

Pedestrian Crossover Program Update 2024

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Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report provides a recommendation regarding the locations proposed for new pedestrian crossovers to be installed in 2024 and provides an update on the Pedestrian Crossover Program.

Resolution

THAT the City of Greater Sudbury implements a pedestrian crossover on Godfrey Drive and School Street, St Agnes Street and Ellen Street and on Hillcrest Drive and Polvi Avenue and Sellwood Avenue and Lincoln Street and prohibits parking and stopping within 30 metres of the pedestrian crossover to be installed at all four locations, as outlined in the report entitled "Pedestrian Crossover Program Update 2024", from the General Manager of Growth and Infrastructure, presented at the Operations Committee meeting on August 12, 2024;

AND THAT the City of Greater Sudbury directs staff to prepare a by-law to amend Traffic and Parking By-law 2010-1 in the City of Greater Sudbury to implement the recommended changes.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

This report refers to "providing quality multimodal transportation alternatives for roads, transit, trails, paths, sidewalks, and connecting neighbourhoods and communities within Greater Sudbury" which is identified in the Strategic Plan under the strategic objective of Create a Healthier Community. This report also supports the "achieve 35% active mobility transportation mode share by 2050" as identified in the City of Greater Sudbury Community Energy and Emissions Plan (CEEP) by improving walking infrastructure.

Financial Implications

If approved, the estimated cost to implement the recommended pedestrian crossovers is \$85,000 for the three Type D pedestrian crossovers and one Type C pedestrian crossover. Funding for the recommended pedestrian crossovers may be carried out within the existing approved operating budget for the installation of signs and pavement markings and the 2024 New Sidewalks budget for modifications required to the existing

sidewalk infrastructure and the installation of supporting equipment required for the Type C pedestrian crossover. The Type D pedestrian crossover on Hillcrest Drive will be funded from the roads capital budget for the rehabilitation of the road.

Background

In May 2016, a report called “Pedestrian Crossover Facilities” was presented to the Operations Committee. It recommended that staff prepare annual updates on where to put new Pedestrian Cross Over (PXO)s based on how many people walk in those areas. Later that year, Council approved installing PXOs at 20 locations and staff initiated a campaign to teach everyone how to use them safely. The program was developed so that every year staff review various locations and make recommendations for the installation of new PXOs based on certain criteria.

What is Pedestrian Crossover (PXO)?

A Pedestrian Crossover (PXO) is a specific area on the road where pedestrians can cross safely. It is marked with signs and road lines that tell drivers to stop for pedestrians. PXOs don't have stop signs or traffic lights but use special pavement markings, "Stop for Pedestrians" signs, and sometimes lights to ensure pedestrians can cross the road safely.

What are the benefits?

Pedestrian crossovers, supported by Ontario's Highway Traffic Act, significantly improve urban road safety and accessibility by providing designated, visible crossings that reduce accidents involving pedestrians and vehicles compared to unmarked areas. These crossings include signs, markings, and beacons to enhance visibility, especially in bad weather. Concentrating pedestrian crossings in specific spots also slows traffic and increases driver awareness to ensure safer access to amenities, schools, parks, and transit.

Pedestrian Crosswalk vs Pedestrian Crossover

Pedestrian crossings facilitate safe road crossing for pedestrians, but the type of crossing—crosswalk or crossover—dictates how pedestrians and drivers should behave.

- Crosswalk: Found at intersections with stop signs or traffic signals. Drivers must wait until pedestrians clear their path, except with a crossing guard.



Figure 1: Example of a Pedestrian Crosswalk

- Crossover: Marked by pavement signs and lights. Drivers wait until pedestrians finish crossing the entire road. Crossovers enhance safety, especially for vulnerable groups like seniors and children.



Figure 2: Example of a Pedestrian Crossover

Types of PXO

Level 1 Pedestrian Crossover - Type A: Includes pedestrian push buttons, side-mounted crossing signs, and overhead signs with flashing beacons. These type of crossovers have not been used within Greater Sudbury but other communities are replacing them with mid-block pedestrian traffic signals where warranted due to concerns about driver and pedestrian understanding.

Level 2 Pedestrian Crossover - Types B, C, and D: Utilizes a ladder crosswalk, a yield-to-pedestrian line, Level 2 Pedestrian Crossover signs, and optionally, overhead signs. Types B and C also include rapid rectangular flashing beacons (RRFB). The only difference between a Type C and a Type D is the addition of lights on a Type C..



Figure 3: PXO Type B



Figure 4: PXO Type C



Figure 5: PXO Type D

When to install Pedestrian Crossovers

The City follows provincial guidelines outlined in the Ontario Traffic Manual Book 15 to determine the placement and necessity of Pedestrian Crossovers (PXOs), ensuring optimal safety and efficiency in managing pedestrian traffic. Key criteria include observing significant pedestrian volumes, typically 100 or more over an eight-hour peak period or 65 or more over a four-hour peak and considering road conditions such as low-speed limits and moderate vehicular traffic. PXOs are spaced at least 200 meters from existing crossings to maintain traffic flow, suitable for roads with limited lanes, and require clear sightlines with no parking nearby. Pedestrian volume assessments are meticulously conducted over a 16-hour period, with adjustments made for vulnerable pedestrians: "unassisted" pedestrians (adults and adolescents aged 12 or older) are counted normally, while "assisted" pedestrians (children under 12, seniors, disabled individuals, and those needing special assistance) are counted as double to reflect their increased vulnerability.

Pedestrian Crossover Selection:

AA DT (Average Annual Daily Traffic) and road conditions are important factors when deciding on the right type of PXO. AADT helps determine how much traffic there is each day, which affects the type of PXO to be used. Lower traffic means a simpler design might work, while higher traffic requires a stronger PXO to keep pedestrians and vehicles safe.

The road speed limit is important for PXO placement. It decides where PXOs can go, making sure they fit well with the type of road and are safe for everyone.

By adhering to these rigorous criteria, The City ensures that PXOs are strategically located and designed to enhance pedestrian safety, streamline traffic flow, and accommodate diverse pedestrian needs effectively.

Why do we not install them everywhere?

The installation of PXOs is restricted to locations that meet the necessary pedestrian volume warrants. Limiting the installation of PXOs to locations with high volumes of pedestrians ensures motorists become more familiar with how they operate and their responsibility which enhances motorist compliance and increases pedestrian safety. Further, this ensures that capital investments are made only where justified and minimizes ongoing maintenance costs.

Pedestrian Crossovers vs Pedestrian Signals

Pedestrian signals are like traffic lights for people walking. They tell pedestrians when it's safe to cross at intersections or special crossing areas. They use symbols like "walk" and "don't walk" for pedestrians and traffic signals to control vehicles. Pedestrian crossovers are marked parts of the road with Pedestrian Crossover signs and ladder crosswalks where people should cross. These crossings are found at intersections and mid-block where lots of people walk. Pedestrian signals effectively manage busy crossings by regulating safe pedestrian crossing times. Pedestrian crossovers, installed in accordance with best practices, prioritize safety on slower roads by considering traffic volume and ensuring clear visibility for both drivers and pedestrians.



Figure 6: Example of a PXO



Figure 7: Example of a Pedestrian Signal

Cost

Pedestrian crossing facilities vary significantly in installation costs depending on the type, street lighting availability, and roadside environment changes. Pedestrian signals, which function like traffic lights for pedestrians, have an estimated cost of approximately \$200,000 due to their more complex infrastructure. They also incur ongoing operational expenses such as annual inspections and electricity costs.

In comparison, pedestrian crossovers are simpler and more cost-effective. Type B and C crossovers which include flashing beacons, typically cost between \$65,000 and \$70,000 to construct. Type D crossovers are the most basic and least expensive, costing around \$10,000 and typically only require signs and pavement markings to be installed.

Monitoring Program Update

The monitoring program for the Pedestrian Crossover Program in Greater Sudbury focuses on evaluating the effectiveness of PXOs in enhancing pedestrian safety. Since its inception in 2016, the program has utilized traffic cameras to monitor motorist and pedestrian behavior at various PXOs.

Motorist compliance is measured by determining whether motorists stop for pedestrians waiting to cross the road and if they wait until the pedestrian has completely crossed the road before beginning to travel again.

Pedestrian compliance is somewhat more difficult to determine, as per the Highway Traffic Act, the presence of the 'Stop for Pedestrians' signs are all that is required for motorists to have to stop to allow pedestrians to cross the road. In addition, when flashing beacons are present at the PXO, pedestrians are not required to activate them prior to crossing. Rather, they are required to enter the road only when there would be adequate time for an approaching vehicle to stop. The flashing beacons are a supplemental device which helps draw the attention of motorists that a pedestrian is waiting to cross the road.

PXO Type D Compliance

In 2018, the Pedestrian Crossover Program Update identified issues with low vehicle compliance at Type D crossings, which include regulatory and warning signs and pavement markings, utilizing only side-mounted regulatory signs without flashing beacons. These crossings are intended for medium to low volume, low-speed, single lane roadways like collector or local roads, single lane roundabouts, and right turn channels. To address compliance challenges, staff implemented trials with flexible bollards placed centrally in the street to enhance crossover visibility and remind motorists to yield to pedestrians. Concurrently, an educational campaign launched in October 2021 aimed to promote safe practices at pedestrian crossovers. Staff conducted a comparison of compliance rates before and after the bollard installations and the campaign rollout across all Type D locations. The effectiveness of these measures was evaluated and summarized in a Table 1 below detailing compliance outcomes at each site.

Table 1. Type D Locations Monitored for Motorist Compliance in 2019 to 2024

Type D Pedestrian Crossing Locations – Vehicle Compliance				
Type	Location	Vehicle Compliance 2019	Vehicle Compliance 2023	Vehicle Compliance 2024
D	Elgin Street at Nelson Street	22%	16%	63%
D	Elgin Street at Shaughnessy Street	51%	37%	36%
D	Bond Street at Murray Street	54%	53%	17%
D	Madison Avenue at Sagebrush Place	30%	40%	75%
D	Algonquin Road at Tuscany Trail	39%	73%	55%

The bollard trial, combined with an educational campaign, produced varied outcomes in enhancing vehicle compliance at Type D Pedestrian Crossing Locations. While some sites, such as Elgin Street at Nelson Street and Madison Avenue at Sagebrush Place, showed significant improvements, others like Bond Street at Murray Street and Elgin Street at Shaughnessy Street experienced declines or minimal gains. This variation highlights the need for additional or alternative strategies at these less responsive locations. Consequently, staff will explore further countermeasures to improve motorist adherence to pedestrian crossing rules where compliance remains low.

2023/2024 Pedestrian Crossover Requests

In 2023 and 2024, staff received eight requests for pedestrian crossovers (PXOs) across the community. Vehicle and pedestrian counts were taken during the months when school was in session. Following the warrant process outlined in Book 15 of the Ontario Traffic Manual, the analysis determined that four PXOs are warranted. Staff recommends immediate implementation at the following location:

Table 2: Pedestrian Crossings which Qualify for a Pedestrian Crossover

Intersection	Pedestrian Volume	Vehicular Volume	Raised Refuge	Number of Lanes	Type
Godfrey Drive at School Street	156	935	No	2	D
Ellen Street at St Agnes Street	111	1495	No	2	D
Hillcrest Drive at Polvi Avenue	91	1136	No	2	D
Sellwood Avenue and Lincoln Street	110	1639	No	2	C

Table 3 shows the locations that did not qualify for a pedestrian crossover. Locations that meet at least 75 per cent of the required number of pedestrians will be evaluated again in 2025.

Table 3: Pedestrian Crossings which did not Qualify for a Pedestrian Crossover

Intersection	Pedestrian Volume	Vehicular Volume	Raised Refuge	Number of Lanes
Birch Street at Church Street	60	1342	No	2
2 nd Avenue at Concession Street	46	3703	No	2
Howey Drive at St Raphael Street	28	5464	No	2
College Street at Davidson Street	50	8600	No	2

Next Steps

The City's transportation network will increasingly rely on Pedestrian Crossovers (PXOs) as it promotes and invests in alternate transportation modes. PXOs represent a significant cultural shift, giving pedestrians the right-of-way over motorists. As we strive to meet our active transportation goals, PXOs provide crucial infrastructure for pedestrians.

Requests for pedestrian crossings are continuously reviewed to assess if warranted at requested locations. Moving forward, if approved, staff will coordinate the installation of new PXOs. An education campaign on Type D PXO compliance will continue, along with collaboration with Greater Sudbury Police Services for targeted enforcement efforts.

Resources Cited

Operations Committee Meeting, May 16, 2016, Pedestrian Crossover Facilities, Accessed online: pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=11243