

REPORT TO MAYOR AND COUNCIL

PRESENTED:	FEBRUARY 24, 2025 - REGULAR MEETING	REPORT:	25-22
FROM:	ENGINEERING DIVISION	FILE:	5460-06-001
SUBJECT:	88 AVENUE AND 208 STREET INTERSECTION REVIEW AND PEDESTRIAN SAFETY IMPROVEMENT		

RECOMMENDATION:

That Council endorse Option 1, as presented in this report estimated at \$250,000 and direct staff to include it as a 2026 capital project in the 2026–2030 financial plan for Council's consideration.

EXECUTIVE SUMMARY:

Following a motion passed by Council on September 9, 2024, to explore pedestrian-oriented design options for the intersection of 88 Avenue and 208 Street in Walnut Grove, staff conducted intersection turning movement and pedestrian counts, on-site observations, and a comprehensive technical review. The review assessed intersection geometry, traffic signal operations, and collision history.

Staff developed four (4) potential improvement options aimed at reducing right-turn speeds, increasing pedestrian/cyclist safety, and enhancing pedestrian refuge areas:

- **Option 1: Install mountable aprons on all approaches.**
- Option 2: Reconstruct all four right-turn islands to Smart Channels with a high-entry-angle design.
- Option 3: Reconstruct the northbound and eastbound right-turns islands to Smart Channels and convert the westbound and southbound right-turns to 90-degree configurations.
- Option 4: Convert the intersection to 90-degree right turns on all approaches.

Using a multi-criteria evaluation based on safety, traffic operations, pedestrian and cyclist accommodation, utility impact, property impact, and cost, Option 1 ranked the best among the four options. Option 1 involves installing mountable aprons on all approaches to tighten turning radii and reduce right-turn entry speeds. This design allows larger vehicles to encroach onto the aprons as needed while ensuring passenger vehicles navigate a tighter turning path. The benefits of Option 1 include cost-effectiveness, with an estimated cost of \$250,000, minimal disruption as it requires no property acquisition or utility relocations, and safety improvements by reducing turning speeds, thereby enhancing pedestrian and cyclist safety without significantly affecting traffic flow. Additionally, it aligns with the Township's goals of enhancing pedestrian safety while maintaining efficient traffic operations.

PURPOSE:

The purpose of this report is to present the findings of the intersection review, recommend an option to improve pedestrian safety at the intersection, and seek Council's endorsement.

BACKGROUND/HISTORY:

At its Regular Meeting on September 9, 2024, Council passed the following resolution:

That staff to report to Council with potential option(s) for an updated, pedestrian-oriented design for the intersection of 88 Avenue and 208 Street in Walnut Grove that includes, but is not necessarily limited to, the removal of slip lanes for pedestrian safety, to potentially be completed concurrently with the 216 Street corridor upgrades, if so approved by Council to proceed.

In response, staff conducted traffic counts and on-site observations in early 2025, followed by a comprehensive technical review to identify potential pedestrian and cyclist safety improvements.

DISCUSSION/ANALYSIS:

88 Avenue and 208 Street are both classified as Major Arterial Roads in the Township's 2009 Transportation Master Plan. Additionally, 88 Avenue is part of TransLink's Major Road Network and is designated as a Truck Route.

The signalized intersection features two through lanes, dedicated left-turn lanes, and channelized right-turn lanes in all directions with pedestrian crosswalks installed on all four legs. The current channelized right-turn lanes have larger radius curves that accommodate larger vehicles such as emergency vehicles and commercial trucks for deliveries in the area. While this configuration improves traffic flow and increases intersection capacity, it also results in higher turning speeds for the right turns and requires drivers to significantly change their point of view to perform shoulder checks safely. These features can present safety considerations for pedestrians and cyclists, especially for visually or mobility-challenged users as they have to cross an additional lane in an uncontrolled crosswalk.

The peak hour traffic counts indicated that both the northbound and eastbound directions experience high right-turn volumes, exceeding 400 vehicles per hour during the peak hours. Higher pedestrian volumes were observed at the north leg crosswalk, with 203 pedestrians counted during the 8-hour counting period.

On-site observations also noted the following:

- Motor vehicle drivers were generally compliant in yielding to pedestrians at the channelized right-turn lanes.
- Increased pedestrian activity was observed before the school bell time and after dismissal time.
- Conflicts between left-turn vehicles and pedestrians were minimal.
- Long queues were observed in the left-turn lanes, particularly on the westbound approach.

The most recent ICBC intersection collision data from 2018 to 2022 was reviewed. It was noted that no fatalities, pedestrian injuries, or cyclist injuries were reported during this period. It was also noted that 44% of the collisions were rear-end crashes that occurred at the right turn channels, which is typical for this type of intersection design.

Based on the findings from the intersection geometry review, site observations, and collision history analysis, staff explored several potential options aimed at reducing right-turn speeds, increasing pedestrian/cyclist safety, and enhancing pedestrian refuge areas.

According to the Township's Traffic Calming Policy, measures involving vertical deflection are not considered on arterial roads.

Raised crosswalks at the right turn channels were not considered due to their operational impact, increased maintenance requirements, and potential drainage issues at the intersection.

A Smart Channel is a right-turn design approach that reduces the turning radius by incorporating a more compact right-turn island. This design lowers right-turn speeds and improves sightlines for motorists, enhancing their ability to detect conflicting traffic and pedestrians. Compared to conventional designs, Smart Channels can promote safer turning maneuvers and better accommodate active transportation users. Attachment A illustrates the Smart Channel design compared to the conventional design.

The following four (4) potential improvement options were further reviewed:

- **Option 1:** Install mountable aprons on all approaches to tighten turning radii and reduce right turn entry speed while accommodating larger vehicles on the mountable aprons.
- **Option 2:** Reconstruct all four (4) right-turn islands to Smart Channels. Right-turn conflicts with pedestrians and cyclists will remain and property acquisition and third-party utility pole relocations are required.
- **Option 3:** Reconstruct the northbound and eastbound right-turn islands to Smart Channels and convert the westbound and southbound right-turns to 90-degree configurations. This option combines design elements of both Option 2 and Option 4. Property acquisition may be required to accommodate the new traffic islands, and the intersection is expected to experience additional delays. Additionally, this option requires the relocation of two (2) third-party utility poles, and right-turn conflicts with pedestrians and cyclists will persist.
- **Option 4:** Convert the intersection to a 90-degree right turn configuration on all approaches. Due to the existing high right-turning volumes, the intersection will experience operational failure (significant delays) without designated right-turn lanes. However, property constraints, elevation differences between the roadway and the adjacent property, and the cost of relocating BC Hydro poles may make adding dedicated right-turn lanes cost-prohibitive.

The table below indicates the results of the evaluation which considered safety, traffic operations, pedestrian and cyclist accommodation, utility impact, property impact, and order of magnitude cost estimates.

Criteria	Option 1	Option 2	Option 3	Option 4
Safety	- Moderately reduces turning speed - Slightly improves sightline for passenger cars	- Moderately reduces turning speed - Improves sightline for passenger cars and small trucks	- Combines the safety benefits of Options 2 and 4. - Maximizes safety improvements on the north side	- Provides the greatest safety improvement - Offers the best sightlines
Traffic Operations	- No impact	- Low traffic impact	- Moderate traffic impact	- Significant traffic impact

Criteria	Option 1	Option 2	Option 3	Option 4
Pedestrian & Cyclist Accommodation	- No change	- Maintains a similar size refuge island - Improves accessibility	- Expands pedestrian queuing spaces - Provides some landscaping improvements - Improves accessibility	- Provides the best pedestrian and cyclist accommodation - Enhances landscaping opportunities
Utility Impact	- No impact	- Affects 2 utility poles	- Affects 2 utility poles	- Affects 2 utility poles
Property Impact	- No impact	- Property impact	- Potential property impact	- No impact
Approximate Cost	-\$250,000	-\$465,000* (excluding the land cost)	-\$645,000*	-\$745,000*

* The cost estimate is based on \$50,000 per pole relocation. However, due to the presence of three-phase BC Hydro wires on both 208 Street and 88 Avenue, undergrounding may be required, resulting in significantly higher costs.

The extent of utility impacts is yet to be determined; However, they could be significant if the new pole locations exceed the maximum allowable span, potentially requiring additional utility undergrounding. Due to operational impacts, high costs, and property/utility concerns associated with Options 2, 3, and 4, staff recommend Option 1 as shown in Attachment B.

Option 1 includes the installation of mountable truck aprons to reduce turning speeds. Passenger vehicles will navigate a tighter turning path, while larger trucks can encroach onto the apron as needed. This cost-effective measure improves pedestrian safety with minimal disruption to signal operations and without impacting adjacent properties or utilities. It aligns with the Township's goals of enhancing pedestrian safety while maintaining efficient traffic flow.

Additionally, the Transportation and Mobility Strategy (TMS) will evaluate the broader transportation network, potentially informing future improvements at this intersection. Major geometric changes should be considered after the TMS completion.

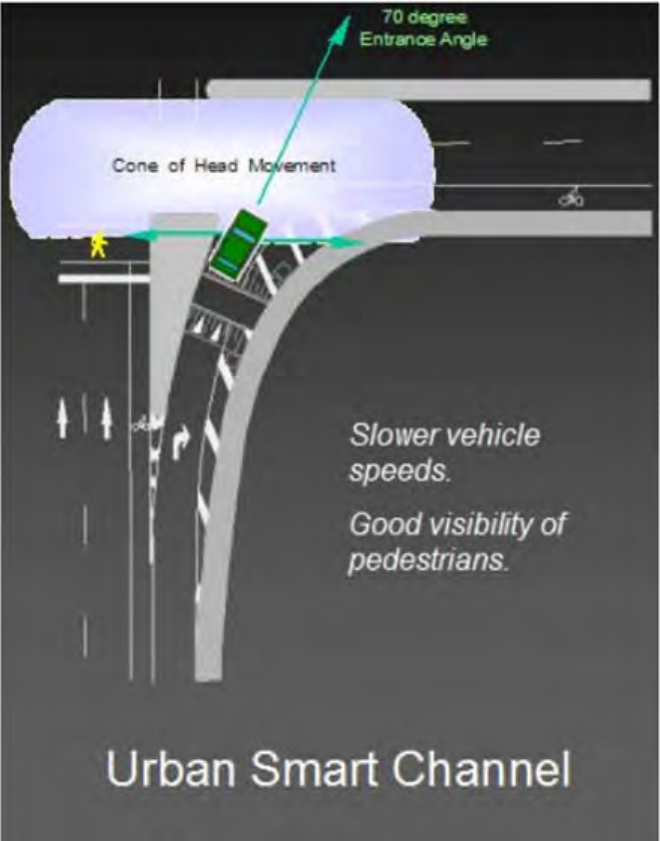
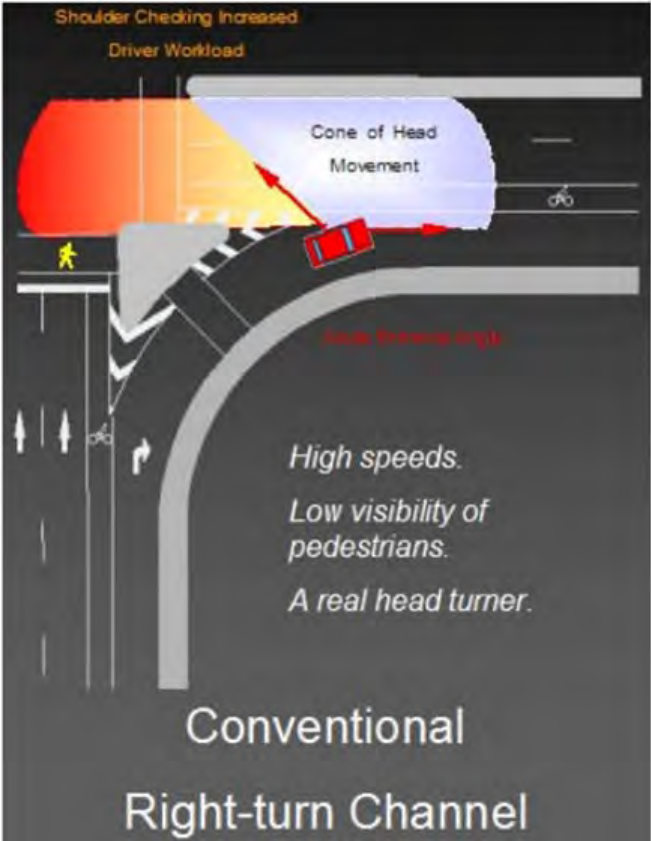
Respectfully submitted,

James Sun
SENIOR TRANSPORTATION ENGINEER
for
ENGINEERING DIVISION

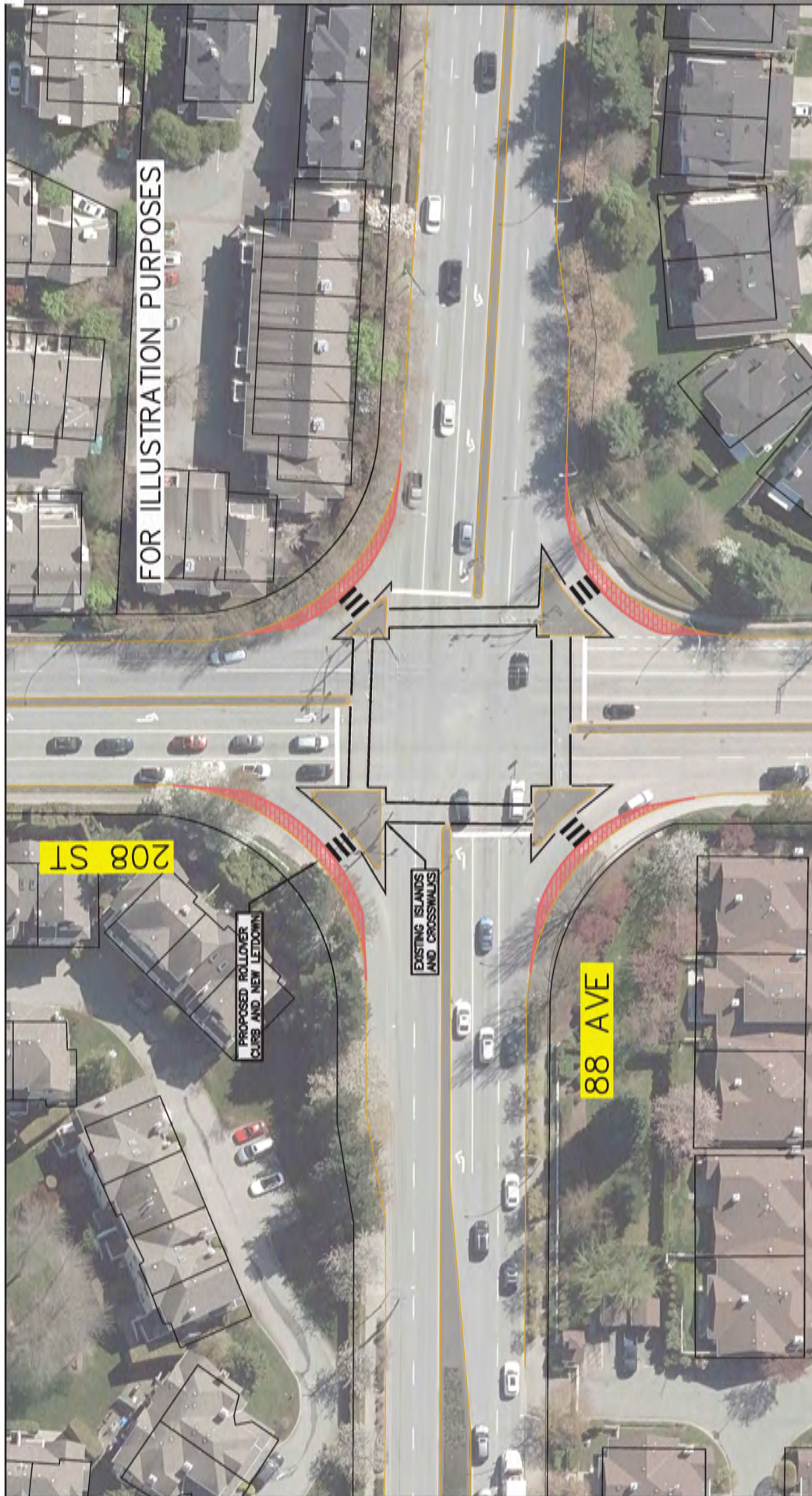
ATTACHMENT A Smart Channel Illustration

ATTACHMENT B 88 Avenue and 208 Street Pedestrian Safety Improvement – Option 1

E.3
ATTACHMENT A



Source: City of Ottawa



The Corporation of the Township of Langley

DESIGNED BY: TRN	APPROVED BY: TRN		INTERSECTION IMPROVEMENTS – 208 ST AND 88 AVE OPTION 1
DRAWN BY: TRN	DATE: FEB. 05, 2025		
SCALE: NTS	AS BUILT NO.	PLAN NO.	SHEET NO. SHEET 1 OF 1
			REV.