Department Manager	Director	CAO
Manager		



The Corporation of THE CITY OF NORTH VANCOUVER ENGINEERING, PARKS & ENVIRONMENT DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Justin Hall, Manager, Public Realm Infrastructure

Subject: ST. ANDREWS SAFETY IMPROVEMENT PROJECT – NEXT STEPS

Date: July 12, 2023

File No: 16-8350-20-0038/1

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Manager, Public Realm Infrastructure, dated July 12, 2023, entitled "St. Andrews Safety Improvement Project – Next Steps":

THAT staff proceed with the implementation of design adjustments that respond to community feedback and continue to improve safety and comfort of the street for all roadway users;

THAT \$130,000 of existing funding from "Esplanade Complete Streets" (Project #53257) be reallocated to "Priority Mobility Network Strategy" (Project #53255) to allow for the implementation of the design adjustments;

AND THAT should any of the amounts remain unexpended as at December 31, 2026, the unexpended balances shall be returned to the credit of the respective fund.

ATTACHMENTS

- St Andrews Safety Improvement Project 2023 Engagement Summary Report (CityDocs <u>2390312</u>)
- 2. St Andrews Safety Improvement Project Revised Design July 2023 (CityDocs 2390321)

SUMMARY

Staff have developed recommended next steps for the St Andrews Safety Improvement project based on five principal factors: feedback from the community, engineering requirements, road design best practices, future transportation network requirements and various other forms of data, including road usage. Based on these factors, there are two appropriate pathways forward:

- 1. An improved **Separated Design** where mobility-device users have a designated space separate from vehicles.
- 2. *Neighbourhood Bikeway Design*, where mobility-device users and vehicles share the road.

Staff recommend proceeding with an improved **Separated Design** (option #1) by making key adjustments that address user experience feedback including improving sightlines, navigability, and comfort for all users. This recommendation aligns with City Policy by providing "active and sustainable ways for people to move to, from and within the City safely" and best meets the objective of "creating mobility infrastructure that is comfortable for most."

With implementation of the improved separated design, six key changes will be made to the street:

- 1) Clarify the intersection of St Andrews at Keith Road to make transitioning onto the street easier for drivers
- 2) Increase sightlines at intersections to improve driver to driver and driver to pedestrian visibility.
- 3) Enhance the pedestrian refuge at crossings to clearly delineate where it is safe for pedestrians to look both ways before proceeding to cross the street
- 4) Reduce driver speeds by adding one speed bump on each block and add a raised crossing at 11th Street
- 5) Increase the roadway width to provide more comfortable conditions for drivers and downhill cyclists sharing the roadway
- 6) Add delineators to better define the parking and sightline zones.

BACKGROUND

The St Andrews Safety Improvements project was initiated in response to community feedback about persistent speed issues between Keith Road and 13th Street. In July 2020, Council approved a motion to reduce the speed limit along this stretch of road to 30km/h. Data collection before and after the speed limit change showed only a minor change in driver speeds.

The original width of St Andrews was 12.0 metres from curb to curb and 7.6 metres of navigable road space between curbside parking on both sides. This condition was much wider than a typical residential street, making it easy for drivers to feel comfortable speeding. To help align driver speeds with the posted speed limit and provide a safer, more comfortable experience for everyone, design changes to the street were necessary.

Street and Policy Context

The St Andrews corridor is classified as a local road in the City's Official Community Plan (OCP) and has been identified as one of the City's bike routes since at least the 2006 Bicycle Master Plan update. The corridor was designated an All Ages and Abilities (AAA) route in 2014. The corridor is an important north-south route east of Lonsdale Avenue, connecting neighbourhoods from Lower Lonsdale, through Central Lonsdale, the Lions Gate Hospital campus, and recreation facilities near the Harry Jerome Recreation Centre as well as recreational routes like the Green Necklace and Spirit Trail. Portions of the corridor do not meet the AAA requirements due to vehicle volumes and speeds. Based on available cycling and mobility usage data, the corridor appears to attract a moderate level of usage relative to other designated routes in the City's AAA network. On St Andrews, the characteristics of the street (connection to key destinations and medium density residential zoning) have the potential to generate both cycling and higher vehicle demand. Therefore, careful consideration of the design is required to maintain cycle demand whilst mitigating vehicle demand.

Since the classification of St Andrews as an AAA corridor in 2014, best practices for safe and comfortable infrastructure have evolved. It was anticipated the street would meet the AAA standard through a neighbourhood bikeway style street. This would require vehicle volumes to be maintained at less than 1,000 vehicles per day and speeds at or below 30km/h. Since that time, there have been two main changes that impact our design direction for St Andrews:

- First, in 2014 best practice did not consider how grade (slope of the route) influences rider comfort and speed in a shared condition. Best practices for design encourage designing routes with a maximum 5% grade, which cannot be accomplished on all routes in the City. In fact, all north-south corridors in the City have the added challenge of responding to user needs on a steeper grade. To respond to this contextual challenge of uphill travel, designing for increased separation from vehicles and additional facility width. Additional facility width up to 0.4 metres is necessary for cyclists and mobility device users travelling at slow speeds as there is a natural tendency to 'weave' to help maintain balance. This increases the typical operational width that must be accounted for in facility design.
- Second, more cities are acknowledging that a significant portion of the population considered to be "interested, but concerned" (see figure 1) with choosing a bicycle or other mobility device as a preferred mode of transportation is simply not comfortable with sharing space with large and potentially fast-moving vehicles. The evolving leading thought is to create safe separation wherever possible to accommodate those who are more cautious. Ultimately, this will enable more of the population to have viable safe and comfortable options for the kinds of trips that are most common in our City.



Figure 1: Spectrum of Cyclists and Mobility Device Users

Future of the St Andrews Corridor

When we look at the future of St Andrews as part of the buildout of the network, we have a goal to create conditions that are 'comfortable for most' by creating infrastructure that supports the 'Interested but Concerned' (which typically includes more cautious users and families) and 'Enthusiastic and Confident'. A neighbourhood bike-street condition, where mobility device users share the roadway with vehicles, is not considered comfortable for most along the entire corridor due to steep grades and vehicle volumes. The steeper sections of the street creates a condition where the speed difference between slower moving mobility device users (e.g. bicycles) and vehicles can create a sense of discomfort for less experienced riders. While travelling downhill, cautious users do not always feel confident "taking the lane" to operate safely in a shared condition. Given this, downhill separation will be prioritized in the steepest and busiest sections near the hospital and south of Keith Road. Vehicle diverters and discontinuous vehicle travel is another way to reduce vehicle volumes, but does not address the simple discomfort of sharing space.

At this time, completing the St Andrews corridor from Esplanade to East 23rd Street through a comprehensive project is not considered a priority in the Mobility Network Strategy due to the evaluation of current demand versus gaps in safe infrastructure. Improvements in the interim will, however, continue to be delivered through spot improvements, through development or other related capital work like intersection improvements or opportunity projects like the St Andrews Safety Improvement Project.

Project Engagement & Design Approach

The St Andrews Safety Improvement Project was launched with the goal of providing a safer, more comfortable experience for all road users. To accomplish this with two key objectives in mind: 1) to fill gaps in the sidewalk network and 2) align driver speed with the posted 30km/h speed limit. In addition, as per the 2019 Mobility Network Strategy, it is staff's practice to improve mobility facilities on identified mobility corridors when delivering other projects (e.g. repaving Brooksbank Avenue incorporated adding mobility lanes). In April 2021, the project team launched Phase I of the project engagement on LetsTalk to comply with COVID restrictions at the time. In Phase I, more than 300 community members responded to letters, posters and email invitations to participate by viewing the project page. Those that engaged further through the Let's Talk tool, to share their thoughts, highlighted driver speed and pedestrian visibility at crossings as primary

concerns. With influence from community feedback and best practice design considerations, staff developed the following design objectives:

- Prioritize the safety and comfort of vulnerable road users;
- Utilize materials that are cost effective, easy to install and easy to modify;
- Maintain the permeability of the street (avoid physical restrictions preventing drivers from travelling along the corridor);
- Retain as much street parking as possible;
- Minimize impact on emergency services; and,
- Utilize design components that are familiar to City residents and visitors.

The biggest challenge identified was to align driver speed with the posted 30km/h speed limit. Design changes to the street were needed to create conditions for more appropriate driver behaviour. Early concepts considered traffic calming tools like diagonal diverters and speed bumps that are effective at reducing cut-through traffic and speeding. However, these tools require considerable change to neighbourhood access and would require neighbourhood-wide implementation to be effective and equitable. The scale of impact of neighbourhood level changes exceeded the scope in Council's motion and staff's capacity to deliver effectively. As such, staff pivoted to consider other designs drawn from best practices.

The outcome was a design that focused on a narrowed or queueing street that permits bi-directional travel but does not have the width that support free flow of movement when the road is busier. This configuration is common on local streets throughout the City and the region as it promotes a greater sense of speed awareness among drivers and forces drivers travelling in opposite directions to slow down, look ahead, and navigate around one another using pullout space at lanes and gaps in parking. It also has been known to reduce vehicle volumes by making the street less appealing to shortcutting while still maintaining access along the corridor. These actions make drivers more aware of their surroundings, including the presence of vulnerable road users, making the street safer and more comfortable for everyone. Within the neighbourhood surrounding St Andrews, Ridgeway and Moody Avenues as well as 8th, 9th, 10th, 11th, and 12th Streets east of St Andrews have the same narrow street condition with a curb to curb width of nine metres. Narrowing the drivable width of St Andrews to the same 9 metre width provided an opportunity to improve cycling facilities on the street through a northbound parking protected mobility lane with the freed up vehicle space. This approach could be applied elsewhere on the St Andrews corridor where conditions require further separation.

In July 2021, the project team launched Phase 2 of engagement through Let'sTalk. Staff presented a proposed design to the community that received overall support for raised crosswalks, narrowing the roadway to support slower speeds, and using the remaining road space for an uphill mobility lane. The main concerns we heard were related to loss of street parking and not enough separation between the proposed northbound mobility lane and vehicle traffic. In response to this feedback, delineators were added to better define parking and mobility lane spaces and the proposed design was adjusted to retain as much street parking as possible. This meant adjusting sightlines at intersections and laneways to the minimum standard to avoid further parking restrictions. This required drivers to be more cautious when entering St Andrews from another street or laneway and to travel on the street more slowly to be able to respond to other driver's actions or

pedestrians crossing the street. Staff also anticipated pedestrians to feel comfortable stepping onto the street protected by parked cars to for maximum visibility looking both ways. Post-implementation feedback highlighted later in this report indicated that users did not respond as anticipated with pedestrians and drivers feeling uncomfortable as a result of sightline concerns. In the final notification prior to construction, the community was encouraged to view the revised design and ask questions.

Project Implementation

In summer-fall 2021, sidewalk construction and raised crosswalks were implemented. Pavement marking changes to complete the roadway configuration changes were not completed at this time due to a paint shortage in North America. In March 2022, the project team sent a notification to the neighbourhood reminding them of the remaining work and communicating what to expect during the remaining works. Plans to complete the paint markings in early spring were further delayed due to weather and paint backlog. When a window for implementation arose in July, the project team took action to secure the window and notify the community of the coming work.

Staff appreciate that many residents have raised concerns about the 2021 engagement process. While the typical engagement process was followed at that time, certain modifications were required due to COVID-19. It is acknowledged that there were gaps in communication and the proposed changes could have been articulated more clearly, so people could truly see what the future design would look like.

Response to Initial Concerns

After installation began in late July 2022, staff received feedback from residents in the neighbourhood about the new design for the street. The most common themes were:

- Drivers having issues navigating the street with some confusion with cars parked further into the road protecting the mobility lane;
- Sightlines for pedestrian at intersections;
- Parking changes reducing short-term opportunities for commercial customers;
- Specific parking loss in the southern half of the 700 Block;
- Vulnerable road users have felt more comfortable walking and rolling on the street; and,
- Users reporting that the new street design creates a better balance of space between users.

In response to concerns from the community, staff undertook several steps to help provide more information and address questions. The City's project webpage was built out to include additional background information on the project and responses to frequently asked questions. Staff met one-on-one with many residents to ensure understanding of their concerns and experiences on the street and to answer questions. Feedback received at this time was utilized in combination with feedback from the reengagement process to inform next steps.

Post implementation, two petitions were received from members of the community, including one that put forward alternative design ideas. Staff maintained an ongoing dialogue with the organizers providing information and answering questions and

concerns. The project team evaluated the alternate design ideas put forward. Commentary on what elements may or may not be appropriate for the street context was incorporated into the content brought forward during the small group re-engagement sessions. While some elements were not aligned with design best practices, components like adding speed bumps to manage speed have been incorporated into the recommended next steps elaborated below.

Phase 3 Engagement and Feedback

In response to feedback from the community and direction from Council, staff engaged a third-party communication and engagement firm to support a second phase of engagement that ensured an inclusive and equitable process. The engagement plan's objectives were:

- 1. To ensure the community understands why the improvements were made.
- 2. To help the community understand how to successfully navigate the new street design.
- 3. Build trust with the community by demonstrating the City is providing opportunities for input and listening to the feedback we receive.
- 4. Apply design best practices and use data/user feedback to inform adjustments to ensure the street functions safely for all.

The purpose of the phase 3 of engagement was to better understand how people experience the street following safety improvements that were made in 2022. The engagement was designed to gather information by mode of transportation (walking, cycling, driving) to better understand the unique experiences of residents who live on, live near, or travel along St Andrews.

Engagement activities were selected based on the best practices for engaging the interested parties to accomplish the engagement objectives and are informed by the International Association for Public Participation (IAP2) principles. The approach taken aligns with the recent commencement of a Community Engagement Framework for the City, which will inform future engagements. Roadway design is not only technically complex, it requires a future-focused approach and must consider the entire roadway network. Coupled with multiple stakeholders, each with different perspectives, needs and priorities, consensus on roadway design projects is rarely achievable.

In projects that include roadway design similar to St Andrews, the goal is to understand users' experience when navigating the street and obtain public feedback on design features. On the IAP2 Spectrum of Engagement, this type of engagement falls under the "consult" level.



Figure 2: IAP2 Spectrum of Engagement

The commitment is that the information and feedback gathered will be used to help inform decisions in tandem with design best practices, data, and observation. The suite of engagement activities for St Andrews for the third engagement is outlined in Table 1 below.

Approach Details	Rationale
Specific Interest Group Meetings	• An opportunity for targeted groups including residents in the 700/800 block and the business owners to speak to their unique experiences.
Small group meetings (in- person)	 Provided an opportunity for those who want to talk to staff in person Created a safe environment for all participants to contribute meaningfully Fostered constructive dialogue between staff and participants Ensured balanced participation, allowing all voices to be heard Allowed participants to hear different perspectives from their neighbours and other community members
Small Group Meetings (online)	 Provided an opportunity for those who cannot attend or do not want to attend the in-person meeting, another way to talk to staff and share their feedback

Table 1: Summary of Phase 3 Engagement Activities

	 Created a safe environment for all participants to contribute meaningfully Fostered constructive dialogue between staff and participants Ensured balanced participation, allowing all voices to be heard Allowed participants to hear different perspectives from their neighbours and other community members
Online Engagement (Let's Talk)	 Provided an opportunity for those who do not want or are unable to attend a workshop to still provide feedback Reached a wider audience Allowed respondents to fill out response at a time convenient to them

This suite of engagement activities was selected specifically to ensure staff could spend time hearing from those with an interest in the project, as well as create an environment that encouraged participation from those with a broad range of perspectives.

Between March 27 and April 20, 2023, the project team initiated the public engagement process. The process successfully drove significant participation from the neighbourhood and broader community. The online survey was completed by 424 people, the three small group workshops had 51 participants, and specific interest meetings were attended by 15 people. Broad trends in the feedback were:

- Survey respondents travelling on the street by active modes felt more comfortable after the changes were made;
- Drivers reported feeling much less comfortable using the street after the changes were made;
- All modes reported driver behaviour impacting their sense of comfort and safety;
- Levels of comfort by all modes were influenced by self-reported proximity to the street, with those living closer generally feeling less comfortable than those living further away;
- Many participants had conflicting perspectives and experiences; and,
- There was a consistent sentiment to remove all changes to the street and many drivers reported none of the options for improvement would address their concerns.

A complete summary of the feedback received can be found in Attachment #1. Specific areas where feedback has influenced the next steps is highlighted later in this report.

The third-party engagement consultants have indicated that any direction taken in an effort to move forward will not satisfy some portion of interested parties. They noted that there are strong opinions on aspects of the project and while there may be a shared value to improve the safety of the street, opinions on the best way to accomplish that are divided. It has been noted more broadly that as roadways adapt to accommodate differing

forms of mobility and improved safety for all, it can be difficult to accept these changes, especially since historically; roadway design has prioritized the movement of vehicles and parking.

DISCUSSION

There are two pathways forward for the project:

- 1. An improved Separated Design; or
- 2. Neighbourhood Bikeway Design.

1) An Improved Separated Design

This option would retain the existing uphill mobility lane and make changes in response to the feedback received from the community. The project team recommends advancing this option as it is:

- 1) Safer for pedestrians.
- 2) Safer for a broader range cyclists and other mobility device users.
- 3) Aligned with City Policy and design best practices.
- 4) Incorporates the key recommendations from the design peer review.

Feedback from the community has informed six key changes to the street design to address the community's main concerns below. For a complete view of the corridor, please see Attachment 2.

 Clarify the Keith and St Andrews Intersection (Figure 3) – The design incorporates added concrete barriers to improve the legibility of the roadway space and transition onto the street. The lateral shift of the road has been reduced and the centre line has been extended to the lane to create a distinct north and southbound travel lane.



Figure 3: Summary of Recommended Design changes at Keith Road

- 2) Improve Sightlines (Figure 4 & 5) Sightlines at intersections of streets and laneways have been adjusted to increase visibility. For pedestrians standing on the curb edge on the east side of the street, their visibility has improved by 100% or more at all intersections compared to the original street design. For drivers, intersection sightlines have improved between 16-30% depending on the intersection and at the popular 8th Street and St Andrews intersection sightlines on the south side of the traffic circle have been improved by 75%. At laneways, driver to driver sightlines have improved by between 12-20%. The tradeoff for improving sightlines has been a minor reduction in available street parking space on some blocks result in the reduction of one vehicle parking space. Changes that reduce available street parking to improve sightlines were not supported by the majority of survey respondents, however, those living further away from the street indicated more support for this trade-off valuing the sightlines greater. Parking space reduction has been performed thoughtfully with guidance features incorporated to ensure available space can be maximally utilized.
- 3) Enhancing the pedestrian refuge at crossings (Figure 4) On the east side of the street the pedestrian refuge outside of the vehicle wheel path will be highlighted with paint and delineators to clearly denote a safe space for pedestrians to stand and be visible to drivers when crossing the street. Pedestrians utilizing the refuges improve their visibility by further 57% compared to their visibility at the curb (which has also been improved as noted in design change #2). In combination with opening sightlines this action responds to feedback to improve the visibility of pedestrians at intersections.



Figure 4: Improvements to pedestrian crossing refuge and sightlines at the intersection of St Andrews at 8th Street



Figure 5: Typical sightline adjustments at intersections of streets and laneways to improve vehicle-vehicle and vehicle-pedestrian visibility

4) Add Speedbumps and a Raised Crosswalk at 11th (Figure 6 & 7) – Speedbumps will be added to each block and a raised crosswalk on the south side of the St Andrews and 11th Street intersection in response to community feedback to help slow drivers and responds to one of the key recommendations from the design peer review.



Figure 6: Raised crosswalk on the south side of the St Andrews at 11th Street intersection.



Figure 7: New speed hump added. Placement varies block to block to maintain 60m separation to other driver speed management features

5) Increase the roadway width (Figure 8) – The mobility lane will be reduced from 2.2 metres to 1.8 metres plus buffer (which still meets design guidelines) to reallocate the space to the shared roadway. This is in response to drivers and downhill mobility device users feeling constrained using the street and the change will offer more space, but continue to be aligned with the upper end of the best practice widths for a shared street. The tradeoff means the mobility device users in the uphill parking protected lane will not have as much space in the lane to pass slower moving users – there will be no increased risk to dooring with an adequate door zone buffer retained.



Figure 8: Roadway width adjustment

6) Add delineators to better define parking and sightline zones (Figure 9) – Delineators will be added within the door zone buffer and at sightline triangles. Feedback indicated when parked cars are not present drivers have been observed using the

parking and sightline space as driving lanes. Added delineators will give drivers a reference point to assist them with parking in the correct location. The will also prevent incorrectly parked vehicles from obstructing sightlines and to better define the roadway when no cars are parked on the road.



Figure 9: Adjustments to improve parking efficiency and clarify separation between parking and mobility lane.

2) Neighbourhood Bikeway Design

This option would revert the street back to a 12 metres wider cross section with parking adjacent to the curb for the length of the corridor. Speed humps would be added to each block and a raised crosswalk at 11th to help keep driver speeds below the posted 30km/h speed limit. The AAA designation for the street could not be accomplished in this scenario as volumes, grade, and street width exceed best practice standards without separation. The street will suit mobility device users who are more confident and comfortable travelling in mixed conditions where there is a significant speed differential between themselves and drivers. Less confident riders and families with young children are unlikely to experience an improved condition. A neighbourhood bikeway design could get closer to AAA and provide more appeal for the "interested, but concerned" with the inclusion of vehicle diverters or discontinuous vehicle movement to reduce volume on St Andrews, however, this would require a neighbourhood scale evaluation of consequential vehicle movements.

Staff do not recommend the neighbourhood bikeway option.

Engagement on Next Steps

Per the City's current practices, staff will reconnect with the community to share the path forward and how their feedback has been incorporated into the final design. We will carefully and fully illustrate what changes to expect and when. This will occur before any changes to the street are made and what to expect for construction activities during the modifications. We will keep the community informed throughout the change process.

Staff acknowledge that the recommended changes may not satisfy all interested parties in the neighbourhood. Staff welcome feedback as part of the ongoing monitoring process focused on the new changes to the street, but will not be able to maintain dialogue on subjects previously addressed or where there is information readily available.

Implementation Timeline

The project team will be utilizing external resources to implement the changes to the street. Should Council direct staff to proceed with the recommended next steps of the project, staff will circle back with the community over the next three weeks and schedule implementation in late August or September depending on contractor availability. Once underway the work will take two weeks to complete depending on weather. Post implementation the project team will continue to monitor the street to ensure changes to the street have effectively addressed feedback received during the re-engagement process.

FINANCIAL IMPLICATIONS

The original reconfiguration of the street was completed cost effectively using City resources. Matching TransLink funding reduced the City's costs to \$20,000 and these City funds came from the Priority Mobility Network Improvements (PMNI) Project #53255 budget, which has an annual line item to address opportunities to build out the network as they arise.

Revisions to the street design will continue to be funded from PMNI and is estimated to cost \$130,000. To revise the street before the end of the 2023 construction season, funds will need to be reallocated. In 2022, the Esplanade Complete Street Project #53257 borrowed funds from the PMNI as bridge funding to deliver off-site works on behalf of two developers on the corridor. When final costs were established the developers were invoiced for the cost. These funds have now be received and the Esplanade project is prepared to return a portion of the money back to PMNI. The remaining Esplanade Project funds will be returned and a comprehensive report on final project costs will come to Council in the fall.

Should Council wish to direct staff to implement the neighbourhood bikeways approach, staff will require \$15,000 to remove the line markings and \$75,000 to add the speed humps and raised crosswalk.

INTER-DEPARTMENTAL IMPLICATIONS

The Communications and Engagement and Public Realm Infrastructure Teams work in partnership to support the St Andrews project. This partnership ensures all components of the project, design, construction, and engagement, are delivered utilizing best practices and are consistent with the City's standard approach to projects.

The City's Fire department has been engaged on the updated design to ensure revisions minimize the impact on their mobility and ensure response times are met.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

This project supports the Council Strategic Plan goal of a "Connected City," providing active and sustainable ways for people to move to, from and within the City safely and efficiently by increasing the number of kilometers of protected bike lanes. In addition, the

project aligns with and advances policy objectives in the Mobility Strategy and Official Community Plan.

RESPECTFULLY SUBMITTED:

Justin Hall Manager, Public Realm Infrastructure