



REPORT

Report Date: June 19, 2020
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Meeting Date: July 7, 2020
[Submit comments to Council](#)

TO: Vancouver City Council
FROM: General Manager of Engineering Services
SUBJECT: 2020 Transportation Safety Update

RECOMMENDATION

- A. THAT Council approve the implementation, monitoring, and evaluation of a slow zone demonstration project in Grandview-Woodland, using funding from existing sources, with a report back in 2022.
- B. THAT Council direct staff to advance design of pilot programs with the Province to test and advance blanket reduced speed limits and micromobility devices, to be delivered under the Ministry of Transportation's Motor Vehicle Act Pilot Program.
- C. THAT Council receive for information the Neighbourhood Traffic Management (NTM) program, and prioritize NTM plans to improve safety in the Strathcona and Hastings-Sunrise neighbourhoods, using funding from existing sources.
- D. THAT Council approve, in principle, amendments to the Street and Traffic By-law to remove time of day and time of week restrictions on 30 km/h school and playground zones, making them effective 24 hours per day, 7 days a week, and instruct the Director of Legal Services to bring forward for enactment a by-law generally in accordance with *Appendix D*.
- E. THAT Council approve a change to the Annual Speed Hump Program to exempt school and playground zones from consultation.

REPORT SUMMARY

This report responds to Council requests to report back on (a) a pilot for 30 km/h speed limits on residential streets ("slow zones"), and (b) transportation safety around Vancouver schools. It

also provides additional information on measures the City is taking to advance *Vision Zero* efforts to eliminate traffic-related fatalities and serious injuries.

To advance slower and safer speeds on Vancouver's residential streets, the report recommends creating a slow zone using signage within the Grandview-Woodland neighbourhood, to inform a collaborative pilot with the Province to enable blanket speed limit changes. This would allow for cost-effective and widespread implementation of slow zones on local streets across the city.

The report also provides information on a new *Neighbourhood Traffic Management (NTM) Program*, which will deliver slow zones and develop area-specific plans to calm traffic in neighbourhoods across the city. Priority locations include Strathcona (to address False Creek Flats Arterial and Prior-Venables process) and Hastings-Sunrise (to address issues around the Adanac Overpass).

The report provides a look ahead for the City's *School Active Travel Planning (SATP) Program*. It also recommends specific measures to improve safety around schools and playgrounds, including (a) changing the City by-law so that 30 km/h school and playground zones are in effect 24 hours a day, every day, and (b) streamlining the City speed hump process in these areas.

Finally, the report seeks Council endorsement for a Provincially-supported pilot to allow the use of privately-owned micromobility devices (such as e-scooters) on protected bike lanes and local streets. This measure will help advance new transportation options for residents and visitors, while helping ensure streets and sidewalks are safe for everyone.

The total cost for the above is estimated at \$1,200,000, including \$80,000 for Grandview-Woodland pilot signage, \$460,000 each for the NTM plans in Strathcona and Hastings-Sunrise, and \$200,000 for monitoring. No new funds would be required, as the money would be reallocated from existing program budgets.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

The City of Vancouver's 1997 *Transportation Plan* identified walking and cycling as key priorities to support the growing number of people, jobs, and trips in the city. These priorities have been reinforced through the *Greenest City Action Plan (2011)*, *Transportation 2040 (2012)*, and *Climate Emergency Response (2019)*. *Transportation 2040* set a target that at least two-thirds of all trips be by on foot, bike, or transit by 2040 - a target since amended to 2030 through the *Climate Emergency Response*. It also set a goal of zero traffic-related fatalities. This goal was influenced by *Vision Zero*, a global initiative to eliminate traffic-related fatalities and serious injuries, while increasing safe, healthy, equitable mobility for all.

In 2016, Council received the *Moving Towards Zero Action Plan* (now referred to as the *Vision Zero Action Plan*) to support the City's transportation safety targets. More information on this plan is available in *Appendix A*.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

The City Manager recommends approval of the foregoing.

REPORT

Background

Responding to Civic Input

The transportation network is an important and visible part of people's everyday lives. Vancouver residents provide frequent feedback on how it operates and how they believe it can be made safer and more comfortable. In 2018, for example, the City of Vancouver received over 6,200 transportation comments from residents, often relating to the following topics:

- Traffic signals
- Street markings and signage
- Permit and metered parking
- Network improvements
- Curbside management
- Safety

The rate at which the City receives transportation feedback is steadily increasing. In the last 7 years, the number of citizen cases has increased by 220% while staff capacity has only increased 34%. The increase in cases is likely related to increasing demand on the network, higher expectations of service levels, and more channels of communication. Feedback can currently be submitted by email, 311, VanConnect, the City website, and Twitter.

Figure 1 shows a heat map of transportation-related comments and requests based on data from the City's 311 system.

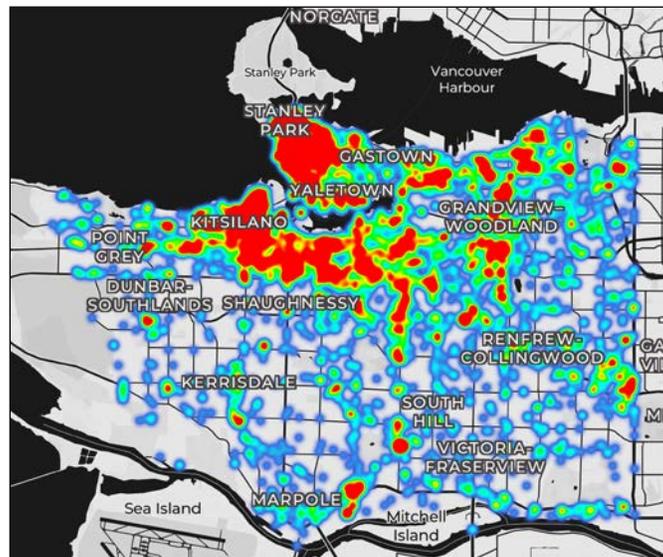


Figure 1. Citizen Reports 2018 Heat Map

To address public comments, staff use a number of resources and tools including public dialogue and engagement, site visits and data review, policies and by-laws, engineering standards and analyses, and review of past cases and future work plans. Based on these tools, staff determine whether a change is warranted and the level of priority of the intervention. These methods support an equitable and data-driven decision-making process.

In 2018, staff made 2,500 changes to signage, paint, street design, traffic signals, or by-laws based on citizen comments—meaning roughly 40% of comments resulted in some form of change.

Speed Reduction

In May 2019, City Council passed the *Safer Slower Streets: 30 km/h Residential Street Pilot* motion which directed staff to identify a local street, area, or areas within the City to pilot a 30 km/h speed limit demonstration project and report back with implementation strategy, timing, and budget, as well as proposed road design changes.

Slower motor vehicle speeds dramatically improve safety for people walking and cycling. *Figure 2* below highlights how a modest increase in speed dramatically increases pedestrian fatality rates in the event of a collision.

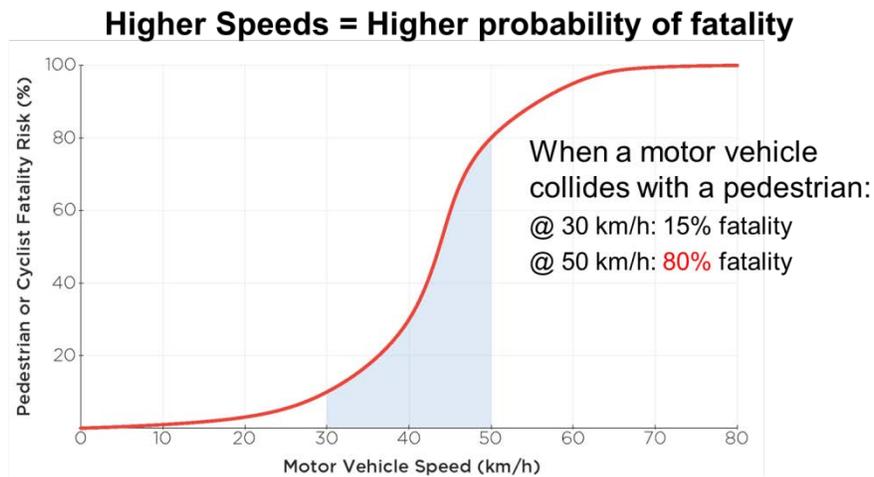


Figure 2. Probability of a pedestrian collision resulting in fatality based on impact speed
 (Source: Speed Management Manual, World Health Organization)

Tools to reduce motor vehicle speeds include legislation (speed limits), engineered design interventions (such as speed humps and signal timing), and enforcement.

Currently, the blanket speed limit for local streets within municipalities is set by the Province at 50 km/h unless otherwise posted. Different speed limits are permissible on individual streets, provided signage is posted on every block. Changes to the blanket speed limit would require amendments to the provincial *Motor Vehicle Act (MVA)*.

In Vancouver, 30 km/h speed limits have been implemented on some local streets, specifically on bikeways, in school zones (with time and day limitations), and in playground zones (with time limitations). To implement the slower speed zones on these streets, regulatory signage has been placed on every block stating the 30 km/h speed limit. Traffic calming measures such as speed humps have been installed on some of these streets as a physical measure to encourage compliance.

Some arterial and collector streets (such as portions of Hastings Street, Victoria Street, 29th Avenue, Prior Street and Beach Avenue) have had their speed limits reduced to 30 km/h in response to local safety concerns. However, these streets are generally designed for higher traffic volumes, larger vehicles, and emergency response. Tools such as speed humps, which are effective on local streets, cannot be implemented without significant impacts to emergency vehicles, goods movement, and transit. Without such measures to complement speed limit

signs, slow zones on arterials have not been effective to date. To help address this, ICBC intersection safety cameras were recently installed along Hastings Street slow zones to enforce the 30 km/h speed limit.

Staff often receive requests from schools adjacent to arterial streets to reduce speed limits on the arterial streets to 30 km/h. Staff are planning to report back with a study of the potential benefits and effectiveness, noting challenges around implementing complementary design features and enforcing reduced limits.

Transportation Safety Around Vancouver Schools

In October 2019, Council passed a motion on “Improving Transportation Safety Around Vancouver Schools”, which is a core objective of the *School Active Travel Planning (SATP) Program*.

Established in 2012, the program consults with school communities and other stakeholders to identify transportation-related challenges and opportunities, improve safety, and increase the number of children walking and cycling to school. Staff engage with stakeholders through walkabouts, meetings with Vancouver School Board staff and parents, and surveys. This provides staff with valuable data about where parents and caregivers have concerns about children using active modes to get to and from school.

The program typically follows a two-year process. In the first year, staff collect data, gather feedback from parents and caregivers, and work with the school to develop a plan including education, promotion, enforcement, and engineering measures. In the second year, engineering measures are implemented, which may include crosswalks, bulges, speed humps, passenger pick-up and drop-off zones, or other changes to improve safety.

From 2012 to 2019, over 12,000 students from more than 30 schools participated in the SATP program. This resulted in more than 96,000 trips being recorded and analyzed, almost 800 action plan items, and over \$7.5 million dollars spent on infrastructure upgrades to address identified challenges.

Refer to *Appendix B* for more information on the SATP program.

Strategic Analysis

Safer Slower Streets: Proposed 30 km/h Local Street Demonstration Project

Staff propose a two-step approach to deliver the slow streets residential pilot requested by Council, with the first a prerequisite for the second:

1. Deliver a slow zone demonstration project in 2020, using signage on every block (as currently required by the Provincial Motor Vehicle Act).
2. Collaborate with the Province on a pilot project to enable blanket speed limit changes. This pilot would be informed by the demonstration project, and allow for cost-effective and widespread implementation of slow zones on local streets across the city.

Step 1: Slow Zone Demonstration Project

To identify potential areas for the demonstration project, staff subdivided the City into zones bounded by the arterial street grid. Within each zone, staff looked at current vehicle speeds, density of vulnerable residents (seniors, children, and low income status), serious collisions, and presence of community amenities (such as community centres, schools, parks, senior homes, child care facilities). Each zone was ranked based on these combined data sets, as well as how much traffic calming already existed in the area. More information on this selection process can be found in *Appendix C*.

Based on the analysis of the data, zones have been categorized into two groups:

- **Group 1: Areas already operating as slow zones.** These areas already have some traffic calming measures in place and most traffic already operates below 30 km/h. A slow zone pilot can be delivered using signage alone.
- **Group 2: Areas most in need of a speed reduction.** These areas have a collision history, a high density of vulnerable road users and community amenities, as well as current speeds in excess of 40 km/h. A slow zone demonstration would require new infrastructure to encourage compliance in addition to signage.

Staff recommend beginning with a Group 1 location, since it can be delivered quickly using signage alone, and will inform a collaboration with the Province to pilot blanket speed limit reductions (discussed below). The top-ranked Group 1 location is within **Grandview-Woodland**, in the area bounded by Clark Drive, 1st Avenue, Commercial Drive, and North Grandview Highway (see *Figure 3* below).



Figure 3. Map of Sample Slow Zone

Step 2: Collaboration with Province to Test Blanket Speed Limit Changes

As noted earlier, lowering speed limits on individual streets is expensive because Provincial legislation currently requires posting signage on every block. However in 2019, the Province amended the *Motor Vehicle Act* to enable pilot projects within municipalities to research, test, and evaluate new technologies and policies, provided there is Council consent.

City staff have approached the Province with a proposed pilot to allow blanket speed limit reductions on local streets. This would significantly reduce the costs of delivering slow zones because signage would only be required at neighbourhood 'gateways'. The Province is

supportive provided Council endorses it, and with the understanding that the aforementioned slow zone demonstration project would inform the work.

A blanket speed limit pilot could be in place as early as 2021. This would set the stage for additional slow zone pilots with reduced signage costs, and potential implementation of slow zones across the city.

Micromobility Pilot

City staff have also approached the Province to collaborate on a separate pilot to allow privately-owned e-scooters and similar devices in protected bike lanes and local streets. Staff recognize a growing number of residents already use micromobility devices despite the fact they are not legally operable on public streets, and want to support sustainable ways of getting around while ensuring the safety of everyone using roads and sidewalks.

The Province is currently working with the municipalities of Kelowna and Vernon on similar pilots, and would support one in Vancouver provided there is Council consent. The pilot could be delivered as soon as 2021, in parallel with the aforementioned one on blanket speed limits.

Neighbourhood Traffic Management (NTM) Program

A new *Neighbourhood Traffic Management (NTM) Program* has been created to more effectively deliver NTM plans to improve safety on local streets. It was developed using the *Canadian Guide to Traffic Calming*, created by the Institute of Transportation Engineers (ITE) and Transportation Association of Canada (TAC), as well as through conversations with other municipalities in Western Canada that have established neighbourhood traffic calming programs. It also considers Vancouver's history and context, including past traffic calming plans and strategies.

Community engagement will be an important part of the program, and staff will follow the City's engagement best practices when developing NTM plans. Tactics will include pop-up events, walkabouts, workshops, and public open houses, and all information will be posted to the City's NTM website (currently in development).

Two early priorities for the program are areas within:

- The **Strathcona** neighbourhood, to respond to the False Creek Flats Arterial and Prior-Venables processes; and
- The **Hastings-Sunrise** neighbourhood, to address issues around the Adanac Overpass, which was a prior commitment made to the community during the Fortis 1st Avenue closure in 2018.

Depending on how rapidly the City-Province pilot on blanket speed limits moves forward, reduced 30 km/h speed limits could be part of the traffic-calming toolbox for these areas.

The *NTM Program* will be delivered using existing staff and funding.

Improving Safety Around Vancouver's Schools and Playgrounds

To support Council's 2019 motion to improve safety around Vancouver's schools, staff recommend by-law and process changes to enhance slow zones around schools and playgrounds and make traffic calming implementation easier in these areas. Staff will also continue to work with schools on infrastructure improvements and promotion through the *School Active Travel Planning (SATP) Program*. Details are provided below.

By-law Amendment for 30 km/h Speed Limits in School and Playground Slow Zones

Staff recommend modifying the Street and Traffic By-law to make school and playground 30 km/h slow zones effective 24 hours per day, every day. This would be done by removing text referring to time-of-day and time-of-week limitations. Staff would work with partners to develop a multilingual communications and outreach campaign to alert the public of the changes.

The Vancouver Police Department, Insurance Corporation of BC, and Vancouver Coastal Health have all indicated general support for this change.

Refer to *Appendix E* for specific language recommended by the City's legal department.

Speed Hump Program Changes for School and Playground Zones

Speed humps are a low cost and effective tool to manage speeds on residential streets. In 1999, Council approved an annual *Speed Hump Program* that identified the highest ranking residential streets for speed hump installation, based on measured speeds and traffic volumes. Every year, 16-20 streets are selected for installation based on a ranking system. Residents can also request a specific street for consideration by submitting a petition to staff.

Consultation has been an important component of the program. Per Council direction in 2000, installation of speed humps on each street segment requires at least 30% of adjacent residents to respond to a survey and an approval rate greater than 50%.

Residential streets adjacent to school and playground zones are high priorities for speed hump installation. Most of these locations have not progressed to installation as fewer than 30% of residents typically respond to the survey. Considering the importance of speed humps to encourage compliance with reduced speed limits in the areas, staff recommend installations along these streets be exempt from resident consultation. The process for speed hump installation would remain the same for all other streets.

School Active Travel Planning (SATP) Program: Looking Ahead

As noted earlier, the SATP program works with schools to improve traffic safety and encourage active travel choices for students, staff, and families.

In 2020, staff plan to engage with 24 schools (including three schools new to the SATP program, six currently in year two of the process, and 15 from earlier years), and support additional schools with promotional activities.

See *Appendix B* for more information on this program.

Financial

The estimated cost to deliver the recommendations in this report is \$1.2 million, which includes:

- Grandview-Woodland Slow Zone Residential Street Demonstration Project: \$80,000 for speed limit signs on every block
- Strathcona Neighbourhood Traffic Management Plan: \$460,000 for planning, engagement, and infrastructure
- Hastings Sunrise Neighbourhood Traffic Management Plan: \$460,000 for planning, engagement, and infrastructure
- Monitoring Program to measure impacts and collect citizen feedback on demonstration project and NTMs: \$200,000

Options to deliver the recommendations in this report through reallocation of existing funding will be provided to Council for consideration as part of the Capital Plan recalibration report back.

Legal

Staff recommend amendments to the Street and Traffic By-law to allow 30 km/h regulatory signage in school and playground zones to be in effect 24 hours a day, 7 days a week. Refer to *Appendix D* for the specific wording of the proposed changes.

CONCLUSION

This report recommends a two-part strategy to advance a Council motion on Safer Slower Streets. First, a slow zone demonstration project would be implemented within the Grandview-Woodland neighbourhood, using signage as required by the MVA. This would then inform a collaborative pilot with the Province to enable blanket speed limit changes, allowing for cost-effective testing in other areas and potential widespread implementation in other areas across the city.

This report also recommends specific measures to improve safety around schools and playgrounds, including (a) amending the Street and Traffic By-law so that 30 km/h school and playground zones are in effect 24 hours a day, every day, and (b) streamlining the City speed hump process in these areas.

The report also provides information on a revamped Neighbourhood Traffic Management (NTM) Program, which will deliver slow zones and develop area-specific plans to calm traffic in neighbourhoods across the city. Priority locations include Strathcona (to address False Creek Flats Arterial and Prior-Venables process) and Hastings-Sunrise (to address issues around the Adanac Overpass).

Finally, to help understand how new micromobility devices (such as e-scooters) can be safely integrated into the transportation system, the report seeks Council endorsement for a Provincially-supported pilot to allow the use of privately-owned micromobility devices on protected bike lanes and local streets.

No new staff or funding are required, as resources would be allocated from existing programs.

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Appendix A. City of Vancouver Vision Zero Action Plan

The City’s *Vision Zero Action Plan*¹, previously referred to as the 2016 *Moving Towards Zero Action Plan*, aims to eliminate traffic-related fatalities and serious injuries in Vancouver. It is comprised of the **5 Es** – (1) enhanced data, (2) evaluate and prioritize locations, (3) engineering action plan, (4) enforcement, and (5) education and public outreach.

The sections below summarize progress made in each of these areas.

1. ENHANCED DATA

Staff have been collaborating with partners to expand data sets to improve monitoring and better inform engineering decisions. Previously, staff have had access to reliable collision data [via the Insurance Corporation of BC (ICBC)] and traffic-related fatality data [via the Vancouver Police Department (VPD)], but serious traffic-related injury data has been lacking. Recently staff have addressed this gap with new data-sharing agreements with Vancouver Coastal Health (VCH) and BC Ambulance. Staff also continue to review and improve the City’s own data collection methods.

Overall, traffic safety in Vancouver has been improving over the past several decades. Traffic-related fatalities have fallen significantly even as the number of people, jobs, and trips in the city has grown (*Figure 3*).

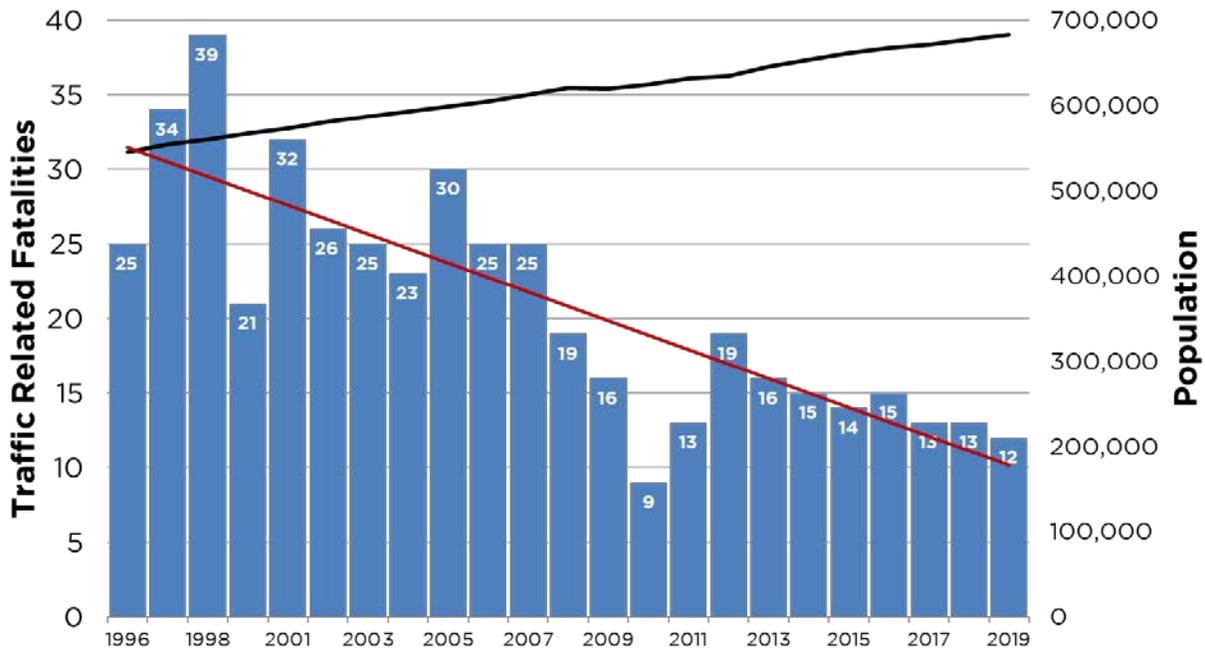


Figure 4. Traffic related fatalities (1996-2019).
Source: Vancouver Police Department

Despite this trend, traffic is still a major safety issue in the city, with serious traffic-related injuries climbing slightly over the past nine years (*Figure 5*). Traffic-related collisions are the second highest cause of serious injuries arriving at hospital emergency departments in Vancouver, representing 20% of the cases.

¹ More information on the plan is available online at <https://vancouver.ca/streets-transportation/transportation-safety.aspx>.

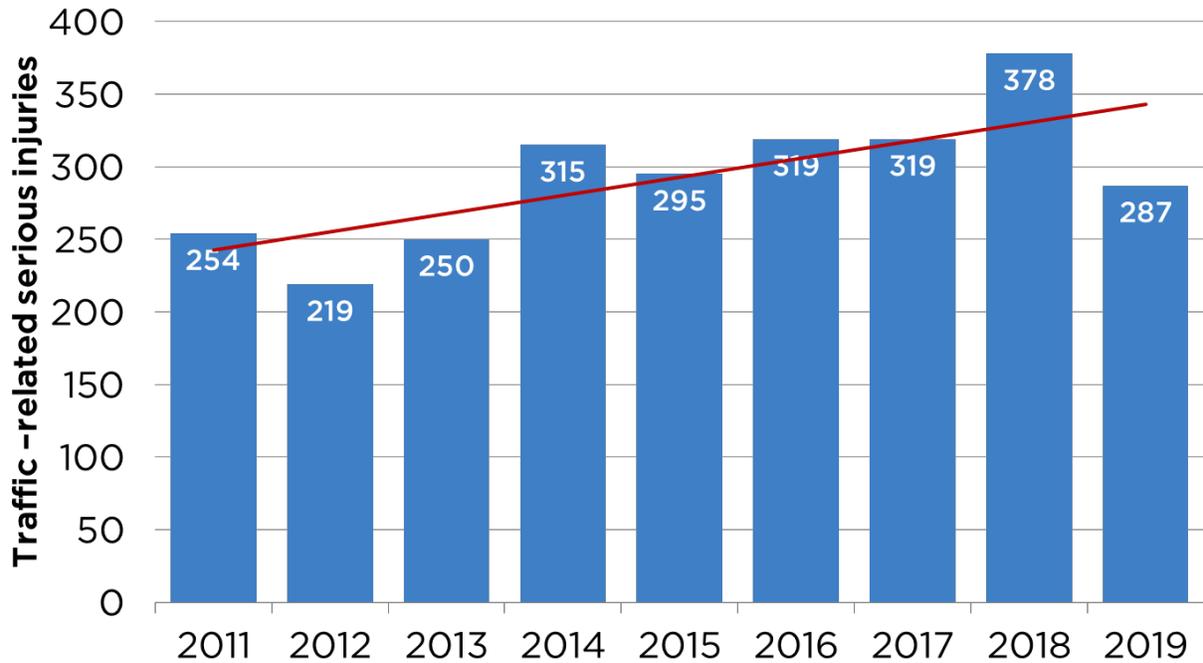


Figure 5. Traffic related serious injuries (2011-2019).
 Source: Vancouver General Hospital, Traffic Injury Data (2011-19)

People travelling on foot, by bicycle, or motorcycle are particularly vulnerable to serious injury or death in the event of a collision with a motor vehicle. Between 2014 and 2019, these groups were involved in only 3% of collisions, but accounted for 65% of serious injuries and 71% of fatalities (*Table 1*).

Table 1. Comparing Collisions, Serious Injuries, and Fatalities by Travel Mode²

Mode	% of collisions	% of serious injuries	% of fatalities
Walking	1%	31	60%
Cycle	1%	22	1%
Motorcycle	1%	12	10%
Motor Vehicle	97%	35%	29%

The data also reveals that seniors are particularly susceptible to serious injury or death in the event of a collision. People aged 65+ represent only 15% of the population, but account for 22% of serious injuries and 42% of fatalities³. On average, 300 seniors are treated at Vancouver’s hospitals every year as a result of traffic-related collisions. From those, approximately 100 are fatalities and serious injuries, while the other 200 falls within the minor injury category.

According to BC Ambulance Data, there is an average of 200 transportation-related injuries involving children every year in Vancouver.

² Sources: Vancouver Police Department, Traffic Fatality Data (2014-19); Vancouver General Hospital, Traffic Injury Data (2014-19); Insurance Corporation of British Columbia, Collision Data (2014-18)

³ Sources: Vancouver Police Department, Traffic Fatality Data (2014-19); Vancouver General Hospital, Traffic Injury Data (2014-2019); Census Population Data 2011

Equipped with these additional data sets, there is a clearer picture of what's happening on Vancouver's streets. The next step was to dive deeper into where fatalities and serious injuries were happening to seniors and other vulnerable road users. In this way, locations for improvement were prioritized to address the traffic safety of vulnerable road users.

2. EVALUATE AND PRIORITIZE LOCATIONS

Staff have prioritized intersections and corridors to conduct detailed safety studies, based on:

- The number of traffic-related fatalities and serious injuries
- Presence of vulnerable road users (people walking and/or cycling)
- Protection of at-risk groups (seniors, children, and people with mobility challenges)

The studies will review safety issues—analyzing for example who was involved in the collisions, as well as where, when, and how they took place—and inform localized opportunities to improve safety through engineering, enforcement, and education measures.

The top ranked corridors requiring improvement across all modes are Hastings, Kingsway, Broadway, Granville, Robson, 10th Ave, Ontario, Cambie, SW Marine Dr, and Commercial Dr. Specific intersections have also been identified for each mode of travel as well as for seniors. The intersections identified were for each of the modes (walking, biking, and motor vehicles), as well as for seniors. A map of the priority locations is available online⁴.

Staff have also prioritized schools for the action plan, using criteria such as proximity to arterials and signalized intersections to identify those where children walking, cycling, or rolling to school would likely have high levels of exposure to motor vehicles. A map of participating schools is available online⁵.

Staff are also identifying locations where collisions occur that do not involve motor vehicles (i.e. pedestrian-bike, bike-bike, and bike-only). This analysis has significantly improved with newly available data from health partners.

3. ENGINEERING ACTION PLAN

Staff have developed an engineering action plan to support *Vision Zero*, including the creation of a safety best practices toolkit to address particular safety concerns. In many cases, pilots have been used to validate tools for effectiveness in the local Vancouver context.

The strategy is based on countermeasures, with solutions tailored to address specific collision types at specific locations. For example, the pedestrian safety toolkit, as shown in *Table 2*, includes measures such as:

- New signals
- Left turn arrows at intersections
- LED lighting
- Countdown timers
- Timing pedestrian signals for slower walking speeds

⁴ <https://vancouver.ca/streets-transportation/priority-intersections-corridors.aspx>

⁵ <https://www.google.com/maps/d/viewer?mid=1MfnpTvMX2yc05QxJl7z3-zCl2fmwQoKe&ll=49.250359642651844%2C-123.11605455&z=13>

- Shortening crosswalk distances through curb bulges

Table 2. Safety treatments installed since 2017

Conflict Type	Mitigation	# Installed
Turning vehicle conflict with pedestrian	Leading pedestrian interval	4
Pedestrian safety	Countdown timer	300+
	Signal re-timed for slower walking speeds	140+
Driver failure to yield to pedestrian jaywalking	Rectangular Rapid Flashing Beacon	15
Driver failure to yield to pedestrian/cyclist jaywalking	New signal	15
Collisions in low light	LED light upgrade	50+
Turning conflict (all modes)	Signage-signal change	12
	Geometric-signal change	2
School safety	Traffic calming	20+

Similarly, the cycling safety toolkit includes measures such as:

- Removing traffic circles from bikeways
- Adding median extensions (to force slower right turns)
- Adding street lighting (for after dark collisions)
- Painting conflict areas at intersections and driveways green

Evaluation is an important component in the development of safety measures, particularly when testing new interventions. *Table 3* highlights the measured impacts of several interventions in the City's toolkit.

Table 3. Collision reductions by treatment in Vancouver

Upgrade Type	Locations Evaluated	Collision Reduction	
		Pedestrian	All (Fatal & Injury)
New Pedestrian Signal	2	-96%	-20%
Left Turn Arrow	5	-38%	-26%
LED Lighting	18	-27%	-46%*
Countdown timer	33	-28%	-10%
Signal Re-Timed for Slower Walking Speed	4	-12%	

New tools that have been piloted recently in Vancouver include:

- Rectangular Rapid Flashing Beacons
- Accessible Pedestrian Signals
- Leading Pedestrian Intervals
- All Walk Phases

Rectangular Rapid Flashing Beacons (RRFBs) are rectangular shaped lights mounted at the top of the crosswalk sign. The beacons flash rapidly in order to get drivers' attention that a pedestrian is present at the crosswalk. In the first year of the pilot, RRFBs increased driver yielding behaviour from 50% compliance to 97% compliance. Drivers also increased yielding distance from pedestrians, further increasing safety and comfort for pedestrians, and the public expressed positive feedback (surveys, webpage, and 311). Additional RRFBs are scheduled for installation in 2020.

Accessible Pedestrian Signals (APSs) communicate with pedestrians who are blind or visually impaired when they have the right-of-way to cross at a signalized intersection. The

City's Persons with Disabilities Advisory Committee expressed some initial concerns, and staff subsequently worked with the Canadian National Institute for the Blind and Access for Sight-Impaired Consumers to develop the pilot. Staff continuing to evaluate this tool's effectiveness.

Leading Pedestrian Intervals (LPIs) are a traffic signalization strategy that gives pedestrians a head start to cross the street before vehicles are permitted to make turning movements across the pedestrian path. A joint study with UBC at two pilot locations demonstrated that LPIs reduced both the number (12-17%) and severity of vehicle-pedestrian conflicts. Staff will install additional LPIs in 2020.

All Walk Phases (AWPs) improve safety by giving pedestrians a crossing option in all directions, eliminating conflicts with turning vehicles. The City's first AWP was installed at the Hornby-Robson intersection in 2019. A joint safety study with UBC showed a 96% reduction in vehicle-pedestrian conflicts. This pilot will become permanent as part of the Robson Plaza project, and a second AWP will be installed on the other side of the plaza at the Howe-Robson intersection. Staff will continue to look for other suitable locations for this type of intervention.

The 2016 *Vision Zero Action Plan* identified overrepresented types of collisions as follows:

- Pedestrian and left turning vehicles
- Pedestrian and right turning vehicles
- Driver failure to yield
- Jaywalking
- Collisions after dark

These types of collisions have been addressed at the following locations as shown in the following map using the traffic safety toolkit (*Figure 6*):

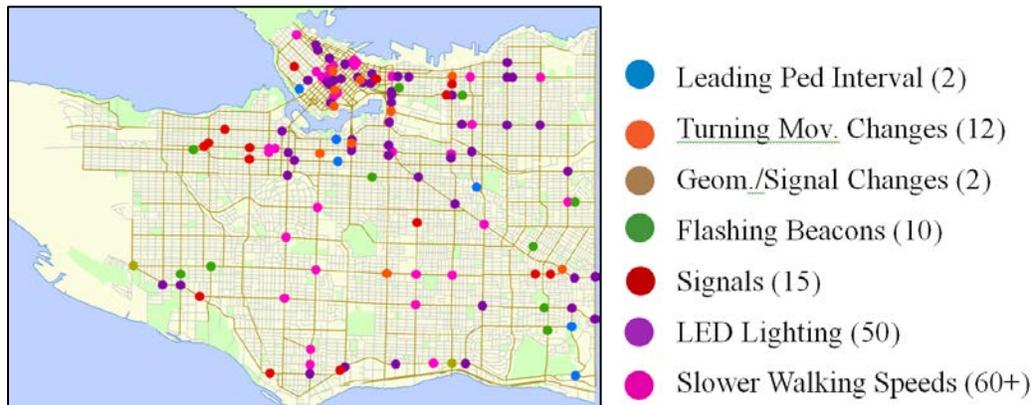


Figure 6. Locations of countermeasures responding to over-represented types of collisions

4. ENFORCEMENT

Enforcement is the responsibility of the VPD and ICBC. Staff meet with the VPD monthly to discuss areas of concern and develop targeted enforcement approaches for particular issues and/or locations. Staff also work with ICBC to install red light cameras and speed cameras where they are most needed.

To help address speeding, local community policing centre volunteers run the Speed Watch program with the support of ICBC and the VPD. By setting up a speed radar board to show motorists their speed, the Speed Watch team promotes awareness of the importance of driving slowly through speed sensitive areas such as schools, parks and playgrounds. The team also records speeds to assess whether police enforcement or traffic calming interventions are needed.

5. EDUCATION AND PUBLIC OUTREACH

Staff developed a “Moving Towards Zero Transportation Fatalities” website to accompany the Vision Zero Action Plan in 2016. Staff continue to partner with VPD and ICBC on traffic safety campaigns, such as the pedestrian safety campaign that happens every November in conjunction with Daylight Savings. A Traffic Safety Advisory Group was established to bring together partners from the VPD, ICBC, TransLink, the Health Authorities, as well as academics from local universities.

In September 2018, the City hosted its first Transportation Hackathon. Called VANquish Collisions, it brought together computer programmers, developers, designers, and others from the public to collaborate on solutions that would help accelerate the City’s efforts towards zero traffic-related fatalities and serious injuries. The hackathon engaged diverse and talented citizens, creating a venue for innovative ideas to support Vision Zero. Over 120 participants attended, presenting 24 unique proposals. Staff are currently working with one of the teams on a safe walking routes to school app.

Other seasonal promotional campaigns and events have been run to promote safer transportation choices, reduce the number of vehicles on our streets and enhance the safety of all road users, such as the Gear Up Vancouver campaign in fall 2019. The City also supported numerous other active travel promotional campaigns and events that improve public health and safety by encouraging active travel and reducing the number of vehicles on our streets, like Bike to Work Week, Bike to Shop Days, and Bike the Night, which resulted in a 60% decrease in the number of participants who cycled in darkness without lights post-event.

Appendix B. School Active Travel Planning (SATP) Program

Schools are a priority for the City when it comes to promoting active transportation and addressing related safety issues, and face particular opportunities and challenges. On one hand, school age children are at an ideal age to learn and internalize sustainable transportation behaviours. On the other hand, children are particularly vulnerable to traffic concerns. There is a negative feedback loop that takes place for many parents, who report they drive their children to school because they perceive the streets to be dangerous. As more children are driven to school, traffic increases and the safety concerns are exacerbated.

The *School Active Travel Planning (SATP) Program*, established in 2012, attempts to break this negative feedback loop. Using a combination of infrastructure, enforcement, promotion, and enabling strategies, the program helps shift perceptions and address barriers to active travel, making walking, cycling, and rolling to school normal, safe, and convenient.

The program typically follows a four-phase process which takes about two years (see *Figure 7*).

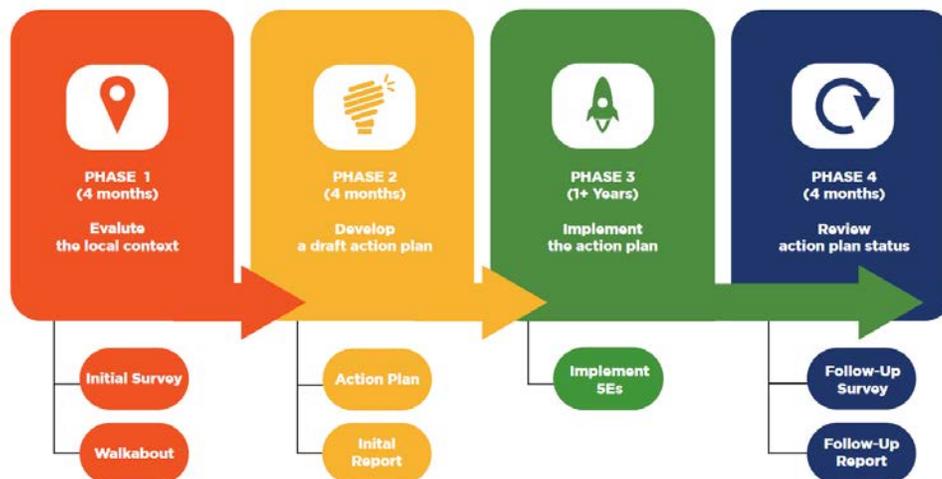


Figure 7. The Four Phases of Developing a School Active Travel Plan

PHASES 1 & 2: EVALUATING LOCAL CONTEXT & DEVELOPING A CUSTOM PLAN

Early on, staff consult with school communities and other stakeholders to identify transportation challenges and opportunities through walkabouts, meetings with Vancouver School Board (VSB) staff and parents, and surveys. This provides staff with valuable data about why parents and caregivers may or may not allow children to use active modes to and from school.

Staff then use this feedback alongside traffic data (traffic volumes, speeds, collisions, etc.) to develop a tailored action plan including both engineering infrastructure and supporting programs.

PHASE 3: IMPLEMENTING THE ACTION PLAN

Physical Infrastructure

Typical infrastructure measures for to improve safety near schools are highlighted below and in Figure 8.

- Signage: \$500 to \$2,000
- Painted crosswalk: \$3,000 per crossing
- Curb ramps: \$8,000 per corner
- Speed humps: \$5,000 to \$10,000 per block
- Curb bulge, median or raised crosswalk: \$60,000 to \$90,000 per unit
- Sidewalk or curb: \$70,000 to \$100,000 per block
- Signal (pedestrian-bike): \$100,000 to \$300,000



Figure 8. Infrastructure to Address Safety Issues Near Schools

Signals are a major expense and when required can take significant portions of the school program budget. In some cases, they can be funded through other programs such as the City's capitolly-funded Signal program, which has a budget of approximately \$1M; however these programs must also cover other citywide priority locations, so the funding is not always available for schools.

Education, Encouragement, and Enforcement

In addition to providing physical infrastructure, the SATP program also supports education, encouragement, and promotion programs and events across all Vancouver schools. Many of these tactics were identified in the City's Active Transportation Promotion and Enabling Plan, approved in 2016.

To date, initiatives have included:

- Walking and cycling education courses delivered by HUB Cycling
- Walking and cycling education sessions delivered by the VPD
- Skateboarding education delivered through the Chill Foundation
- Transit 101 workshops delivered by TransLink
- Support for third party events such as Bike to School Week in spring and Walk and Wheel week in the fall
- Walk + Bike + Roll grants to support school-led active travel projects
- Grandma on the Move traffic safety campaign⁶
- Planet Protector Academy's Keep Cool classroom program on climate change
- Student safety sign design competitions

These initiatives help foster the skills, confidence and awareness to allow students to safely walk and wheel to school, inspire school families to try active travel, and normalize walking and cycling as convenient ways to get around.

PHASE 4: EVALUATION AND STATUS REVIEW

Once the plan has been implemented, a follow up survey captures the success of the plan at each school. Additional interventions may be pursued if funding is available.

FUNDING AND PROGRAM OUTLOOK

For the 2019-2022 Capital Plan, the program has an annual budget of \$625,000. Of this, \$300,000 is for staff, including School Active Travel Planner, SATP Coordinator, and Engineering Assistant positions. The remaining \$325,000 is used for infrastructure and education.

Additional education and encouragement initiatives may also be funded through other City budgets, such as the Transportation Planning Promotions budget, or with the help of outside partners such as TransLink.

Given typical infrastructure costs, the annual school program budget funds 3 to 5 schools depending on the type of infrastructure required. Over 30 schools have participated in the program since 2012. In 2020, staff plan to engage with 24 schools (including three schools new to the SATP program, six currently in year two of the process, and 15 from earlier years), and support additional schools with promotional activities.

Staff are exploring ways to scale walking and cycling education to reach all VSB schools.

⁶ A campaign launched in 2019 and comprised of a traffic safety song, music video, and an activity-colouring book. All assets are freely available on the City's website (vancouver.ca/grandmaonthemove).

Appendix C. Selection Methodology for Slow Zone Pilot

Staff used the following methodology to identify and prioritize candidates for slow zone testing.

1. The City was divided into zones. Each zone represents an area of local streets surrounded by arterial streets. Zones where implementing traffic calming has significant impacts to emergency vehicles, goods movement, and transit were not considered.
2. Zones were categorized into two groups based on speed data:
 - Group 1: Areas already operating as slow zones (speeds lower than 30 km/h)
 - Group 2: Areas most in need of a speed reduction (speeds above 40km/h)
3. Each zone was ranked based on the combined data sets from the following five categories:
 - *Collision history*: Priority was given to areas with a collision history, especially where fatalities and serious injuries have been observed. Data sources included Vancouver Police Department fatality data, Vancouver General Hospital injury data, BC Ambulance injury data, and Insurance Corporation of British Columbia collision claims.
 - *Operating speeds (Group 2 only)*: Priority was given to locations where excessive speed are being observed. Speed data was obtained from various sources including Google data, City fleet GPS data and City's speed radar data.
 - *Vulnerable users*: Priority was given to locations with higher numbers of vulnerable groups, including children (under 18), seniors (65+) and low income residents
 - *Community amenities*: Priority was given to locations with community amenities that attract trips into the neighbourhood. Amenities considered included schools, playgrounds, senior homes, child care facilities, community centres, libraries, and pools, among others.
 - *Traffic calming (Group 1 only)*: The presence or absence of traffic calming was used to help categorize locations and their ability to encourage slower speeds through street design

Weightings for each category are highlighted in *Figure 9* below.

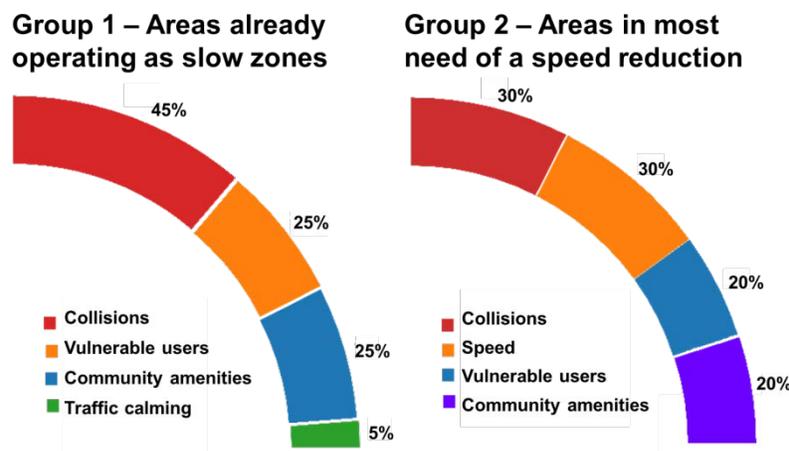


Figure 9. Weighing categories to prioritize pilot slow zone locations

Top Ranked Locations

The top candidate zones in Group 1 are located in:

1. Grandview-Woodland (bounded by Clark Drive, Commercial Drive, 1st Avenue and North Grandview Highway)
2. Mount Pleasant (bounded by Main Street, Clark Drive, Broadway and Great Northern Way)
3. The West End (bounded by Denman Street, Nelson Street, Davie Street, and Thurlow Street)

The top candidate zones in Group 2 are located in:

1. Strathcona (bounded by Prior-Venables Street, Hastings Street, Main Street, and Clark Drive);
2. Joyce (bounded by Kingsway, Joyce Street, and Boundary Road)
3. Langara (bounded by 49th Avenue, Marine Drive, Cambie Street, and Main St)

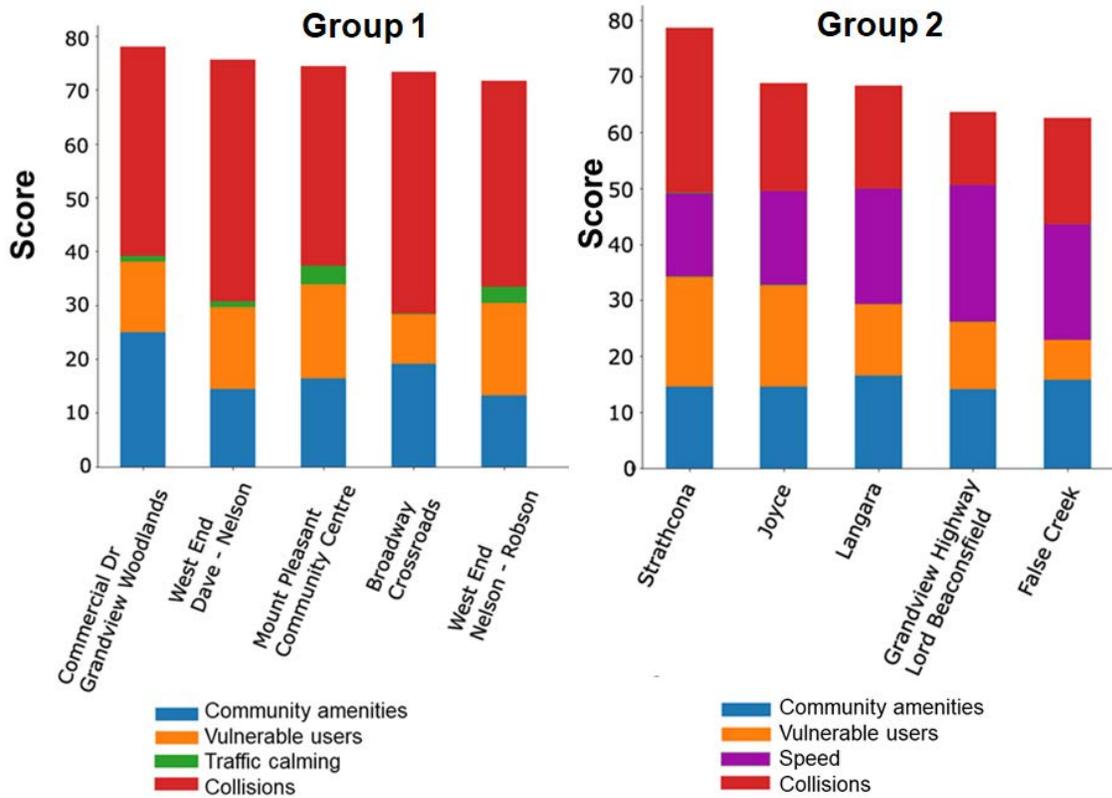


Figure 10. Top ranked zones for each group

Appendix D. Proposed Street & Traffic By-law Amendment

The Street and Traffic By-law, section 44, states (emphasis added):

“Where traffic signs are located, established or maintained on any street indicating that the rate of speed of all vehicles is regulated or fixed on any such street in any zone, place or area indicated by the location of such signs, no person shall drive such a vehicle at a greater rate of speed than that shown on the sign, provided however, that **wherever such signs are displayed indicating that the zone, place or area is in the vicinity of a school, such restriction of speed shall be applicable between the hours of 8:00 a.m. and 5:00 p.m. of any day of which school is regularly held; and whenever such signs are displayed indicating that the zone, place or area is in the vicinity of a playground, such restriction of speed shall be applicable between dawn and dusk.** For the purpose of this section where numerals alone, are prominently displayed on any sign, the maximum speed allowed in the zone shall be that number of kilometres per hour indicated by such numerals.”

With the current school and playground zones being regulated by time of day and day of week, it is not clear to drivers which regulatory signage applies, and the presence of additional signage is causing additional upkeep for crews and clutter on the City’s local streets. To provide clarity and consistency, staff recommend changing the by-law to remove the time of day and day of week text, making all 30 km/h slow zones effective 24 hours per day, every day on local streets.

A By-law to amend the Street and Traffic By-law No. 2849 regarding speed limits in school and playground zones

THE COUNCIL OF THE CITY OF VANCOUVER, in public meeting, enacts as follows:

1. This By-law amends the indicated provisions of the Street and Traffic By-law.
2. Council strikes subsections 10(2) and 10(3) and replaces them as follows:

“(2) Whenever any portion of a street has been designated under subsection (1), the driver of every vehicle shall obey the instruction, prohibition or direction indicated on the traffic sign or marking, provided however that wherever the sign or marking is erected on a street containing a central boulevard the sign or marking shall govern only that portion of the school crossing which is on the same side of the street in which the vehicle is lawfully travelling.

(3) If any traffic sign placed in advance of a designated school crossing referred to in subsection (1) contains the words "No Passing", no driver of a vehicle shall overtake and pass any moving vehicle while upon that portion of the street between the said sign and the designated school crossing.”

3. Council strikes section 44 and replaces it as follows:

“44. Where traffic signs are located, established or maintained on any street indicating that the rate of speed of all vehicles is regulated or fixed on any such street in any zone, place or area indicated by the location of such signs, no person shall drive such a vehicle at a greater rate of speed than that shown on the sign, provided however, that wherever such signs are displayed indicating that the zone, place or area is in the vicinity of a school, such restriction of speed shall be applicable all times of the day

This document is being provided for information only as a reference tool to highlight the proposed amendments. The draft amending by-laws attached to this report represent the amendments being proposed to Council for approval. Should there be any discrepancy between this redline version and the draft amending by-laws, the draft amending by-laws prevail.

Street and Traffic By-law No. 2849:

10. School Crossings.

- (2) Whenever any portion of a street has been ~~so designated by such traffic signs or marking~~ under subsection (1), the driver of every vehicle shall, ~~between 8:00 a.m. and 5:00 p.m. of any day on which school is regularly held,~~ obey the instruction, prohibition or direction indicated on ~~such~~ the traffic sign or marking, provided however that wherever ~~any such signs or markings are~~ the sign or marking is erected on a street containing a central boulevard ~~they~~ the sign or marking shall govern only that portion of the school crossing which is ~~in that~~ on the same side of the street in which the vehicle is lawfully travelling.
- (3) If any traffic sign, placed in advance of a designated school crossing referred to in subsection (1), contains the words, "No Passing", no driver of a vehicle shall, ~~between 8:00 a.m. and 5:00 p.m. of any day on which school is regularly held,~~ overtake and pass any moving vehicle while upon that portion of the street ~~lying~~ between the said sign and the designated school crossing."

44. Where traffic signs are located, established or maintained on any street indicating that the rate of speed of all vehicles is regulated or fixed on any such street in any zone, place or area indicated by the location of such signs, no person shall drive such a vehicle at a greater rate of speed than that shown on the sign, provided however, that wherever such signs are displayed indicating that the zone, place or area is in the vicinity of a school, such restriction of speed shall be applicable ~~between~~ all times of the ~~hours of 8:00 a.m. and 5:00 p.m. of any day of which school is regularly held~~ day every day of the year; and whenever such signs are displayed indicating that the zone, place or area is in the vicinity of a playground, such restriction of speed shall be applicable ~~between dawn and dusk~~ all times of the day every day of the year. For the purpose of this section where signs are displayed indicating the zone, place or area is in the vicinity of a school and or playground, where times of day are prominently displayed on any sign with numerals, the maximum speed allowed in the zone shall be that number of kilometres per hour indicated by such numerals and applicable all times of the day every day of the year. For the purpose of this section where numerals alone, are prominently displayed on any sign, the maximum speed allowed in the zone shall be that number of kilometres per hour indicated by such numerals."