

# Memo

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

From: Ravi Bhim, Wood

Joseph Gowrie, Wood

**Date:** June 3, 2019

**Project Ref:** TPB186045

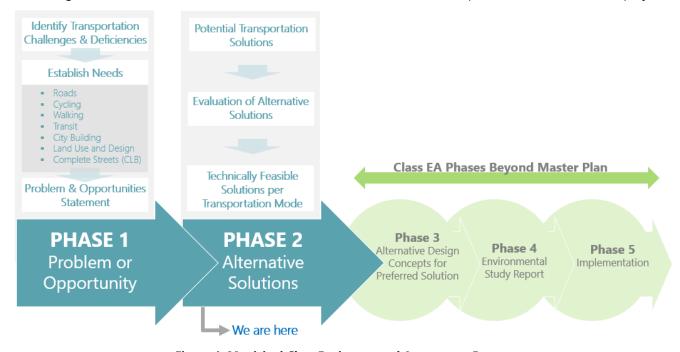
cc:

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*.

# Challenges / Opportunities PIC # 1 Proposed Potential Alternatives Evaluation of Alternatives Feedback from Community Group PIC # 2 Recommendations Report to City Council

# 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.

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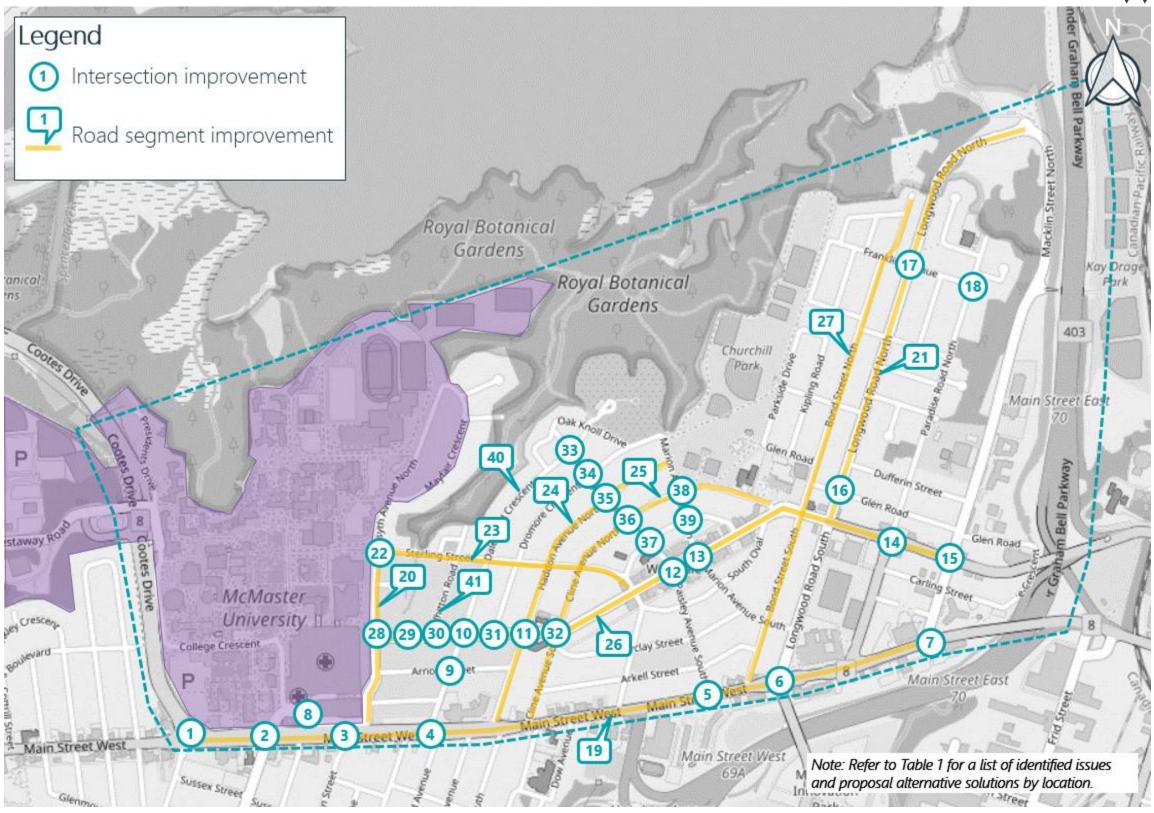


Figure 2: Locations of Identified Problems or Opportunities

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**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	<ul> <li>Mobility concern for elderly drivers especially with the implementation of active transportation measures.</li> <li>Consider protected cycling lanes installed in the neighbourhood</li> <li>Will the bus traffic on Emerson Street continue once light rail transit (LRT) begins to operate?</li> <li>How will LRT and buses cohabitate in the study area and in the rest of Hamilton?</li> <li>Keep King bus in Westdale Village.</li> <li>The advanced walk sign on King Street West and Newton Avenue is great and should be applied to other locations.</li> <li>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.</li> <li>Consider implementing chicanes, but not speed bumps.</li> <li>Curb extension/bulb-outs are needed in all residential neighbourhoods.</li> <li>Narrowing streets and other residual cues essential to slow cars in residential areas.</li> <li>Poor pavement surface conditions</li> </ul>	
1	Main Street West & Cootes Drive	<ul> <li>Predominate impact types are rear-end (11 out of 27) and left-turns (8 out of 27).</li> <li>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").</li> </ul>	<ul> <li>Alter lane designation.</li> <li>Higher order pedestrian crossing treatment.</li> </ul>



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

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Reference No.	Location	Issue	Potential Alternative Solutions			
6	Main Street West & Longwood Road	<ul> <li>High proportion of rear-end collision in eastbound direction.</li> <li>LOS F for southbound-left and southbound-through.</li> </ul>	<ul> <li>Add signage indicating bus stops ahead in eastbound direction west of the intersection.</li> <li>Signal timing modification.</li> </ul>			
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	<ul> <li>Zebra striping on 3 approaches and faded lines on north side.</li> <li>Traffic is free-flow NB/SB even though crossing is striped.</li> </ul>	<ul><li>Add crosswalk markings.</li><li>All-way-stop warrant.</li><li>Implement pedestrian signage.</li></ul>			
10	King Street West & Dalewood Avenue	Traffic delay and queuing issues.	<ul><li>Signal warrant.</li><li>Signal timing modification.</li></ul>			
11	King Street West & Haddon Avenue	All-way stop request noted in Terms of Reference for project under "currently identified issues".	<ul> <li>Add crosswalk markings.</li> <li>All-way-stop warrant.</li> <li>Raised intersection.</li> <li>Implement pedestrian signage.</li> </ul>			

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Reference No.	Location	Issue	Potential Alternative Solutions			
12	King Street West & Paisley Avenue	Safety concerns with pedestrian crosswalk.	<ul><li>Add crosswalk markings.</li><li>Implement pedestrian signage.</li></ul>			
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	<ul> <li>Pedestrian and cycling safety issues.</li> <li>Cycling lane continuity issues at King Street West and Paradise Road.</li> <li>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.</li> </ul>	<ul> <li>Implement pedestrian signage.</li> <li>Add pavement markings.</li> <li>Improve street lighting (east side of Paradise Rd N and S, west side is already illuminated).</li> </ul>			
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.	<ul> <li>Add crosswalk markings.</li> <li>All-way-stop warrant.</li> </ul>			
17	Franklin Avenue & Longwood Road	All-way stop request noted in Terms of Reference for project under "currently identified issues".	<ul><li>Add crosswalk markings.</li><li>All-way-stop warrant.</li><li>Raised intersection.</li></ul>			

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Reference No.	Location	Issue	Potential Alternative Solutions
18	Franklin Avenue & Paradise Road	Stop compliance issues.	<ul><li>Add crosswalk markings.</li><li>Raised intersection.</li><li>Implement Speed humps.</li></ul>
19	Main Street West	Speeding concerns.	Reduce speed limit.
20	Forsyth Avenue	Speeding concerns.	<ul> <li>Implement flexible bollards along centerline.</li> <li>Implement speed humps.</li> <li>Reduce speed limit.</li> </ul>
21	Longwood Road	Low speed limit compliance (21%) along Longwood Road. Traffic calming measures may need required.	<ul> <li>Install flexible bollards along centerline</li> <li>Implement speed monitoring system</li> <li>Implement chicanes or speed humps</li> </ul>
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.	<ul> <li>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.</li> </ul>
24	Haddon Avenue	Speeding concerns raised by the public.	<ul> <li>Issue is further validated through field surveys which indicated 80% of vehicle are speed compliant. No alternative solution is required.</li> </ul>



Reference No.	Location	Issue	Potential Alternative Solutions
25	Cline Avenue	Speeding concerns raised by the public.	<ul> <li>Issue is further validated through field surveys which indicated 96% of vehicle are speed compliant. No alternative solution is required.</li> </ul>
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.	<ul> <li>Issue is further validated through field surveys which indicated 92% of vehicle are speed compliant. No alternative solution is required.</li> </ul>

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



# 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.

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



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



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



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

0.75

1.00

0.25

1.00



0.68

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



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



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Requires significant modification to Very difficult to implement (requires Significant Negative Impact to Traffic Significantly more difficult to use Increases the safety risks for all road existing infrastructure with no direct Not Compatible significant technical resources/long Prohibitive Cost Operations (e.g. Delay, Capacity, LOS) sustainable modes of transportation enhancement of facility. duration) Moderate Negative Impact Supports pedestrians and cyclists. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Difficult to implement (requires some Low volume of pedestrians ( 9 during modification to existing infrastructure. Potential for small decrease in speeds, thereby improving safety of Traffic calming suggested in Vision Zero technical resources/long duration). High Cost. capacity and small increase in delays all road users section of Road Safety Background report) Potential winter maintenance issue Carried Forward Medium-term (3-5 Years) Paradise Road North (slower speeds) Raised Intersection & Franklin Avenue 0.25 1.00 0.75 1.00 1.00 0.25 0.25 0.64 Moderate Negative Impact Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists speeds, thereby improving safety of Traffic calming suggested in Vision Zero Medium Cost. modification to existing infrastructure. design task and minor construction. capacity and small increase in delays section of Road Safety Background report) all road users Paradise Road & Carried Forward Medium-term (3-5 Years) South East and South 18 (slower speeds) Franklin Avenue West Ouandrants 0.75 0.75 0.75 0.75 0.50 0.25 1 00 0.68 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists speeds, thereby improving safety of Traffic calming suggested in Vision Zero Medium Cost. modification to existing infrastructure. design task and minor construction. section of Road Safety Background report) capacity and small increase in delays Longwood Road all road users Carried Forward Medium-term (3-5 Years) South Fast and South North & Franklin (slower speeds) West Quandrants Avenue 0.25 0.75 0.75 0.75 1.00 0.50 0.68 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. design task and minor construction. modification to existing infrastructure. all road users. Also reduces crossing Forsyth Avenue capacity and small increase in delays section of Road Safety Background report) Carried Forward Medium-term (3-5 Years) distances for pedestrians. Curb Bump-outs North & Sterling 28 North East Quadrant (slower speeds) Street 0.25 0.75 0.75 0.75 0.75 0.71 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. section of Road Safety Background report) capacity and small increase in delays distances for pedestrians. Carried Forward Medium-term (3-5 Years) Oakwood Place & 29 North West Quadrant (slower speeds) Sterling Street 0.25 0.75 0.75 0.75 0.71 Moderate Negative Impact Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Traffic calming suggested in Vision Zero Potential for small decrease in Supports pedestrians and cyclists Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) Whitton Road & North East and West distances for pedestrians. Carried Forward Medium-term (3-5 Years) (slower speeds) 30 Sterling Street Quadrants 0.75 0.25 0.75 0.75 1.00 0.75 0.75 0.71



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Requires significant modification to Very difficult to implement (requires Significantly more difficult to use Significant Negative Impact to Traffic Increases the safety risks for all road existing infrastructure with no direct Not Compatible significant technical resources/long Prohibitive Cost Operations (e.g. Delay, Capacity, LOS) sustainable modes of transportation enhancement of facility. duration) Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. section of Road Safety Background report) capacity and small increase in delays distances for pedestrians. Carried Forward Dalewood Crescent North East and West Short-term (1-3 Years) (slower speeds) & Sterling Street Quadrants 0.25 0.75 0.75 0.75 1.00 0.75 0.75 0.71 Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) North East and West distances for pedestrians. Carried Forward Short-term (1-3 Years) Dromore Crescent & (slower speeds) Sterling Street Quadrants 0.25 0.75 0.75 0.75 0.75 0.75 0.71 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Traffic calming suggested in Vision Zero Supports pedestrians and cyclists Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) distances for pedestrians. Carried Forward Short-term (1-3 Years) Haddon Avenue & North East and West Curb Bump-outs (slower speeds) Sterling Street Quadrants 0.75 0.71 0.75 0.75 0.75 0.25 1.00 Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. apacity and small increase in delays section of Road Safety Background report) Cline Avenue & North East and West distances for pedestrians Carried Forward Short-term (1-3 Years) 32 (slower speeds) Sterling Street Ouadrants 0.75 0.75 0.75 1.00 0.75 0.25 0.75 0.71 Negative Impac Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. section of Road Safety Background report) capacity and small increase in delays aisley Avenue Nor Carried Forward Short-term (1-3 Years) distances for pedestrians. North West and South & Dalewood (slower speeds) East Quadrants Crescent 0.25 0.75 0.71



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Requires significant modification to Very difficult to implement (requires Significantly more difficult to use Significant Negative Impact to Traffic Increases the safety risks for all road existing infrastructure with no direct Not Compatible significant technical resources/long Prohibitive Cost Operations (e.g. Delay, Capacity, LOS) sustainable modes of transportation enhancement of facility. duration) Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) distances for pedestrians. North West and South Carried Forward Short-term (1-3 Years) Paislev Avenue North (slower speeds) & Dromore Crescent East Quadrants 0.25 0.75 0.75 0.75 1.00 0.75 0.75 0.71 Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) Paisley Avenue Nortl distances for pedestrians. Carried Forward Short-term (1-3 Years) North East and South & Haddon Avenue (slower speeds) West Quadrants 0.25 0.75 0.75 0.75 0.75 0.75 0.71 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Traffic calming suggested in Vision Zero Supports pedestrians and cyclists Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. section of Road Safety Background report) capacity and small increase in delays Paisley Avenue North distances for pedestrians. Carried Forward Short-term (1-3 Years) North West and South & Cline Avenue (slower speeds) East Quadrants North 0.25 0.75 0.75 0.75 1.00 0.71 Curb Bump-outs Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement, Requires simple Traffic calming suggested in Vision Zero Potential for small decrease in Supports pedestrians and cyclists Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. apacity and small increase in delays section of Road Safety Background report) distances for pedestrians. Carried Forward aisley Avenue Nortl North West and Sout Short-term (1-3 Years) 37 & North Oval East Quadrants 0.25 0.75 0.75 0.75 1.00 0.75 0.75 0.71 Moderate Negative Impact Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing design task and minor construction. capacity and small increase in delays section of Road Safety Background report) distances for pedestrians. Carried Forward Short-term (1-3 Years) Marion Avenue & North East Quadrant (slower speeds) Cline Avenue North 0.25 0.75 0.75 0.75 0.75 0.75 0.71 Moderate Negative Impact. Intended to reduce overall vehicle Consistent with City policy objectives (i.e. Enhance the use of facility with minor speeds, thereby improving safety of Easy to implement. Requires simple Potential for small decrease in Supports pedestrians and cyclists Traffic calming suggested in Vision Zero Low Cost. modification to existing infrastructure. all road users. Also reduces crossing apacity and small increase in delays section of Road Safety Background report) distances for pedestrians. Carried Forward Short-term (1-3 Years) Marion Avenue & North West and South 39 (slower speeds) North Oval East Quadrants 0.25 0.75 0.75 0.75 1.00 0.71



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



					Table 3 - Westdale Neigh	nbourhood Traffic Managemen	t Study Evaluation of Alternativ	es and Recommended Improvem	ents											
Type of Improvements	Locations	Location	Details	Change in Level of Transportation	Supportiveness of Other	Efficiency of Use of Existing	Safety	Compatibility with City Plans	Implementation Feasibility	Estimated Costs	Recommendations	Implementaton/Phasing								
			Locations ID			Service Significant Positive Impact to Traffic Operations (e.g. Delay, Capacity, LOS)	Transportation Modes Significantly improves the ability to use sustainable modes of transportation	Infrastructure  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		Strategy						
			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			Easy to implement (requires some technical resources/short duration)	Low Cost											
ı	Legend			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										
	Dalewood Crescent	40	Traffic calming measure Two cushions between Sterling Street and	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-	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)								
			Paisley Avenue North.				31.7%													
				0.25	1.00	0.25	1.00	1.00	0.75	0.50	0.68	T								
	Whitton Road	ton Road 41	pad 41	41	41	i 41	d 41	pad 41	nd 41	41	Traffic calming measure. Two cushions between King Street West and	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)
Speed Cushions			Sterling Street.																	
		1		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)								
		1		0.25	1.00	0.25	1.00	1.00	0.75  Difficult to implement (requires some	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).		Consistent with City's Road Safety Program vision as narrowing would fall under traffic calming and management.	technical resources/long duration). Can present issues with respect to winter control and emergency response	High Cost.	Carried Forward									
Street Nationing	General		Traine caming measure																	
				0.25	1.00	0.75	0.75	1.00	0.25	0.25	0.61									



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



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



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



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Requires significant modification to Very difficult to implement (requires Significant Negative Impact to Traffic Significantly more difficult to use Increases the safety risks for all road existing infrastructure with no direct Not Compatible significant technical resources/long Prohibitive Cost Operations (e.g. Delay, Capacity, LOS) sustainable modes of transportation enhancement of facility. duration) Consistent with City's Complete-Livable-Supports safe / impedes unsafe Improves safety for pedestrians. Better Streets Policy for comfortable and pedestrian movement. Improved Minimal change to existing Low Cost - Median Cost (depending No impact on LOS. Dissuades pedestrians from walking safe opportunities for active Very easy to implement. interaction between pedestrians and infrastructure. on barrier type) along median and jaywalking transportation. Would eliminate / reduce To dissaude pedetrians Short Term Main Street West & vehicles. Carried Forward from walking on the unsafe pedestrian actions. Pedestrian Barriers (1-3 years) centre median 0.75 1.00 Consistent with City's Complete-Livable 0.75 Better Streets Policy for comfortable and No significant impact on existing Improves safety for pedestrains by Difficult implementation. Require Supports all modes (improved safe opportunities for active No impact to Traffic Operations infrastructure (installation of new making them more visible to electrical connection and equipment Medium to High Cost. transportation. Adding lighting will add visibility) Add luminaire on luminaires) motorists set up to erect and install light poles. Main Street West & comfort and provide a safer experience Carried Forward Long-term (>5 Years) Roadside Lighting median near for AT users Emerson Street intersection 0.50 1.00 0.50 1.00 1.00 0.25 0.25 0.64 Consistent with City's Complete-Livable Better Streets Policy for comfortable and Enhance the use of facility with minor Improves safety for active Difficult implementation, Require Supports all modes (improved safe opportunities for active No impact to Traffic Operations modification to existing infrastructure transportation users by making them electrical connection and equipment Medium to High Cost. transportation. Adding lighting will add visibility) to improve illumination. more visible to motorists set up to erect and install light poles. comfort and provide a safer experience King Street West & mprove Street Lighting Carried Forward Long-term (>5 Years) Roadside Lighting 14 Paradise Road N/S on the east side for AT users 0.50 1.00 0.75 0.75 1.00 0.25 0.64 Moderate Negative Impact. rear end collisions) is consistent with City's Fewer conflicts between vehicles and Minimal change to existing Decreases potential for rear end Very easy to implement. Requires vision in creating healthy and safe peds/cyclists therefore somewhat Prohibit vehicles from Minor increase in delay for through infrastructure collisions communities (2018 TMP update), as well ped/cyclist supportive Short Term Main Street West & making through Carried Forward as Vision Zero Turn Prohibitions (1-3 years) Paislev Avenue South movement in the right lane (buses excepted) 0.75 0.25 0.75 1.00 0.75 0.71 Consistent with City's overall policy directions. Create a safer pedestrian crossing area at Paradise Rd, which is The planning goal is to improve consistent with safer AT environmental he planning goal is to ensure effcient pedestrian and cyclist movement / envisioned in the 2018 City TMP Update. Difficult to implement. Requires higher-order transit service with Would require mild to significant Improves safety of motorists, cyclists, Intersection will be interactions with vehicles, provide Would also improve driver safety as redesign of the intersection which High Cost. miminized impact on traffic changes to existing infrastructure and pedestrians seamless access to future highermerge zone and lane drops eliminated, may involve utilities relocation. econfigured during LR1 New Intersection Main Street West & operations. Carried Forward Long-term (>5 Years) implementation. LT order transit service. vhich aligns with City's Complete-Livable Configuration Macklin Street South signal from Paradise Better vision as well as Vision Zero onto Main W. (reduction/elimination of vehicle collisions). 1.00 1.00 0.25 0.64



Table 3 - Westdale Neighbourhood Traffic Management Study Evaluation of Alternatives and Recommended Improvements														
							Evaluation Criteria							
Type of Improvements	Locations	Location ID	Details	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		
						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		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 satety for some road lisers		Easy to implement (requires some technical resources/short duration)	Low Cost				
1	Legend			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.		Not Compatible	Very difficult to implement (requires significant technical resources/long duration)	Prohibitive Cost				
Cycling Network	King Street West between Haddon Avenue and Cline	26	Extend cycling lane at this section to improve cycling network	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 mino modification to existing infrastructure (lane marking)	, ,	Create a safer cycling environment which is consistent with safer AT environmental envisioned in the 2018 City TMP Update.	3	Medium Cost.	Carried Forward	Short Term (1-3 years)		
	Avenue		connectivity											
				0.25	0.75	0.75	0.75	1.00	0.25	0.25	0.57	1		
	Sterling Street @	29	Reduce curb radius in northeast corner of the	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.	9	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)		
	Oakwood Place		intersection									(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	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.	9	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.	( arried Forward	Short Term (1-3 years)		
	William		intersection											
				0.50	0.75	0.25	0.75	0.75	0.75	0.75	0.64	1		
	Sterling Street @	31	Reduce curb radius in southwest corner of the	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.	9	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)		
	Dromore Crescent	31	intersection									(1-3 years)		
				0.50	0.75	0.25	0.75	0.75	0.75	0.75	0.64			

