

NO: R044

COUNCIL DATE: April 3, 2023

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **March 30, 2023**

FROM: **General Manager, Engineering**

FILE: **5460-19**

SUBJECT: **Residential Area Speed Limit Reduction Pilot - Findings and Recommendations**

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information; and
2. Endorse completion of the Slow Streets Pilot; and
3. Endorse the recommended next steps, as outlined in this report.

INTENT

The intent of this report is to inform Council of the findings of the recently concluded Residential Area Speed Limit Reduction Pilot (the “Pilot”) and seek Council endorsement of the next steps for evaluating speed limit reduction measures.

BACKGROUND

The Pilot was approved by Council on December 7, 2020, as part of Corporate Report No. 182; 2020, attached as Appendix “I”, and officially began in June 2021. The Pilot reduced speed limits in six residential neighbourhoods from 50 km/h to either 30 km/h or 40 km/h. Lower speeds help improve road safety, in alignment with the City’s Vision Zero goals, as speeds are the fundamental factor in collision likelihood and severity.

The purpose of the Pilot was specifically to measure the effect on driver behaviour of changing speed limit signage only and to help inform which lower speed limit (30 km/h or 40 km/h) to implement widely on local residential roads.

DISCUSSION

The Pilot applied an evaluation process based on data collection and analysis. In addition to the three 30 km/h and three 40 km/h Pilot neighbourhoods, an additional two neighbourhoods were selected as control zones with similar characteristics and where a 50 km/h speed limit was maintained. A map showing the Pilot neighbourhood locations and speed limits is included in Appendix “II”.

The evaluation framework for the Pilot was designed to balance quantitative data of actual changes in vehicle travel with qualitative data from the community. At all stages of the Pilot, traffic speed and volume data was collected and the community was engaged to understand perceptions and support of the Pilot. The key findings are listed in Appendix “III”.

The Pilot evaluation indicates vehicle speeds in residential areas were consistent, regardless of the speed limit, and a reduction to 30 km/h or 40 km/h did not translate to a significant reduction in vehicle speed. The Pilot did determine that the public has a higher level of acceptance of reducing speed limits in residential streets to 40 km/h as opposed to 30 km/h.

Now that the Pilot has been completed, staff recommend the following next steps:

1. Remove Pilot project signage;
2. Advocate to the Province to modernize the *BC Motor Vehicle Act [RSBC 1996] c. 318*, as outlined in Appendix “IV”, and seek a default speed limit of 40 km/h on residential roads;
3. Staff undertake a more comprehensive arterial corridor-based speed limit review by Q3 2023; and
4. Staff undertake a more comprehensive review of speed limits in all school and park zones by Q4 2023.

CONCLUSION

While the Pilot concluded that lowering the posted speed limit in certain residential roads has not significantly impacted vehicle speeds, staff recommend a more comprehensive review of speed limits in on the arterial corridor, as well as in school and park zones. Staff also recommend advocating to the Province implementation of a default speed limit of 40 km/h on all residential roads.

Scott Neuman, P.Eng.
General Manager, Engineering

RV/KT/cc

Appendix “I” - Corporate Report No. 182; 2020

Appendix “II” - Residential Area Speed Limit Reduction Pilot Zones

Appendix “III” - Key Findings of the Residential Area Speed Limit Reduction Pilot

Appendix “IV” - Regional Strategy for the Default Speed Limit

NO: R182

COUNCIL DATE: Dec 7, 2020

REGULAR COUNCIL

TO: Mayor & Council

DATE: December 3, 2020

FROM: General Manager, Engineering

FILE: 5460-19

SUBJECT: Residential Area Speed Limit Reduction Pilot

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information; and
2. Approve the implementation of the Residential Area Speed Limit Reduction Pilot, as described in this report.

INTENT

The purpose of this report is to seek Council approval to implement a comprehensive pilot project for reduced speed limits in six residential areas. The pilot project has been carefully designed to test the impacts of reduced speed limits such that staff can make informed recommendations with regards to residential area speed limits City-wide.

BACKGROUND

The Vision Zero Surrey Safe Mobility Plan (2019 – 2023) (the “Plan”), launched in February 2019, outlines the overarching approach of the City to move towards the zero people killed and seriously injured (“KSI”) within the transportation network. The Plan outlines strategic work under each of the four pillars of the internationally recognized Safe Systems Approach: Safe Roads, Safe Speeds, Safe Road Users, and Safe Vehicles. The Plan also outlines data-driven focus areas for action:

- Victims of Harm: Pedestrians, Cyclists, and Motorcyclists
- Locations of Harm: Intersections
- Perpetrators of Harm: High Risk Driving (e.g., speeding, distracted, impaired)
- Overarching: Equity, which recognizes that some sub-groups of the population are disproportionately impacted by KSI collisions.

Under the Safe Speeds Pillar, staff identified best practices research on national and international speed limit reduction projects as a key initiative to support Vision Zero in Surrey. In April 2020, this action was brought forward to Council as a 2020 workplan item as part of Corporate Report No. Ro65; 2020, attached as Appendix “I”.

DISCUSSION

Rationale for Reduced Residential Area Speed Limits

Research has consistently demonstrated that vehicle speeds are strongly associated with the frequency of KSI crashes. Further, relatively small changes in travel speeds can greatly increase the chances of survival for those involved in collisions, particularly for vulnerable road users such as pedestrians, cyclists or motorcyclists who do not have the protective infrastructure of a vehicle.

The American Association of State Highway and Transportation Officials Highway Safety Manual states that just a 2 km/h reduction in operating speeds can result in a 17 percent decrease in fatal collisions. It is also widely accepted that a pedestrian struck at 50 km/h has just a 15 percent chance of survival, while a pedestrian struck at 30 km/h has a 90 percent chance of survival.

This data highlights the significance of speed management in reducing KSI crashes and achieving the City's Vision Zero goal. Beyond reductions in people killed and injured, reduced speed limits in residential areas also support other City priorities. Lower speeds are associated with reduced greenhouse gas emissions, reduced traffic noise, enhanced liveability, and increases in active transportation, such as walking and cycling. Many public health officials, in Canada and elsewhere, have long supported reducing speed limits in urban areas, citing the potential to save lives and promote public health. A 2016 report from B.C.'s Office of the Provincial Health Officer called for reducing default speed limit on roads within municipalities from 50 km/h to 30 km/h.

Case Studies

Below are examples of other Vision Zero municipalities across Canada that have successfully implemented reduced speed limit pilot projects as part of their speed management efforts:

Toronto

The City of Toronto used a blanket approach and reduced the posted speed limit from 40 km/h to 30 km/h on all local roads within 12 Municipal Wards in the Toronto and East York District. Speed limits were lowered from 40 km/h to 30 km/h in residential areas resulting in a 28 percent decrease in pedestrian motor vehicle collisions. Notably, these results were achieved solely with changes to the posted speed limit, and without the implementation of traffic calming or other supporting infrastructure.

Edmonton

Speed limits were lowered from 50 km/h to 30 km/h in school zones. This resulted in a 45 percent reduction in fatal and injury crashes, and a 55 percent reduction in injury and death to vulnerable road users. The main contributor to this reduction in serious collisions was an observed average 12 km/h reduction in actual vehicle operating speeds.

Analysis from other municipalities has also demonstrated that in urban areas, changes to speed limits in residential areas has a negligible impact on people's travel times. For example, in order to track the possibility of delays caused by reduced speed limits, the City of Edmonton developed a web application combining their City data with Google maps. Results show that reduced speed limits on residential roads near schools added less than one minute to most trips.

Vancouver

In July 2020, Vancouver City Council approved a 30 km/h residential area speed limit demonstration project. The City of Vancouver is planning to implement reduced speed limits using a zone-based approach, with busier roads forming the boundaries of each zone. The zones for their pilot project were selected through a data driven framework that prioritizes areas where data shows the reduced speed limits are most needed.

Further, there is growing momentum for reduced residential area speed limits among municipalities in British Columbia and across Canada. In 2019, a UBCM resolution called for amendments to the Motor Vehicle Act to allow municipalities the ability to institute blanket speed limits applying to all residential area roads.

Made for Surrey Approach

In developing the plan for the proposed reduced residential area speed limit pilot, staff utilized information gained from the best practices review while recognizing the importance of a 'Made for Surrey' approach:

- Each jurisdiction has a unique legislative context related to speed limits. In British Columbia, the Ministry of Transportation and Infrastructure is responsible for setting the default speed limit. Hence, speed limits other than 50 km/h within municipal boundaries must be implemented through the installation of speed limit signs.
- Each community has unique attitudes and perceptions to speed limits in residential areas. Surveys completed in Surrey have shown close to 60 percent of respondents in favor of reduced speed limits on residential roads.
- Each municipality has unique demographics, land uses, and other considerations. Surrey has both urban and rural areas, a rapidly growing population, and is home to people with diverse cultural backgrounds. Surrey's pilot project must be designed to account for these factors.

To inform Surrey's pilot project, interviews were conducted with municipalities across Canada that have either implemented reduced residential area speed limits, or are in the planning stages for reduced residential area speed limits. While learnings from many of these case studies were incorporated into the pilot project design for Surrey, particular attention was placed on the City of Vancouver's pilot project design given the similarity in legislative context and geographic proximity. Further details of case study interviews are shown in Appendix "II".

As a result, the City's approach to the residential area speed limit pilot project design balances research evidence, Surrey-specific data, input from stakeholders, and evaluation requirements.

In line with Vision Zero Surrey practices, data is a foundational input to the design of the pilot project. This data-driven approach is inclusive, equitable, and ensures resources are targeted where they are needed most. Each stage of the pilot project design relies on a variety of internal and external datasets that ensure impacts across the system are measured and accounted for.

Stakeholders

The Vision Zero Action Team (“VZAT”) is a multi-sectoral group that works collaboratively to reduce KSI crashes in the City of Surrey. Members from Fire Services, RCMP, Surrey Schools, ICBC, Fraser Health, various City departments and others meet monthly, and work together on projects that contribute to Vision Zero Surrey goals throughout the year.

Input from the VZAT was incorporated into the pilot project design at various stages in the planning process. This ensures that the pilot design addresses the concerns of all stakeholders and allows for collaborative efforts that will ensure pilot project success if it is approved by Council.

Data Driven Evaluation

Foundational to any pilot project is monitoring and evaluation. Since the pilot project is intended to inform the City’s approach to speed limits in residential areas more broadly, it is essential that the pilot project is designed in a way that allows for a robust evaluation. Proper evaluation requires careful consideration of all pilot project design parameters including selection process, data collection requirements, and project duration. As a result, mechanisms for monitoring and evaluation have been embedded throughout the design.

Recommended Residential Area Reduced Speed Limit Pilot

The recommended residential reduced speed limit pilot will be implemented in eight zones for a duration of one year. Three zones will have 30 km/h speed limits, three will have 40 km/h speed limits, and two will be control zones, with similar characteristics to the other zones, and maintain a 50 km/h speed limit. These speed limits will only apply to the roads classified as local roads; arterial and collector roads will retain their existing speed limits.

The purpose of the pilot project is to understand the impacts of reduced residential area speed limits in the Surrey context.

The pilot project includes three stages: planning, implementation and monitoring, and evaluation.

The following sections provide further details on the pilot project and decision-making processes used by staff in developing this project:

1. General Approach
2. Selection Process
3. Pilot Project Timelines
4. Evaluation Framework
5. Consultation and Engagement

1. General Approach

The recent National Association of City Transportation Officials document *City Limits – Setting Safe Speed Limits on Urban Streets*, outlines three primary tools for setting speed limits in urban areas, as summarized below:

- Default speed limits can be considered in jurisdictions that have the authority to set default speed limits.
- Slow Zones are specifically designated areas with slower speeds than otherwise similar streets in the same jurisdiction. Neighbourhood-scale or site-specific zones are useful for addressing high priority areas, such as areas with elevated collision rates or land uses, such as schools or parks. Municipalities can define the geography of slow zones based on their own location-specific needs.
- Corridor speed limits set speed limits on high priority major streets.

In reviewing the literature and the approaches taken by other municipalities across Canada, a “Slow Zone” approach was selected as the most appropriate for Surrey’s pilot project design. Changes to default speed limits are currently not possible for municipalities in British Columbia, and the corridor speed limit approach is best suited for major roads rather than residential areas with few long, continuous road segments.

2. Selection Process

Surrey’s selection process followed an equitable, data driven approach to ensure the pilot project can be properly evaluated. Staff began by identifying candidate zones, then developed a data driven GIS analysis to score and select the recommended zones for inclusion in the pilot project.

Identification

Overall, 128 candidate “speed zones” were identified throughout the City, and each zone shared the following general characteristics:

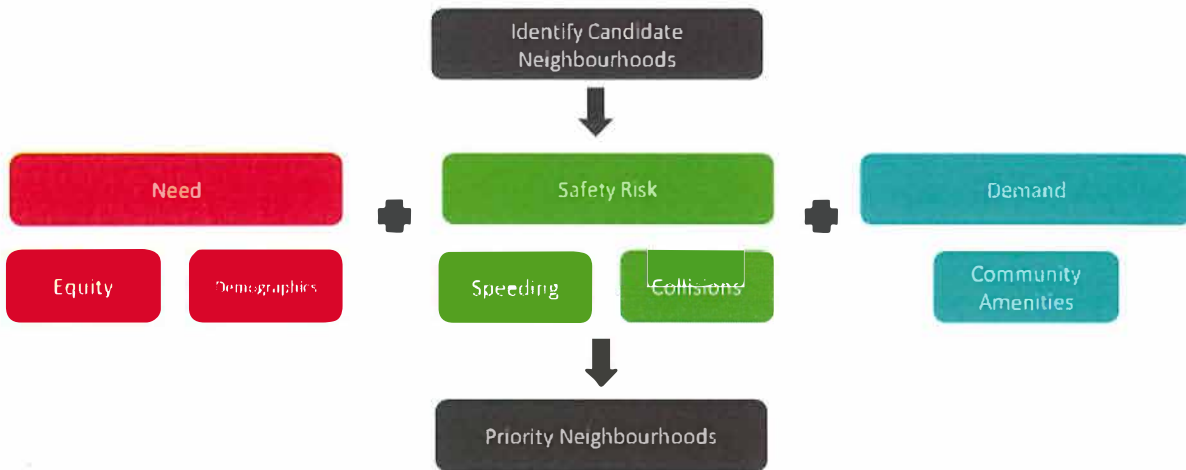
- Bounded by arterial roads or significant water bodies; and
- Predominantly residential land use.

Scoring

Based on a comprehensive review of the literature and interviews with other municipalities, categories suitable for evaluating/scoring each zone were:

- Need: Analysis has shown that some sub-groups of the population suffer disproportionate harm from traffic collisions. Given the safety benefits of this pilot project, data related to seniors, youth, recent immigrants, Indigenous people and prevalence of low-income was used to prioritize zones with higher proportions of these populations.
- Safety Risk: Data on actual measured traffic speeds and crash frequencies was incorporated into the zone selection process to prioritize zones with a documented safety issue. Focussing on zones without speeding or safety issues has important impacts on project evaluation.

- Demand: The presence of community amenities, such as schools, parks, recreation centres or libraries, was used as an indication of the demand for walking and biking.



Data was compiled and analyzed to generate a score. Scores were then used to prioritize and identify which zones are proposed for the pilot project.

Selection

The detailed review resulted in the following eight zones being recommended for inclusion in the proposed pilot project. Each zone has both a park and an elementary school and has similar characteristics (see exact boundaries on map in Appendix “III”):

Zone 1: Between 96 Avenue and 100 Avenue from 124 Street and 128 Street

Zone 2: Between 75 Avenue and 80 Avenue from 120A Street and 124 Street

Zone 3: Between Rosemary Heights Crescent and 40 Avenue from 153 Street and 156B Street

Zone 4: Between 56 Avenue and 60 Avenue from 180 Street and 184 Street

Zone 5: Between 60 Avenue and 64 Avenue from 132 Street and 136 Street

Zone 6: Between 88 Avenue and 92 Avenue from King George Boulevard and 140 Street

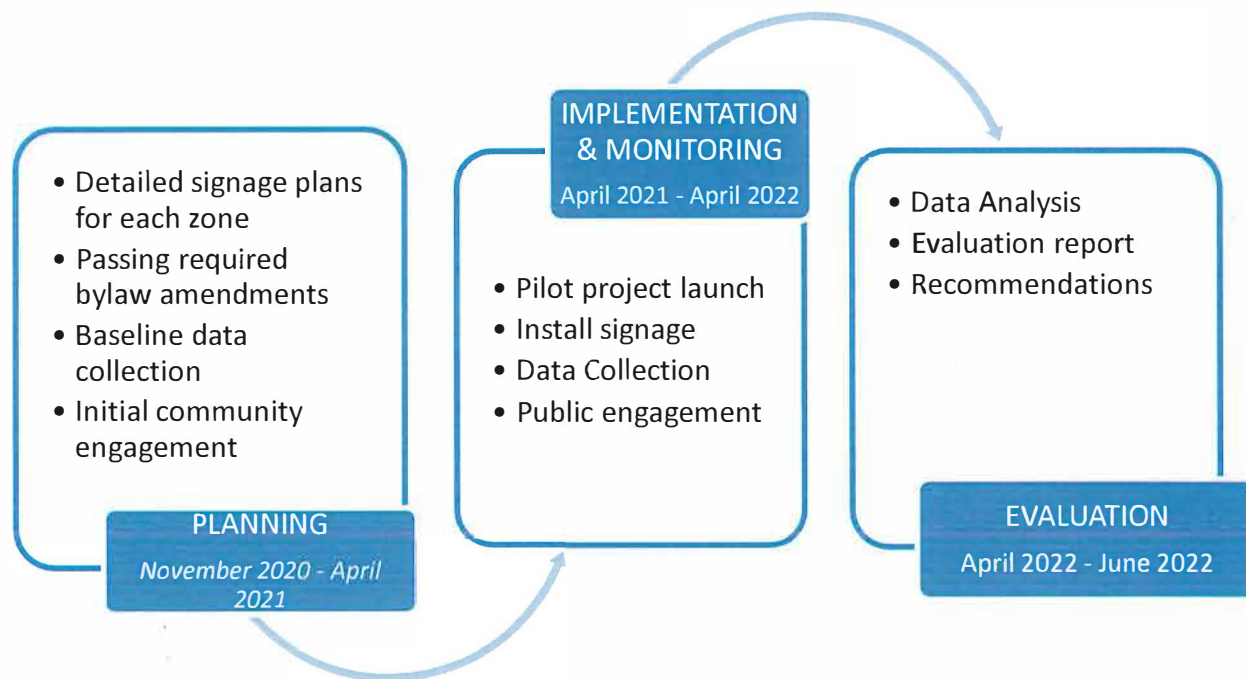
Zone 7: Between 104 Avenue and 108 Avenue from 128 Street and 132 Street

Zone 8: Between 100 Avenue and 104 Avenue from 140 Street and 144 Street

Of the eight zones, three will have the speed limit reduced to 30 km/h, three zones will have the speed limit reduced to 40 km/h, and two zones will be control sites to remain at 50 km/h.

3. Pilot Project Timelines

The proposed pilot project has been split into three phases. Details of these phases and planned timelines are shown in the figure below.



4. Evaluation Framework

The pilot study is a safety effectiveness evaluation of reduced posted speed limits from 50 km/h to either 40 and 30 km/h on local roadways. The safety effectiveness of the reduced speed limits will be measured in the short-term (less than three months) by the reduction in travel speed and the perceived safety of neighbourhood residents as a surrogate safety treatment. The pilot will employ observations before and after study design with a comparison-group for all analysis.

The evaluation methodology is designed to balance quantitative data on actual changes in vehicle travel speeds, with qualitative data from the community:

- **Travel Speed Data:** Vehicle speeds on various road segments throughout each of the selected zones will be measured at regular intervals throughout the pilot project. Data for at least 400 vehicles on about five road segments per zone are required to ensure that results are statistically significant.
- **Community Surveys:** Three surveys are planned for each selected zone. The surveys allow for an evaluation of community perceptions, community support, and changes in behaviour including the level of confidence amongst communities to adopt more active travel modes such as cycling and walking.

The specific factors that will be measured and quantified are shown in the following table:

Factor to be Quantified	Expected Outcome	Indicator of Success	Timeline
Traffic speeds	Reduced operating speeds	<ul style="list-style-type: none"> • Change in daily weekday average speeds in each zone • Change in daily 85th percentile speeds in each zone • Standard deviation of speeds in each zone 	<ul style="list-style-type: none"> • Baseline • Ongoing • Post-Project
Neighbourhood Perceptions	Perception of reduced speeds, improved safety, and overall success of pilot project	<ul style="list-style-type: none"> • Support for pilot project in each zone • Perception of reduced speeds in each zone • Perception of improved safety in each zone • Change in travel patterns including a shift to increased walking and cycling in each zone 	<ul style="list-style-type: none"> • Baseline • Ongoing • Post-Project

1. Consultation and Engagement

A project consultation and engagement plan has been drafted. The plan outlines an approach to informing residents of the identified neighbourhoods, as well as the community at large about the Residential Area Speed Limit Reduction Pilot Project, why it is important, and how it is being implemented.

Consultation and engagement will occur with two primary groups:

- Road Safety and Transportation Organizations: This group includes emergency services, Surrey Schools, TransLink, ICBC, business associations, and academic partners, among others.
- Surrey Residents and Community Groups: This group includes the general public, community associations, parent advisory councils, senior’s associations, and volunteer groups.

The tools used to engage with these two groups will be matched to the level of engagement required, and the level of impact of the pilot project on each stakeholder. Further, the consultation and engagement will occur in two phases; one before the pilot and one at the pilot launch.

While the consultation and engagement plan has been developed in consideration of current COVID-19 public health recommendations, it is expected that revisions and changes to the plan will be required as health recommendations adapt to changing pandemic trends.

Next Steps

If the pilot is approved, staff will initiate the following next steps:

- Initial stages of community outreach;
- Creation of a detailed signage plan for each pilot project zone;
- Drafting of required Bylaw amendments to support the pilot project;
- Bringing Bylaw amendments to Council for approval;
- Undertake pilot and evaluate impacts; and
- Present evaluation findings and recommendations to Council in December 2022.

SUSTAINABILITY CONSIDERATIONS

The proposed pilot project supports the objectives of the City's Sustainability Charter 2.0. In particular, this initiative supports the Sustainability Charter 2.0 themes of Public Safety, and Inclusion. Specifically, the initiative supports the following Desired Outcomes ("DO"):

- Age-Friendly Community DO15: Surrey's youngest and oldest residents are valued community members;
- Transportation Safety DO9: Transportation network supports and provides safe mobility for all ages and abilities; and
- Transportation Safety DO10: Surrey is part of a coordinated effort to reduce the risk of harm for all road users, with attention to those who are most vulnerable, including pedestrians and cyclists;

CONCLUSION

Based on the above discussion, implementation of this pilot will help to support the City's Vision Zero Strategy targets and help to inform the City's approach to speed limits in residential areas City-wide.

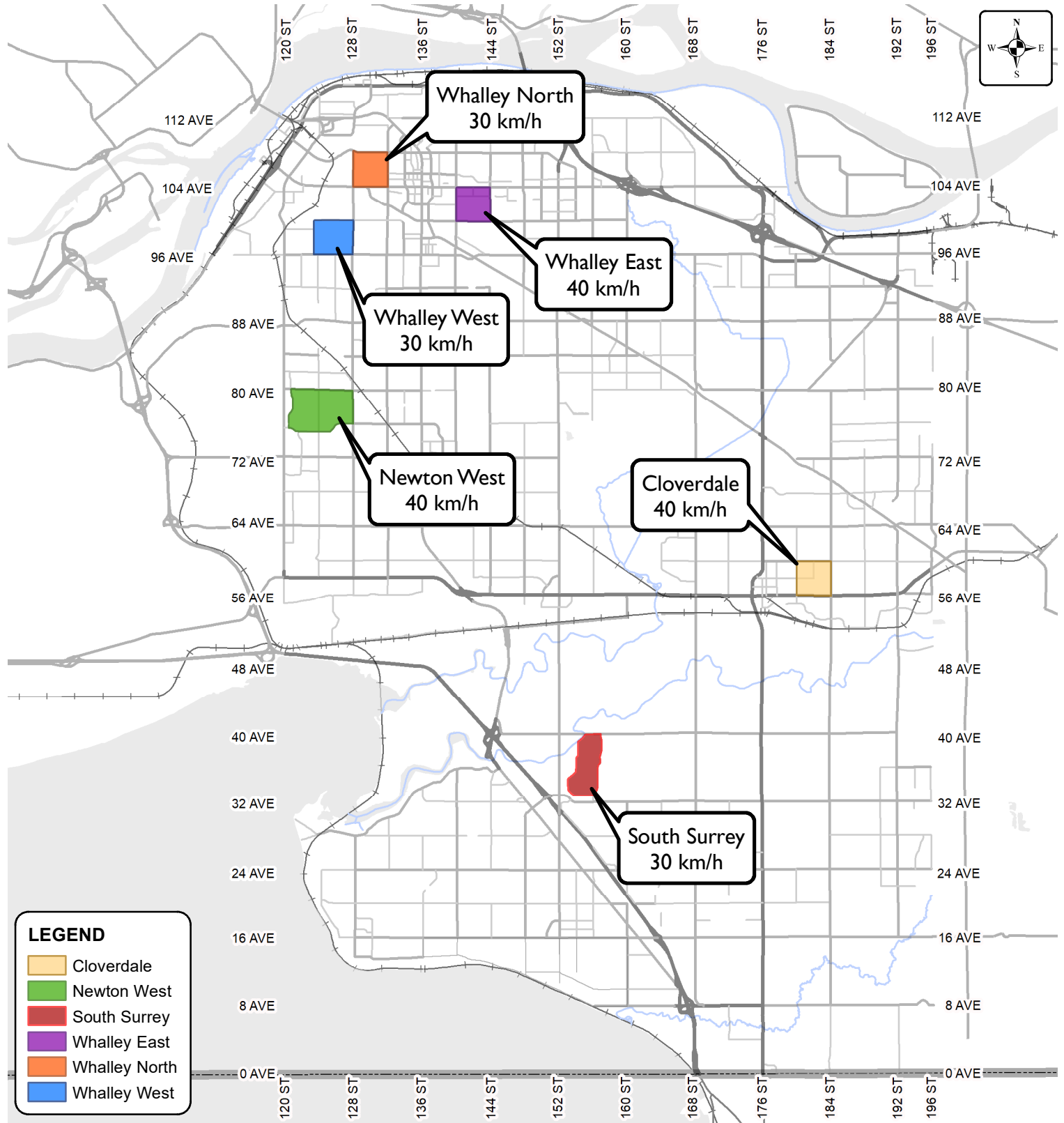


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Appendix "I" – Corporate Report No. Ro65; 2020
Appendix "II" – Case Study Findings
Appendix "III" – Map of Recommended Zones

Note: Appendices available upon request



Produced by GIS Section: 09-Mar-2023

Scale: 1:125,000 0 1,000 M



Residential Area Speed Limit Reduction Pilot Zones

ENGINEERING DEPARTMENT

The data provided is compiled from various sources and IS NOT warranted as to its accuracy or sufficiency by the City of Surrey. This information is provided for information and convenience purposes only. Lot sizes, Legal descriptions and encumbrances must be confirmed at the Land Title Office.

APPENDIX “III”

Key Findings of the Residential Area Speed Limit Reduction Pilot

The evaluation framework for the Residential Area Speed Limit Reduction Pilot (the “Pilot”) was designed to balance quantitative data of actual changes in vehicle travel speed with qualitative data from the communities where speed limits were reduced. The key findings are:

Travel Speed Data

Baseline traffic speed and volume data was collected prior to the Pilot launch in May 2021, with mid-Pilot data collected in September and October 2021. A final round of data was collected in May 2022. Data for at least 400 vehicles on about five road segments per zone were collected to ensure that results are statistically significant.

Analysis of the travel speed data suggests the following:

- Reduced speed limits in residential areas resulted in a 2% to 4% decrease in mean speed in Pilot zones compared to the control 50 km/h speed limit; and
- The observed decrease in speeds were similar, regardless of whether it was a 30 km/h or 40 km/h Pilot zone.

It is important to note that pre-Pilot, under the 50 km/h speed limit, most travel speeds in all zones were below 50 km/h.

Lower speed limits directly support Vision Zero’s Safe Speeds pillar, which focuses on enhancing speed enforcement, promoting community awareness of safe speeds, designing roads that slow drivers at critical locations, and implementing safe speed limits for the road environment. This is important as travel speeds are the fundamental factor in collision likelihood and severity. The risk of death and injury increases as travel speeds increase with a pedestrian hit at 30 kilometres per hour having a 90 percent chance of surviving, while at 55 kilometres per hour, they have only a 10 percent chance. Every kilometre of speed reduction can reduce the likelihood of a collision and can improve the outcome in the event a collision does occur.

Community Surveys

The Pilot zone communities were engaged with a survey to help understand perceptions and support of the Pilot and to gather responses related to personal behaviours and values. The survey covered a variety of topics including walking and cycling, school and park zones, perceptions of safety and speeds, knowledge of basic road safety principles, and attitudes towards lower speed limits. The survey was conducted three times during the Pilot, matching the timings for the speed and volume data collection. The key findings were:

- In all zones, there was an average of 80% support for reducing speed limits on residential streets across the City, based on 670 responses;
- In 40 km/h zones, there was an increase in community support for the lower speed limit as time passed;
- In 30 km/h zones, there was a slight decrease in support for the lower speed limit as time passed; and
- The reduction of speed limits appears to have contributed to slight improvements in people's perceptions of safety.

APPENDIX “IV”

Regional Strategy for the Default Speed Limit

An important consideration for the Slow Streets Program (the “Program”) is the need to install the necessary signage on every road within a zone that has a speed limit lower than 50 km/h. This is necessary because as per Section 146 of the *BC Motor Vehicle Act [RSBC 1996] c. 318* (the “MVA”), the default speed limit on roads within a municipality is 50 km/h. Municipalities are permitted to erect signs limiting speeds on select roads or within the entire municipality, but this can require a significant amount of signage and expense, and also can create confusion if different municipalities have different default speed limits within the region.

In June 2016, the Road Safety Law Reform Group of British Columbia submitted a position paper to the Province entitled *Modernizing the BC Motor Vehicle Act* which include numerous safety-related recommendations including review of the default speed limit within municipalities. Several municipalities submitted resolutions at the Union of British Columbia Municipalities conventions in support of this. In 2019, Council authorized staff to work with the Ministry of Transportation and Infrastructure, the Ministry of Public Safety, and the Solicitor General, and be an active stakeholder in the MVA update as part of Corporate Report No. R094; 2019.

The Province has stated that they are encouraged by submissions made by various stakeholders respecting the MVA but that any significant revisions would be part of a complex, multi-year project and would require considerable research and analysis, including cross-jurisdictional scans and consultations with an extensive range of stakeholder groups. To date the stakeholder engagement has been limited. Staff will continue to advocate to the Province to complete this important work.