

Appendix 2

Triple Bottom Line Review – Residential Speed Limit Review - Speed Limits & Eligible Streets

Process and Methodology

Administration used the City of Saskatoon's Triple Bottom Line (TBL) Decision Making Tool to comply with *Council Policy C08-001 - Triple Bottom Line*.

When conducting a TBL analysis, it is appropriate to compare and/or evaluate multiple options. As such, the following options were reviewed:

1. 50 km/h Speed Limit (Business As Usual)
2. 40 km/h Speed Limit
3. 30 km/h Speed Limit

In conducting the analysis, the Administration relied on the expertise of the Project Team and Subject Matter Experts from the Transportation, Sustainability, and Planning and Development Departments, as well as consulted the following information:

- Residential Speed Limit Review – Background Information and Feedback Summary [File No. CK 6320-1], Standing Policy Committee Meeting, June 7, 2021, Section 5.1 of Appendix 1
- SWOV Fact Sheet, The relationship between speed and crashes, Leidschendam, the Netherlands
- April 2012, https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa1304/Resources3/08%20-%20The%20Relation%20Between%20Speed%20and%20Crashes.pdf
- World Health Organization Fact Sheet, 2004, https://www.who.int/violence_injury_prevention/publications/road_traffic/world_report/speed_en.pdf
- Noisy Speeding: Impact of Speed on Noise Level, Camea Technology, <https://www.cameatechnology.com/articles/noisy-speeding-impact-of-speed-on-noise-level/>
- Speed Distribution Influence in Road Traffic Noise Prediction, Gerardo Iannone, Claudio Guarnaccia, Joseph Quartieri, Environmental Engineering and Management Journal, March 2013, https://www.researchgate.net/publication/256646360_Speed_distribution_influence_in_road_traffic_noise_prediction
- Safe Speed: Promoting Safe Walking and Cycling by Reducing Traffic Speed, Dr. Jan Garrard, November 2008 https://www.healthyactivebydesign.com.au/images/uploads/Partners/Resources/Publications/Safe_Speed_Report_Doc_202008.pdf
- Measuring Transport Equity, Karen Lucas and Karel Martens, 2019 https://books.google.ca/books?id=l-GaDwAAQBAJ&pg=PA162&lpg=PA162&dq=speed+limit+and+community+cohesion&source=bl&ots=d1XnFuuVUd&sig=ACfU3U2k3geqKnOVjy_BIm3Cz3_k70Cjdg&hl=en&sa=X&ved=2ahUKEwidsNaZz7XxAhXX7Z4KHvLB8Q6AEwEHoECBQQAw#v=onepage&q=speed%20limit%20and%20community%20cohesion&f=false

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- Vehicle-Based Road Dust Emissions Measurements,
<https://www3.epa.gov/ttn/chief/conference/ei12/fugdust/kuhns.pdf>.

This review is meant as a high level assessment to identify the initiative's environmental, social, economic, and governance outcomes, as well as to identify opportunities to achieve even greater sustainability benefits. The results are meant to support ongoing decision making, rather than be relied upon as a fixed sustainability evaluation.

Caveats and Limitations:

- Some TBL areas were considered out of scope, including items that were not contingent on and/or influenced by the initiative:
 - Renewable Energy
 - Conservations of Resources
 - Clear Air, Water, and Land
 - Waste Reduction and Diversion
 - Storm Water Management
 - Sustainable Food System
 - Heritage, Arts, and Culture
 - Innovation
 - Sustainable Procurement
 - Skills and Training
 - Roles, Responsibilities and Rewards

Results & Findings

Overall, the results of Administration's TBL review indicate that:

- Option 3 would achieve greater TBL benefits than the other proposed options.
- There are additional opportunities that could be explored to enhance the TBL outcomes of the initiative (see the "For Further / Future Consideration" sections later in this document).

A summary of results for each TBL principle and indicator are included in the subsequent section of this document. To provide context, a numerical description of the outcomes are shown in the following table:

TBL Score	TBL Outcome
Below 0%	Not Meeting Expectations
0-19%	Needs Improvement
20-39%	On-Track
40-59%	Meeting Expectations
60-79%	Exceeding Expectations
Above 80%	Leading the Way

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Principle: Environmental Health and Integrity**TBL Outcome - by Principle:**

Option 1 – 50 km/h Speed Limit (Business As Usual):	Not meeting expectations
Option 2 – 40 km/h Speed Limit:	Not meeting expectations
Option 3 – 30 km/h Speed Limit:	Needs improvement

TBL Outcomes - by Indicator:

Indicator	Option 1 – 50 km/h Speed Limit (Business As Usual)	Option 2 – 40 km/h Speed Limit	Option 3 – 30 km/h Speed Limit
Renewable Energy			
Conservation of Resources			
Climate Change Mitigation and Adaptation			
Green Buildings and Sustainable Land Use		<ul style="list-style-type: none"> No Impact / Not Applicable: Changes would be applied across the city so it is unlikely to affect changes to infill 	<ul style="list-style-type: none"> No Impact / Not Applicable: Changes would be applied across the city so it is unlikely to affect changes to infill
Sustainable Transportation		<ul style="list-style-type: none"> No Impact / Not Applicable: May affect arterials or collectors where the transit routes are 	<ul style="list-style-type: none"> Positive Impact: All streets become bike-friendly with a 30 km/hr speed limit No Impact / Not Applicable: May affect arterials or collectors where the transit routes are
Healthy Ecosystems	<ul style="list-style-type: none"> Significant Adverse Effect: Any road near greenspace has an impact No Impact / Not Applicable: There are issues with noise pollution 	<ul style="list-style-type: none"> Negative Impact: This only impacts residential streets so it is unlikely to impact ecosystems. Slower speed limits reduce number and severity of wildlife collisions and noise so generally, there would be a benefit from a reduced speed limit for streets adjacent to ecosystems. Minimum Standard: A 40 km/h speed limit reduces potential for collision with wildlife 	<ul style="list-style-type: none"> Negative Impact: This only impacts residential streets so it is unlikely to impact ecosystems. Slower speed limits reduce number and severity of wildlife collisions and noise so generally, there would be a benefit from a reduced speed limit for streets adjacent to ecosystems. Minimum Standard: A 30 km/h speed limit reduces potential for collision with wildlife

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		<ul style="list-style-type: none"> Positive Impact: Reducing the speed limit to 40 km/h would reduce noise pollution Significant Benefit: Reducing the speed limit to 30 km/h would reduce noise pollution even further 	
Clean Air, Water, and Land			
Waste Reduction and Diversion			
Storm Water Management			
Sustainable Food System			

For Further / Future Consideration

- Saskatoon-specific GHG emissions implications for each speed limit option are unknown at this time. However, research on reducing speed limits in urban areas indicates that driver behaviour plays a significant role in fuel consumption and associated GHG emissions. Specifically, the fewer starts/stops and the smoother the acceleration/deceleration, the lower the fuel consumption. Speed limit reductions, when coupled with other traffic calming measures and education promoting calm driving behavior, can reduce fuel use and GHG emissions.
- The impacts to protect the air, water, and/or soil from pollution are unknown.

Principle: Social Equity and Cultural Wellbeing

TBL Outcome - by Principle:

Option 1 – 50 km/h Speed Limit (Business As Usual):	No Impact
Option 2 – 40 km/h Speed Limit:	Meeting Expectations
Option 3 – 30 km/h Speed Limit:	Meeting Expectations

TBL Outcomes - by Indicator:

Indicator	Option 1 – 50 km/h Speed Limit (Business As Usual)	Option 2 – 40 km/h Speed Limit	Option 3 – 30 km/h Speed Limit
Equity and Opportunity		<ul style="list-style-type: none"> Positive Impact: A 40 km/h speed limit improves safety in neighbourhoods. This supports people with disabilities as slower 	<ul style="list-style-type: none"> Positive Impact: A 30 km/h speed limit improves safety in neighbourhoods. This supports people with disabilities as slower

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		<p>speed limits enables more mobility.</p> <ul style="list-style-type: none"> Positive Impact: This especially supports youth and senior mobility and safety to those who are more vulnerable to injury and fatality Positive Impact: Supports active transportation modes, especially for people who do not have a car 	<p>speed limits enables more mobility.</p> <ul style="list-style-type: none"> Positive Impact: This especially supports youth and senior mobility and safety to those who are more vulnerable to injury and fatality Positive Impact: Supports active transportation modes, especially for people who do not have a car
Diversity and Inclusion		<ul style="list-style-type: none"> No Impact / Not Applicable: Applied across all neighbourhoods Minimum Standard: May increase number of available routes to get to work through active transportation. Everyone should have access to a complete and connected network. Minimum Standard: Could support a change to move away from car-dependent living by increasing attractiveness and safety of active transportation 	<ul style="list-style-type: none"> No Impact / Not Applicable: Applied across all neighbourhoods Minimum Standard: May increase number of available routes to get to work through active transportation. Everyone should have access to a complete and connected network. Minimum Standard: Could support a change to move away from car-dependent living by increasing attractiveness and safety of active transportation
Heritage, Arts, and Culture			
Self Sufficiency and Living with Dignity		<ul style="list-style-type: none"> Minimum Standard: Supports safer active transportation, particularly for those who cannot afford cars 	<ul style="list-style-type: none"> Minimum Standard: Supports safer active transportation, particularly for those who cannot afford cars
Health and Wellbeing		<ul style="list-style-type: none"> Positive Impact: This reduces noise and increases street safety. This makes streets more comfortable and enjoyable for neighbourhoods/residents. 	<ul style="list-style-type: none"> Positive Impact: This reduces noise and increases street safety. This makes streets more comfortable and enjoyable for neighbourhoods/residents.
Safety and Resiliency		<ul style="list-style-type: none"> Positive Impact: A 40 km/hr speed limit reduces potential for collisions and severity of collisions 	<ul style="list-style-type: none"> Significant Benefit: A 30 km/hr speed limit reduces potential for collisions and severity of collisions even further

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		<ul style="list-style-type: none"> No Impact / Not Applicable: Saskatoon Fire has adopted a requirement of response times and located stations which should be considered. Most of the primary emergency routes are on arterial streets. 	<ul style="list-style-type: none"> No Impact / Not Applicable: Saskatoon Fire has adopted a requirement of response times and located stations which should be considered. Most of the primary emergency routes are on arterial streets.
Civic Participation			
Recreation		<ul style="list-style-type: none"> Minimum Standard: Encourages mobility to facilities, leisure spaces and outdoor activities. Some streets will be more positively impacted than others (e.g. streets without sidewalks, neighbourhoods with less park space). Positive Impact: More people out walking and biking in their neighbourhood increases opportunities for interactions with neighbourhoods, reduces noise in neighbourhoods 	<ul style="list-style-type: none"> Minimum Standard: Encourages mobility to facilities, leisure spaces and outdoor activities. Some streets will be more positively impacted than others (e.g. streets without sidewalks, neighbourhoods with less park space). Positive Impact: More people out walking and biking in their neighbourhood increases opportunities for interactions with neighbourhoods, reduces noise in neighbourhoods

For Further / Future Consideration

- The impacts to support community organizations and community-led efforts are unknown. Some community associations may like to see street safety improvements; a reduced speed limit supports those efforts.

Principle: Economic Benefits

TBL Outcome - by Principle:

Option 1 – 50 km/h Speed Limit (Business As Usual):

No Impact

Option 2 – 40 km/h Speed Limit:

On Track

Option 3 – 30 km/h Speed Limit:

On Track

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TBL Outcomes - by Indicator:

Indicator	Option 1 – 50 km/h Speed Limit (Business As Usual)	Option 2 – 40 km/h Speed Limit	Option 3 – 30 km/h Speed Limit
Innovation			
Sustainable Procurement			
Financial Planning and Resourcing		<ul style="list-style-type: none"> • Minimum Standard: There will be signage and communications costs. Policies and standards will be followed. • Negative Impact: Additional signs required • Positive Impact: This will be part of the implementation strategy. Number of neighbourhoods that can be signed per year will be determined. Sign locations will be reviewed to see if they are necessary. A blanket speed limit would need fewer signs, changes to arterial access points, school zones, etc. • Minimum Standard: We will try to minimize number of signs but inventory will increase. Considerations include the number of signs needed to communicate the change, frequency of sign maintenance, legal requirements for signage etc. • Minimum Standard: May have more speed violations and require additional police to enforce lower speed limit • Negative Impact: Operational impacts to Saskatoon Transit and Roadways, Fleet and Support Services 	<ul style="list-style-type: none"> • Minimum Standard: There will be signage and communications costs. Policies and standards will be followed. • Negative Impact: Additional signs required • Positive Impact: This will be part of the implementation strategy. Number of neighbourhoods that can be signed per year will be determined. Sign locations will be reviewed to see if they are necessary. A blanket speed limit would need fewer signs, changes to arterial access points, school zones, etc. • Minimum Standard: We will try to minimize number of signs, but inventory will increase. Considerations include the number of signs needed to communicate the change, frequency of sign maintenance, legal requirements for signage etc. • Minimum Standard: May have more speed violations and require additional police to enforce lower speed limit • Negative Impact: Operational impacts to Saskatoon Transit and Roadways, Fleet and Support Services

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		<ul style="list-style-type: none"> • Negative Impact: More locations may require traffic calming to attain compliance 	<ul style="list-style-type: none"> • Negative Impact: More locations may require traffic calming to attain compliance
Affordability for Users		<ul style="list-style-type: none"> • Positive Impact: Once implementation is complete, ongoing operating costs are reasonable. There will be reduced costs to the health care system and insurance due to reduced collisions. 	<ul style="list-style-type: none"> • Positive Impact: Once implementation is complete, ongoing operating costs are reasonable. There will be reduced costs to the health care system and insurance due to reduced collisions.
Support the Local Economy		<ul style="list-style-type: none"> • Minimum Standard: Will include business groups as stakeholders in engagement 	<ul style="list-style-type: none"> • Minimum Standard: Will include business groups as stakeholders in engagement
Asset Management		<ul style="list-style-type: none"> • Minimum Standard: Light poles or similar will be used to affix sign where possible • Minimum Standard: Reducing collisions can reduce damage to existing infrastructure • Minimum Standard: Sign poles and pedestrian devices will be built to standard during implementation 	<ul style="list-style-type: none"> • Minimum Standard: Light poles or similar will be used to affix sign where possible • Minimum Standard: Reducing collisions can reduce damage to existing infrastructure • Positive Impact: Advance the active transportation plan • Minimum Standard: Sign poles and pedestrian devices will be built to standard during implementation
Skills and Training			
Labour Rights and Employment		<ul style="list-style-type: none"> • Minimum Standard: OH&S will be followed during installation 	<ul style="list-style-type: none"> • Minimum Standard: OH&S will be followed during installation • Minimum Standard: Improved options for active transportation may increase access to employment centres

For Further / Future Consideration

- Implications of carbon pricing are unknown

Other Notes

- A high-level budget / financial analysis for each option is included in the body of the report.

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Principle: Good Governance**TBL Outcome - by Principle:**

Option 1 – 50 km/h Speed Limit (Business As Usual):

On Track

Option 2 – 40 km/h Speed Limit:

Meeting Expectations

Option 3 – 30 km/h Speed Limit:

Meeting Expectations

TBL Outcomes - by Indicator:

Indicator	Option 1 – 50 km/h Speed Limit (Business As Usual)	Option 2 – 40 km/h Speed Limit	Option 3 – 30 km/h Speed Limit
Ethical and Democratic Governance	<ul style="list-style-type: none"> Minimum Standard: Gather feedback through engagement with stakeholders. Gather feedback through engagement with the public (open survey and statistically relevant survey) 	<ul style="list-style-type: none"> Minimum Standard: Gather feedback through engagement with stakeholders. Gather feedback through engagement with the public (a representative survey and an open public survey). No Impact / Not Applicable: The City of Saskatoon is committed to safety and the options would improve safety. Response to common citizen-driven idea in Neighbourhood Traffic Reviews. Positive Impact: There has been a disconnect between a safe speed limit, posted speed limit and street design, and what is considered an appropriate safe speed by adjacent residents Positive Impact: Engagement with school boards, Saskatoon Police, Saskatoon Fire, Saskatchewan Government Insurance (SGI), accessibility groups, walking groups etc. Minimum Standard: Looking at all neighbourhoods at once and producing a technical analysis. 	<ul style="list-style-type: none"> Minimum Standard: Gather feedback through engagement with stakeholders. Gather feedback through engagement with the public (a representative survey and an open public survey). No Impact / Not Applicable: The City of Saskatoon is committed to safety and the options would improve safety. Response to common citizen-driven idea in Neighbourhood Traffic Reviews. Positive Impact: There has been a disconnect between a safe speed limit, posted speed limit and street design, and what is considered an appropriate safe speed by adjacent residents Positive Impact: Engagement with school boards, Saskatoon Police, Saskatoon Fire, Saskatchewan Government Insurance (SGI), accessibility groups, walking groups etc. Minimum Standard: Looking at all neighbourhoods at once and producing a technical analysis.

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		<p>This will be applied to all streets equally despite street design which will make some streets seem comfortable and others feel very slow; this could lead to a compliance problem. Traffic calming may be considered to address this issue.</p>	<p>This will be applied to all streets equally despite street design which will make some streets seem comfortable and others feel very slow; this could lead to a compliance problem. Traffic calming may be considered to address this issue.</p>
Effective Service Delivery		<ul style="list-style-type: none"> • Minimum Standard: Stakeholder engagement will identify risks. Saskatoon Police helping to identify compliance issues and procedures to mitigate. A risk assessment for preferred option will be completed to determine procedures. Risks include compliance, education, enforcement, calming measures. • Positive Impact: This work is for the benefit of residents/neighbourhoods. This is being responsive to issues that have been raised. 	<ul style="list-style-type: none"> • Minimum Standard: Stakeholder engagement will identify risks. Saskatoon Police helping to identify compliance issues and procedures to mitigate. A risk assessment for preferred option will be completed to determine procedures. Risks include compliance, education, enforcement, calming measures. • Positive Impact: This work is for the benefit of residents/neighbourhoods. This is being responsive to issues that have been raised.
Education, Communication, Engagement, Capacity Building		<ul style="list-style-type: none"> • Positive Impact: Engagement with internal stakeholders • Positive Impact: Two surveys were completed to obtain opinions on revising speed limits in residential areas. Several stakeholder meetings have occurred to date. • Positive Impact: Communications plan is being used to share information about potential options and impacts of each option • Minimum Standard: Enhances partnerships and buy-in through stakeholder engagement. 	<ul style="list-style-type: none"> • Positive Impact: Engagement with internal stakeholders • Positive Impact: Two surveys were completed to obtain opinions on revising speed limits in residential areas. Several stakeholder meetings have occurred to date. • Positive Impact: Communications plan is being used to share information about potential options and impacts of each option • Minimum Standard: Enhances partnerships and buy-in through stakeholder engagement.

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		Promotes outreach through those organizations.	Promotes outreach through those organizations.
Monitoring, Reporting and Compliance	<ul style="list-style-type: none"> • Minimum Standard: Data monitoring related to speed concerns and traffic calming requests will be completed. This will not be used to revisit speed limits. Survey data was used to gather amount of support from the public. 	<ul style="list-style-type: none"> • Minimum Standard: Debriefs are typically completed after implementation • Minimum Standard: Data monitoring related to speed concerns and traffic calming requests will be completed. This will not be used to revisit speed limits. Survey data was used to gather amount of support from the public. • Positive Impact: Researched other cities, best practices etc. • Minimum Standard: This will result in a traffic bylaw change and traffic calming policy change • Minimum Standard: Procedures will be followed 	<ul style="list-style-type: none"> • Minimum Standard: Debriefs are typically completed after implementation • Minimum Standard: Data monitoring related to speed concerns and traffic calming needs will be completed. This will not be used to revisit speed limits. Survey data was used to gather amount of support from the public. • Positive Impact: Researched other cities, best practices etc. • Minimum Standard: This will result in a traffic bylaw change and traffic calming policy change • Minimum Standard: Procedures will be followed
Agility and Adaptiveness		<ul style="list-style-type: none"> • Minimum Standard: Communication will be adaptive and responsive. The approved option should be applied consistently. Changing speed limits can lead to confusion and lack of compliance. • Positive Impact: This is a change/reform to neighbourhood speed limits. This relates to the Safe Systems approach and is a shift in mind-set. • Positive Impact: Police enforcement, a communication plan and traffic calming will be used to resolve issues of non-compliance • Positive Impact: A pilot can lead to confusion and mixed results. 	<ul style="list-style-type: none"> • Minimum Standard: Communication will be adaptive and responsive. The approved option should be applied consistently. Changing speed limits can lead to confusion and lack of compliance. • Positive Impact: This is a change/reform to neighbourhood speed limits. This relates to the Safe Systems approach and is a shift in mind-set. • Positive Impact: Police enforcement, a communication plan and traffic calming will be used to resolve issues of non-compliance • Positive Impact: A pilot can lead to confusion and mixed results.

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		<p>The Montgomery Place neighbourhood changed speed limits but local experience is not necessarily transferable to other neighbourhoods. Edmonton piloted a few streets before implementing fully. Prince Albert, Warman and Martensville already have a 40 km/h speed limit. Lessons will be learned from their experiences. Research around vehicular collisions and speed limits also informs this project and the consequences of the options.</p>	<p>The Montgomery Place neighbourhood changed speed limits but local experience is not necessarily transferable to other neighbourhoods. Edmonton piloted a few streets before implementing fully. Lessons will be learned from their experiences. Research around vehicular collisions and speed limits also informs this project and the consequences of the options.</p>
Roles, Responsibilities and Rewards			

For Further / Future Consideration

- Impacts to take actions to ensure that the organization's policies, initiatives, infrastructure, and services are reliable and effective (over both the short- and long-term) are unknown. Traffic calming measures may be required to ensure compliance. Traffic calming policy may need to be updated.

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