

ATTACHMENT B – Pedestrian Crossover (PXO) Warrant Summaries & Key Maps

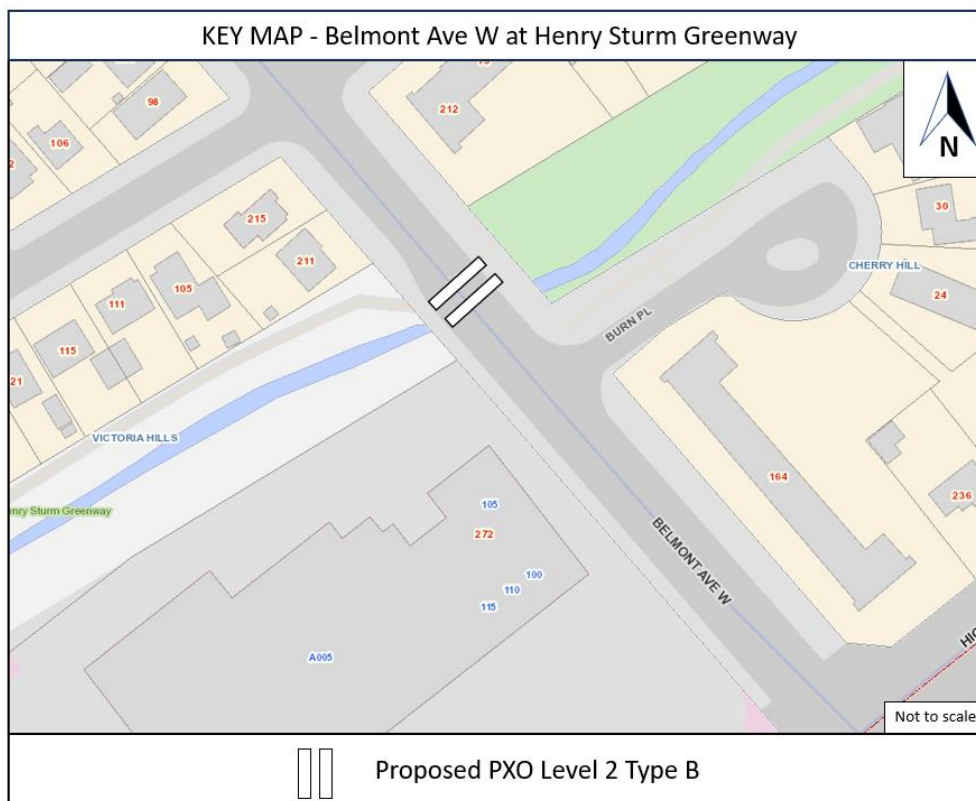
SECTION 1: PXO Type B - Belmont Ave W at the Henry Sturm Greenway

Data collected from a pedestrian study conducted on September 29th, 2023, was used to determine if a PXO was warranted. In addition to the pedestrian study, vehicle volume was determined using an Automatic Data Recorder installed for approximately one week from May 6, 2021, to May 13, 2021. The results of these studies are shown in Table 1 below, and the warrant summary for the proposed PXO on Belmont Ave W at the Henry Sturm Greenway is shown in Table 2 below:

Table 1 – Vehicle and Pedestrian Volumes: Belmont Ave W		
24-hour average traffic volume	May 6– May 13, 2021	7486 vehicles
Maximum 8-hour traffic volume	May 6– May 13, 2021	3743 vehicles
Number of Pedestrian Crossings (8 hour)	Friday, Sept 29, 2023	362 pedestrians

Table 2 - Level 2 Pedestrian Crossover Warrant Summary: Henry Sturm Greenway at Belmont Ave				
Warrant	Justification	Required Value	Actual Value	Conditions Satisfied?
Level 2 Pedestrian Crossover	1. 8-hour Pedestrian Volume at proposed crossover location	> 100 peds	362	YES
	2. 8-hour Two-Way Vehicle Volume	Min 2250 Max 4500	3743	YES
	3. Distance from Nearest Controlled Crossing	> 200 meters	130	NO

This intersection does not meet the warrant criteria for a PXO due to the proximity of the signal-controlled intersection at Belmont Avenue and Highland Road West. Engineering justification for the installation of this PXO despite not meeting the initial warrant criteria is discussed in Section 5: Engineering Judgement.



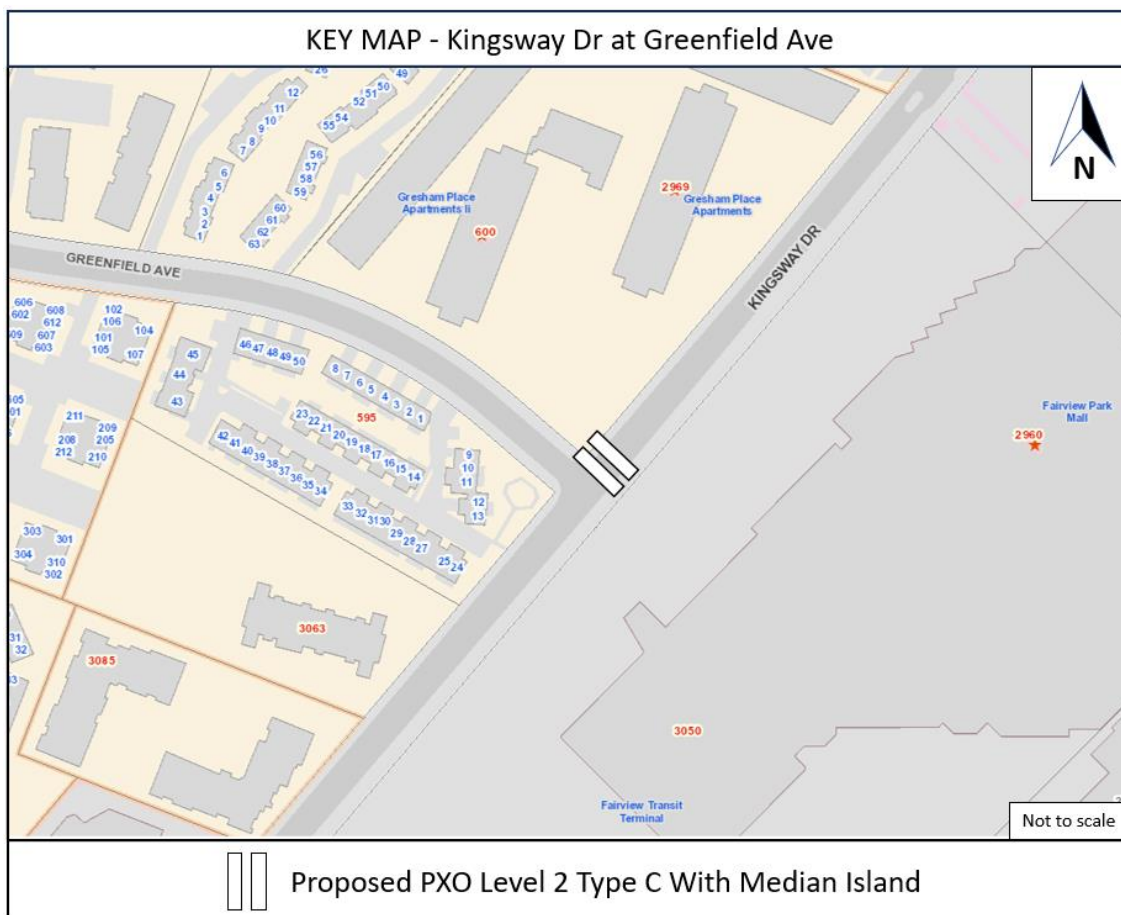
SECTION 2: PXO Type C - Kingsway Dr at Greenfield Dr

Data collected from a pedestrian study conducted April 13, 2023, was used to determine if a PXO was warranted. In addition to the pedestrian study, vehicle volume was determined using a Turning Movement Count conducted on June 26, 2023. The results of these studies are shown in Table 5 below, and the warrant summary for the proposed PXO on Kingsway Dr at Greenfield Dr is shown in Table 6 below.

Table 5 – Vehicle and Pedestrian Volumes (Kingsway Dr)		
24-hour average traffic volume	June 26, 2023	8374 vehicles
Maximum 8-hour traffic volume	June 26, 2023	4187 vehicles
Number of Pedestrian Crossings (8 hrs)	April 13, 2023	416 pedestrians

Table 6 - Level 2 Pedestrian Crossover Warrant Summary Kingsway Dr at Greenfield Ave				
Warrant	Justification	Required Value	Actual Value	Conditions Satisfied?
Level 2 Pedestrian Crossover	1. 8-hour Pedestrian Volume at proposed crossover location	> 100 peds	416	YES
	2. 8-hour Two-Way Vehicle Volume	Min 2250 Max 4500	4187	YES
	3. Distance from Nearest Controlled Crossing	> 200 meters	220	YES

This intersection meets the warrant criteria for a PXO.



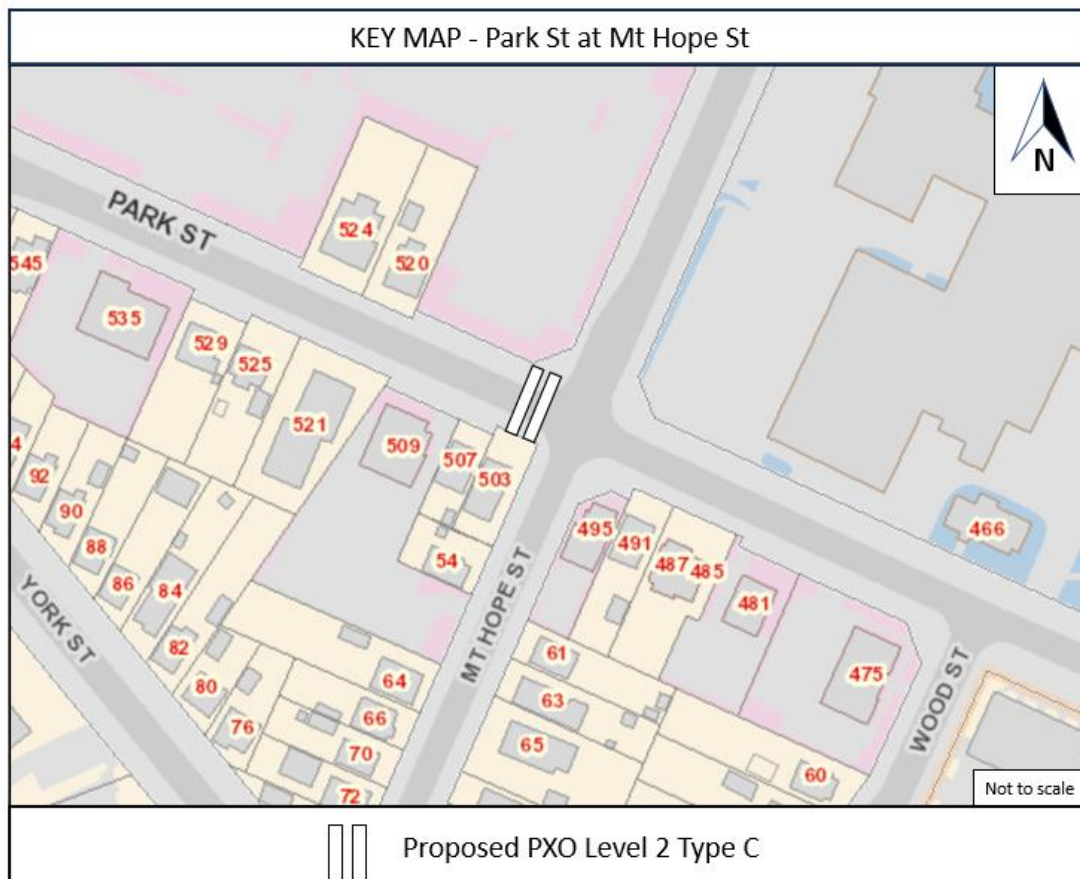
SECTION 3: PXO Type C - Park St & Mt Hope St

Data collected from a turning movement count conducted on November 17, 2022, was used to determine if a PXO was warranted. The results of this study are shown in Table 7 below, and warrant summary for the proposed PXO on Park St at Mt Hope St is shown in Table 8 below:

Table 7 – Vehicle and Pedestrian Volumes (Park St)		
24-hour average traffic volume	November 17, 2022	7988 vehicles
Maximum 8-hour traffic volume	November 17, 2022	3994 vehicles
Number of Pedestrian Crossings (8 hrs)	November 17, 2022	126 pedestrians

Table 8 - Level 2 Pedestrian Crossover Warrant Summary Park St at Mt Hope St				
Warrant	Justification	Required Value	Actual Value	Conditions Satisfied?
Level 2 Pedestrian Crossover	1. 8-hour Pedestrian Volume at proposed crossover location	> 100 peds	126	YES
	2. 8-hour Two-Way Vehicle Volume	Min 2250 Max 4500	3994	YES
	3. Distance from Nearest Controlled Crossing	> 200 meters	190	NO

This intersection does not meet the warrant criteria for a PXO, due to the proximity of the signal-controlled intersection at Park St and Union St. Engineering justification for the installation of this PXO despite not meeting the initial warrant criteria is discussed in Section 5: Engineering Judgement.



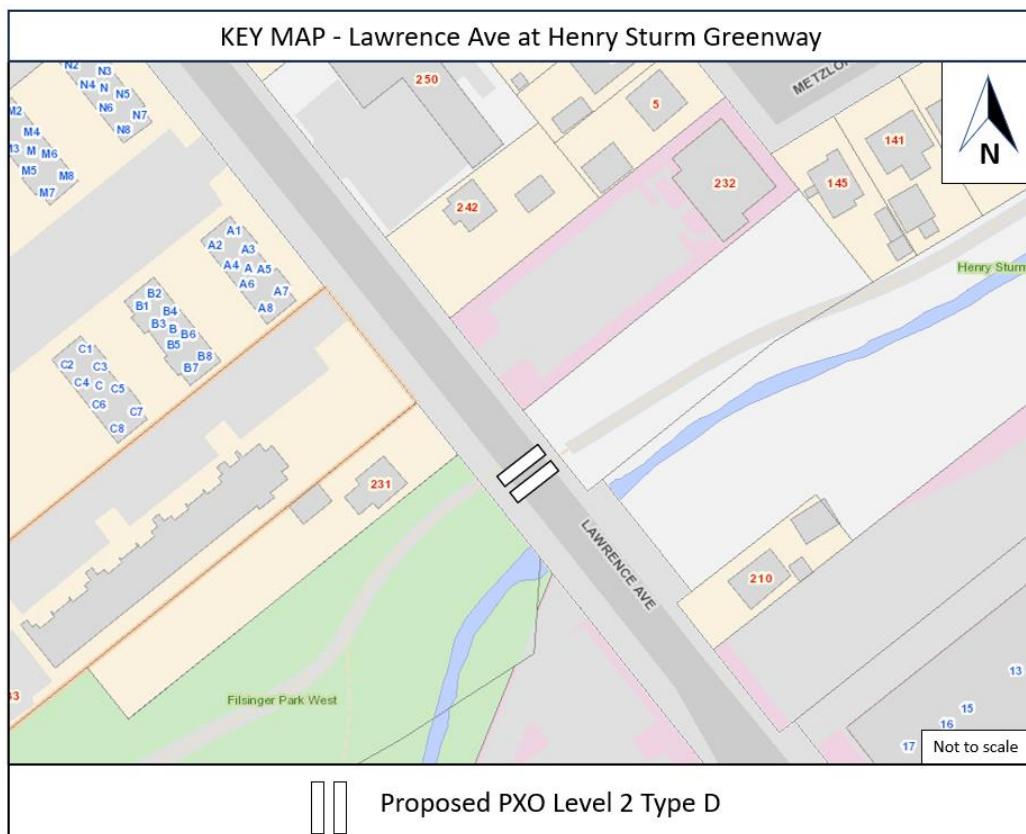
SECTION 4: PXO Type D - Lawrence Ave at the Henry Sturm Greenway

Data collected from a pedestrian study conducted on October 5th, 2023, was used to determine if a PXO was warranted. In addition to the pedestrian study, vehicle volume was determined using an Automatic Data Recorder installed for approximately 13 days from Oct 24, 2019, to Nov 6, 2019. The results of these studies are shown in Table 3 below, and the warrant summary for the proposed PXO on Lawrence Ave at the Henry Sturm Greenway is shown in Table 4 below.

Table 3 – Vehicle and Pedestrian Volumes (Lawrence Ave)		
24-hour average traffic volume	Oct 24 - Nov 6, 2019	6166 vehicles
Maximum 8-hour traffic volume	Oct 24 - Nov 6, 2019	3083 vehicles
Number of Pedestrian Crossings (8 hrs)	Thursday Oct 5, 2023	212 pedestrians

Table 4 - Level 2 Pedestrian Crossover Warrant Summary Lawrence Ave at The Henry Sturm Greenway				
Warrant	Justification	Required Value	Actual Value	Conditions Satisfied?
Level 2 Pedestrian Crossover	1. 8-hour Pedestrian Volume at proposed crossover location	> 100 peds	212	YES
	2. 8-hour Two-Way Vehicle Volume	Min 2250 Max 4500	3083	YES
	3. Distance from Nearest Controlled Crossing	> 200 meters	190	NO

This intersection does not meet the warrant criteria for a PXO, due to the proximity of the signal-controlled intersection at Lawrence Avenue and Highland Road West. Engineering justification for the installation of this PXO despite not meeting the initial warrant criteria is discussed Section 5: Engineering Judgement.



SECTION 5: Engineering Judgement

OTM Book 15 – Pedestrian Crossing Treatments allows engineering judgement to be considered when determining eligibility for a PXO. Specifically, it states: "...that if the use of a PXO is desired based on the connectivity or desire lines only (i.e. pedestrian and vehicular volume conditions are not fulfilled), then Table 7 can still be used based on speed and geometry of the roadway...". Staff have considered connectivity as it relates to the PXO locations that do not meet warrant based on criteria alone but have recommend that a PXO be installed. For the PXO's recommended on Belmont Ave and Lawrence Ave they are located along the Shoemaker Greenway Trail near St Mary's Hospital and commercial destinations on Highland Rd W, provide access to nearby schools, and trail connectivity, which justify PXOs at these locations. For the PXO recommended on Park St, proximity to Grand River Hospital, the Grand River Hospital LRT station, and the need for connectivity to apartment buildings in the adjacent neighborhood justify this location. Finally, all of the PXO locations being recommended in this report meet the minimum traffic and pedestrian volume warrants.

OTM Book 15 provides a PXO Selection Matrix as Table 7, which recommends the most appropriate type of PXO. For Belmont Ave the recommended PXO type is 'Level 2 – Type B'. For Lawrence Ave the recommended PXO type is 'Level 2 – Type D.', which will be combined with the existing raised crossing at this location. On Park St, OTM Book 15 Recommends a 'Level 2 – Type D' PXO, however, Transportation Services recommends this is upgraded to a 'Level 2 – Type C' PXO as Staff recommend that all PXO's have flashing beacons and/or a raised crossing. For Kingsway Dr, Staff recommend installing a 'Level 2 Type C' PXO with a median island to maintain design consistency with the nearby PXO at Fairview Mall, which is approximately 250 m away.