Signage	Main Street West & Emerson Street	2	Add signage for pedestrians to wait for a gap to cross the channelized WBR	No impact on LOS. 	Supports pedestrian safety as approximately 532 pedestrians use this intersection during the AM peak, while 551 pedestrians use it during the PM peak. 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	While the alternative protects for pedestrian safety, it does not improve the accesibility of transportation infrastructure as part for promoting healthy and safe communities as described in the 2018 TMP Uodate. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.50**	**0.75**	**0.50**	**1.00**	**0.75**	**0.71**	
	Main Street West & Dalewood Avenue	4	Match signage with pavement markings (lane movements do not match)	No impact on LOS. 	No significant impact on other transportation modes 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Potential to improve safety for all users by providing clarification in way finding, right of way, etc. 	Improvement in road safety (elimination of confusion between signage and pavement markings) is consistent with City's vision in creating healthy and safe communities (2018 TMP update), as well as Vision Zero. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.50**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.75**	
	Main Street West & Longwood Road South	6	Add signage indicating busses stop ahead in EB direction west of the intersection	No impact on LOS. 	No significant impact on other transportation modes 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Potential to reduce rear end collisions 	Improvement in road safety (potential reduction of rear end collisions) is consistent with City's vision in creating healthy and safe communities (2018 TMP update), as well as Vision Zero. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.50**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.75**	
Implement Signage	Main Street West & Paisley Avenue South	5	Add Yield to Pedestrian signage for left turning vehicles from Paisley Ave	Low pedestrian volumes conflicting with left turners from Paisley, therefor no significant impact to LOS. 	Supports pedestrian safety 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Consistent with City's Complete-Livable-Better Streets Policy/Framework (2018 TMP Update). Particularly to promote context sensitive design that puts more emaphsis on sustainable modes of travel. Also aligns with adopting the concept of a walkable city as per 2012 Pedestrian Mobility Plan. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**1.00**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.82**	
	University & Forsyth	8	Add signage to make it more obvious that pedestrians have the ROW	No impact on LOS. 	Supports pedestrian safety 	Minimal change to existing infrastructure. Requires purchasing and installing new signage. No new construction. 	Improve safety of pedestrians and motorists (i.e. both parties are aware of who has ROW) 	Consistent with City's Complete-Livable-Better Streets Policy and Framework as part of the 2018 TMP Update. Particularly to promote context sensitive design that puts more emaphsis on sustainable modes of travel (walking). Also aligns with adopting the concept of a walkable city as noted in 2012 Step Forward: Pedestrian Mobility Plan. 	Very Easy to implement. Add signs with "new" tab. 	Low Cost. 	This has already been done	Short Term (1-3 years)
				0.50	**1.00**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.82**	

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Type of Improvements	Locations	Location ID	Details	Evaluation Criteria: Change in Level of Transportation Service	Supportiveness of Other Transportation Modes	Efficiency of Use of Existing Infrastructure	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing Strategy
Legend				Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly improves the ability to use sustainable modes of transportation	Enhance the use of facility with no modification to existing infrastructure	Improves safety for all road users	Compatible	Very easy to implement (requires minimal resources/very short duration)	No Cost		
				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Add Pavement Markings	Main Street West & Dalewood Avenue	4	Match pavement markings with signage for which lanes are for which movements	No impact on LOS. 	No impact on pedestrians or cyclists. 	No change to existing infrastructure, pavement marking only. 	Potential to improve safety for all users by providing clarification in way finding, right of way, etc. 	Improvement in road safety (elimination of confusion between signage and pavement markings) is consistent with City's vision in creating healthy and safe communities (2018 TMP update), as well as Vision Zero. 	Very easy to implement. Note that pavement markings along Main Street have potential to be altered by LRT. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.50**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.75**	
	Main Street West & Emerson Street	2	Increase visibility of crossing (i.e. zebra striping)	No impact on LOS. 	Supports pedestrian safety as approximately 532 pedestrians use this intersection during the AM peak, while 551 pedestrians use it during the PM peak. 	No change to existing infrastructure, pavement marking only. 	Improve safety for pedestrians by making them / the crossing more visible (more likely their ROW will be respected/noticed). Potential reduction of 40% in vehicle-pedestrian collisions. 5 vehicle-pedestrian collisions in the last 5 years 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Very easy to implement. Paint overnight to avoid heavy traffic during the day. 	Low Cost. 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2027
				0.50	**1.00**	**0.50**	**1.00**	**1.00**	**1.00**	**0.75**	**0.82**	
Add Crosswalk Markings	Main Street West & Bowman Street	3	Increase visibility of crossing (i.e. zebra striping)	No impact on LOS. 	Supports pedestrians 	No change to existing infrastructure, pavement marking only. 	Improve safety for pedestrians by making them / the crossing more visible (more likely their ROW will be respected/noticed). Potential reduction of 40% in vehicle-pedestrian collisions. 	Protects for pedestrian safety by increasing vibility of crosswalk, promotes healthy and safe communities as described in the 2018 TMP Update. 	Easy implementation - paint overnight to avoid traffic during the day 	Low Cost. 	Carried Forward	Short Term (1-3 years) Funding can be allocated from "Minor Rehab" in City's Budget for 2019-2027
				0.50	**1.00**	**0.75**	**1.00**	**1.00**	**1.00**	**0.75**	**0.86**	
Alter Lane Designation	Main Street West & Cootes Drive	1	Convert EB shared through/left lane to a dedicated left lane on Main Street	Synchro analysis indicates overall intersection delay would increase by 0.6s, LOS would remain the same 	226 pedestrians in the AM peak conflict with EBL movement while 202 conflict in the PM peak. Would remove some potential conflict with these pedestrians as pedestrians would not be able to walk during EBL protected phase (i.e. no conflict). 	Enhance the use of facility with minor modification to existing infrastructure. No new construction required. Will require new signal head,pavement markings and temporary signage to indicate change in lane designation 	Potential to improve safety for all users by improving interactions of all users through lane alterations 	Consistent with the Design Plates found in Appendix B of the Hamilton LRT Environmental Project Report. The design has one eastbound left lane, one through lane and a shared through / right lane. 	Easy to Implement. equires updated signal head (from three bulb to 9A head or something similar to accommodate EBL protected phase). Note that pavement markings along Main Street have potential to be altered by LRT. 	Medium Cost. 	Carried Forward	Long-term (>5 Years)
				0.50	**0.75**	**0.75**	**1.00**	**1.00**	**0.75**	**0.50**	**0.75**	
Decrease Speed Limit	Main Street West	19	Decrease speed limit from 60 km/h to 50km/h	Moderate Negative Impact. May result in decreased capacity. Synchro analysis shows average increase in delay at intersections is 2.25s during 2031 PM peak. 	Creates a safer environment for pedestrians and cyclists. 	No change to existing infrastructure. 	Potential to improve safety for all road users. Severity of collisions reduce significantly as speeds are reduced. Pontential reduction in all collisions of 12%. There were 215 at Main St intersections in the last 5 years 	Consistent with speed limit reduction initiatives outlined in the Hamilton Strategic Road Safety Program as well as the Road Safety Background Report included in the 2018 TMP Update. 	Easy to implement - include "new" tab on speed limit signs. Enforcement might be required initially to raise awareness. 	Low Cost. 	Carried Forward	Long-term (>5 Years)
				0.25	**1.00**	**0.50**	**1.00**	**1.00**	**0.75**	**0.75**	**0.75**	

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				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Pedestrian Barriers	Main Street West & Dalewood Avenue	4	To dissaude pedetrians from walking on the centre median	No impact on LOS.  **0.50**	Supports safe / impedes unsafe pedestrian movement. Improved interaction between pedestrians and vehicles.  **0.75**	Minimal change to existing infrastructure.  **0.50**	Improves safety for pedestrians. Dissuades pedestrians from walking along median and jaywalking  **0.75**	Consistent with City's Complete-Livable-Better Streets Policy for comfortable and safe opportunities for active transportation. Would eliminate / reduce unsafe pedestrian actions.  **1.00**	Very easy to implement.  **1.00**	Low Cost - Median Cost (depending on barrier type)  **0.75**	Carried Forward **0.75**	Short Term (1-3 years)
Roadside Lighting	Main Street West & Emerson Street	2	Add luminaire on median near intersection	No impact to Traffic Operations  **0.50**	Supports all modes (improved visibility)  **1.00**	No significant impact on existing infrastructure (installation of new luminaires)  **0.50**	Improves safety for pedestrains by making them more visible to motorists  **1.00**	Consistent with City's Complete-Livable-Better Streets Policy for comfortable and safe opportunities for active transportation. Adding lighting will add comfort and provide a safer experience for AT users.  **1.00**	Difficult implementation. Require electrical connection and equipment set up to erect and install light poles.  **0.25**	Medium to High Cost.  **0.25**	Carried Forward **0.64**	Long-term (>5 Years)
Roadside Lighting	King Street West & Paradise Road N/S	14	Improve Street Lighting on the east side	No impact to Traffic Operations  **0.50**	Supports all modes (improved visibility)  **1.00**	Enhance the use of facility with minor modification to existing infrastructure to improve illumination.  **0.75**	Improves safety for active transportation users by making them more visible to motorists  **0.75**	Consistent with City's Complete-Livable-Better Streets Policy for comfortable and safe opportunities for active transportation. Adding lighting will add comfort and provide a safer experience for AT users.  **1.00**	Difficult implementation. Require electrical connection and equipment set up to erect and install light poles.  **0.25**	Medium to High Cost.  **0.25**	Carried Forward **0.64**	Long-term (>5 Years)
Turn Prohibitions	Main Street West & Paisley Avenue South	5	Prohibit vehicles from making through movement in the right lane (buses excepted)	Moderate Negative Impact. Minor increase in delay for through movement.  **0.25**	Fewer conflicts between vehicles and peds/cyclists therefore somewhat ped/cyclist supportive  **0.75**	Minimal change to existing infrastructure.  **0.50**	Decreases potential for rear end collisions  **0.75**	Improvement in road safety (reduction of rear end collisions) is consistent with City's vision in creating healthy and safe communities (2018 TMP update), as well as Vision Zero.  **1.00**	Very easy to implement. Requires signage  **1.00**	Low .  **0.75**	Carried Forward **0.71**	Short Term (1-3 years)
New Intersection Configuration	Main Street West & Macklin Street South	7	Intersection will be reconfigured during LRT implementation. LT signal from Paradise onto Main W.	The planning goal is to ensure effcient higher-order transit service with miminized impact on traffic operations.  **1.00**	The planning goal is to improve pedestrian and cyclist movement / interactions with vehicles, provide seamless access to future higher-order transit service.  **1.00**	Would require mild to significant changes to existing infrastructure  **0.25**	Improves safety of motorists, cyclists, and pedestrians  **0.75**	Consistent with City's overall policy directions. Create a safer pedestrian crossing area at Paradise Rd, which is consistent with safer AT environmental envisioned in the 2018 City TMP Update. Would also improve driver safety as merge zone and lane drops eliminated, which aligns with City's Complete-Livable-Better vision as well as Vision Zero (reduction/elimination of vehicle collisions).  **1.00**	Difficult to implement. Requires redesign of the intersection which may involve utilities relocation.  **0.25**	High Cost.  **0.25**	Carried Forward **0.64**	Long-term (>5 Years)

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				Moderate Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Improves the ability to use sustainable modes of transportation	Enhance the use of facility with minor modification to existing infrastructure	Improves safety for some road users	--	Easy to implement (requires some technical resources/short duration)	Low Cost		
				No Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	No Change	No change to existing infrastructure	No Change	--	--	Medium Cost		
				Moderate Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	More difficult to use sustainable modes of transportation	Requires minor modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for some road users	--	Difficult to implement (requires some technical resources/long duration)	High Cost		
				Significant Negative Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Significantly more difficult to use sustainable modes of transportation	Requires significant modification to existing infrastructure with no direct enhancement of facility.	Increases the safety risks for all road users	Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost		
Cycling Network	King Street West between Haddon Avenue and Cline Avenue	26	Extend cycling lane at this section to improve cycling network connectivity	Moderate Negative Impact. Marginally decrease capacity on the curb lane due to reduced width. Decrease in delays is not anticipated. 	Supports cyclists. The planning goal is to improve cycling network connectivity and cyclist movement / interactions with vehicles. 	Enhance the use of facility with minor modification to existing infrastructure (lane marking) 	Improves safety cyclists through delineated cycling lane marking making cyclists to be more visible to motorists (more likely their ROW will be respected/noticed). 	Create a safer cycling environment which is consistent with safer AT environmental envisioned in the 2018 City TMP Update. 	Somewhat difficult to implement from a design perspective: to ensure design consistency and seamless connectivity with upstream and downstream intersections. 	Medium Cost. 	Carried Forward	Short Term (1-3 years)
				0.25	**0.75**	**0.75**	**0.75**	**1.00**	**0.25**	**0.25**	**0.57**	
	Sterling Street @ Oakwood Place	29	Reduce curb radius in northeast corner of the intersection	Negligeable impact. Drivers will be required to turn around the corner slower which may have a very small impact on LOS and delay. 	Supports a safer pedestrian environment. 	Requires minor reconstruction of one quadrant of the curb. 	Reduces vehicular speeds around the corner. Also reduces the crossing distance for pedestrians and therefor may improve safety. 	Would create a safer pedestrian environment which is consistent with a safer AT environment as envisioned in the 2018 City TMP update. 	Easy to implement. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.75**	**0.25**	**0.75**	**0.75**	**0.75**	**0.75**	**0.64**	
Reduce Curb Radius	Sterling Street @ Whitton Ave	30	Reduce curb radius in southwest corner of the intersection	Negligeable impact. Drivers will be required to turn around the corner slower which may have a very small impact on LOS and delay. 	Supports a safer pedestrian environment. 	Requires minor reconstruction of one quadrant of the curb. 	Reduces vehicular speeds around the corner. Also reduces the crossing distance for pedestrians and therefor may improve safety. 	Would create a safer pedestrian environment which is consistent with a safer AT environment as envisioned in the 2018 City TMP update. 	Easy to implement. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.75**	**0.25**	**0.75**	**0.75**	**0.75**	**0.75**	**0.64**	
	Sterling Street @ Dromore Crescent	31	Reduce curb radius in southwest corner of the intersection	Negligeable impact. Drivers will be required to turn around the corner slower which may have a very small impact on LOS and delay. 	Supports a safer pedestrian environment. 	Requires minor reconstruction of one quadrant of the curb. 	Reduces vehicular speeds around the corner. Also reduces the crossing distance for pedestrians and therefor may improve safety. 	Would create a safer pedestrian environment which is consistent with a safer AT environment as envisioned in the 2018 City TMP update. 	Easy to implement. 	Low Cost. 	Carried Forward	Short Term (1-3 years)
				0.50	**0.75**	**0.25**	**0.75**	**0.75**	**0.75**	**0.75**	**0.64**	