



October 26, 2021

Via: Email

**The Town of Penetanguishene
Public Works Department
10 Robert Street West
P.O. Box 5009
Penetanguishene, ON
L9M 2G2**

**Attention: Bryan Murray, P. Eng.
Director of Public Works**

**Re: 95 & 97 Poyntz Street Penetanguishene
Traffic Impact Brief
WMI File No.: 21-678**

Dear Bryan,

We are pleased to present this Traffic Impact Brief for the proposed 5-plex residential development located at 95 & 97 Poyntz Street, in the Town of Penetanguishene.

The following provides some background information on the proposed development, as well as calculations of estimated vehicular trips, considerations and opinions with regard to trip distribution, traffic volumes, sight distance and parking/ site entrances configuration.

Background

The subject site is located on the north side of Poyntz Street, between Centre Street and John Street, and is within an existing residential neighborhood. The site is accessed via Poyntz Street to the south, as well as by Shanahan Road to the North. #95 currently contains a single family home with driveway accesses on Poyntz Street and Shanahan Road. #97 is currently a vacant lot.

It is proposed to construct a single residential building containing 5 residential units, with vehicular access from both Shanahan Road and Poyntz Street. The Poyntz Street access and parking will be typical residential driveways that will front onto Poyntz Street, whereas the rear parking & access onto Shanahan Road will be via a single driveway and parking lot.

Refer to the Site Servicing and Grading Plan prepared by WMI & Associates Limited dated October 2021, for an illustration of the parking area and driveway access configurations.

Sight Distance Analysis

Ontario's Ministry of Transportation (MTO) and the Transportation Association of Canada (TAC) outline specific sight distance criteria to ensure safe vehicular movement to and from site accesses and intersecting roadways and to ensure that through traffic on the adjacent roadway will have adequate time and space for manoeuvrability and braking.

Both Poyntz Street and Shanahan Road in the area of the subject site are within an existing, relatively low traffic urban environment which services many residential properties via individual driveway accesses. These urban/ residential areas commonly contain many sight line restrictions due to parked cars, vegetation, and other obstructions such as fencing and retaining walls. Due to this inherent restricted visibility condition, and drivers' inherent expectation of encountering these roadside obstructions in this type of urban/ residential environment, it is appropriate to apply the minimum stopping sight distance criteria from the proposed accesses onto both Poyntz Street and Shanahan Road.

Poyntz Street

Poyntz Street is a 2-lane urban roadway which has a posted speed limit of 50km/hr and which serves adjacent residential properties as well as commercial lands farther to the east (near Main Street). Based on an assumed design speed of 60km/hr, the minimum required stopping sight distance is approximately 85m as referenced from MTO Geometric Design Standards for Ontario Highways Manual, Figure E3-6. The minimum sight distance according to TAC criteria, which takes into account the slope of the road, is 92m and 77m for a 6% downgrade and upgrade condition, respectively, as referenced from table 2.5.3 of the TAC June 2017 Geometric Design Guide for Canadian Roads.

From a review of existing site conditions and sight-lines from the vantage point of the proposed driveways located on Poyntz Street, there is a crest in the road towards the east and just beyond the intersection of John Street which limits sight distance to approximately 150m. In the western direction, there is a small area of reduced visibility due to the vertical profile of Poyntz Street which limits sight distance to approximately 110m. Since the actual sight distances in both the west and east directions exceed the MTO and TAC stopping sight distance criteria, the sight lines are considered to be adequate.

Shanahan Road

Shanahan Drive is a narrow, low-traffic public laneway which primarily serves as a secondary access road for properties fronting onto Poyntz Street and Robert Street West. It is noted that speed limits are not currently posted on Shanahan Road however, through discussions with Town staff, it is noted that speed limits will soon be posted as 25km/hr on this road, and on other similar-purpose public laneways throughout the Town of Penetanguishene. For the purpose of this analysis, the design speed is estimated to be 30km/hr.

The minimum sight distance according to TAC criteria is 35m and 29m for a 9% downgrade and upgrade condition, respectively, as referenced from table 2.5.3 of the TAC June 2017 Geometric Design Guide for Canadian Roads. The MTO criteria for stopping sight distance for a 40km/hr design speed is 40m based on Figure E3-6 (sight distances for speeds lower than 40km/hr are not specified).

From review of existing site conditions and sight lines from the vantage point of the proposed driveway on Shanahan Road, visibility is noted to be adequate as there are no notable obstructions in the alignment of Shanahan Road, for the entire distance to the tee intersection at Centre Street to the west (located approximately 100m from the proposed driveway). Visibility in the eastern direction is also adequate since there are also no obstructions in the alignment of Shanahan Road, for the entire distance to the intersection of John Street located approximately 120m to the east of the Shanahan Road driveway.

Since the actual sight distances in both the west and east directions exceed the TAC minimum stopping sight distance criteria, the sight lines are considered to be adequate along Shanahan Road.

Supporting sight distance information is appended to this Brief for reference.

Parking & Site Entrances

Each of the units are to be provided with parking via private driveways or stalls within a parking lot. A sufficient number of parking spaces are proposed to be provided to adhere to zoning requirements.

Each parking space on Poyntz Street is to have direct access to the road via a drive-in / back out or back-in / drive-out style of parking that is aligned perpendicular to the road. This style of parking is consistent with the surrounding residential properties which front onto Poyntz Street.

A parking lot is proposed for Shanahan Road, via a single driveway access. This style of parking is preferred to suit the site-specific steep slope conditions, as it will utilize the existing driveway and will minimize additional cuts & fills into the steep slopes adjacent to Shanahan Road. The parking lot design is such that the stall and aisle dimensions are adequate to facilitate adequate turning movements into and out of the parking spaces.

Trip Generation Analysis

Trip generation rates were estimated using data from the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 10th Edition. The multi-family housing datasets for low-rise buildings (up to 2 stories) were utilized to determine a viable trip generation rate for the proposed 5-plex building. The data for the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' time period, and the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm' time period were utilized since these data sets best represent the peak travel periods in residential neighborhoods

such as this. The trips generated from the 4pm to 6pm peak period are more conservative (higher) than those from the 7am to 9am period, therefore the results from the 4pm to 6pm peak period are utilized throughout this report.

Using the fitted curve equation from the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm' report, five (5) total vehicular trips (entering and exiting) are expected to be generated by this development.

Refer to supporting Trip Generation Calculations appended to this Brief.

Trip Distribution & Volume Impacts

Since vehicular access and the associated parking spaces are from both the rear of the property (via Shanahan Road) and the front of the property (via Poyntz Street) the distribution of trips will reflect the distribution of parking. 5 parking spaces are proposed to be located off of Shanahan Road, and 3 parking spaces are proposed to be located off of Poyntz Street. This distributional split of 62.5% in the rear and 37.5% in the front equates to approximately 3 vehicular trips generated to/ from Shanahan Road, and 2 vehicular trips generated to/ from Poyntz Street.

From the review of the local road network and likely travel destinations such as shopping centres, employment lands and recreation facilities/attractions relative to the location of nearby arterial roads such as Robert Street West and Main Street, it is estimated that the distribution of trips would be evenly split, such that 50% of the new trips generated from the development will travel to/ from the east and west on both Shanahan Road and Poyntz street.

From information provided by the Town, the average daily traffic (ADT) volume on Poyntz Street, measured from August 5-12, 2012 at a location in the vicinity of Owen Street (approximately 700m east of the subject site) is 4900 vehicles. The location of these counts is from the section of Poyntz Street that is closer to the core of the Town where a greater volume of traffic would be expected, and as such these counts would be a conservative estimate of the existing traffic that would be expected on Poyntz Street in the area of the subject site.

Using a growth rate of 2% per year, the ADT at this location in 2022 would be approximately 5973 vehicles. A simple estimate of peak hourly traffic would be that 10% of this volume would be expected during the peak hour, which equates to 597 vehicles.

The addition of a maximum of 5 peak hourly trips from the subject development equates to a 1% increase in traffic ($5 / 597$), which is considered negligible and will not adversely impact the existing traffic on Poyntz Street or other roads/ intersections.

Supporting ADT information and calculations are appended to this Brief for reference.

Traffic Impact Summary

This design brief demonstrates that the proposed 95 & 97 Poyntz Street residential development can be accommodated within the local community without adverse impacts on existing transportation systems. In particular, the sight-distance onto both Poyntz Street and Shanahan Road is noted to be generally adequate based on TAC & MTO design guidelines. Also, the estimated peak hourly trips onto both Poyntz Street and Shanahan Road are relatively insignificant in terms of traffic volume, and should be easily accommodated by existing roads.

Should you have any questions or require additional information, please contact the undersigned.

Yours truly,

WMI & Associates Limited



Jonathan Reimer, P. Eng.



It has been noted that many drivers, particularly those in automobiles, do not compensate completely (i.e., by acceleration or deceleration) for the changes in speed caused by grade. It should also be noted that in many cases the sight distance available on downgrades is greater than on upgrades, which can help to provide the necessary corrections for grade. The following Table 2.5.3 summarizes the stopping sight distances on grades for a variety of design speeds.

Table 2.5.3: Stopping Sight Distance on Grades⁵⁵

Design Speed (km/h)	Stopping Sight Distance (m)					
	Downgrades (%)			Upgrades (%)		
	3	6	9	3	6	9
20	20	20	20	19	18	18
30	35	35	35	31	30	29
40	50	50	53	45	44	43
50	66	70	74	61	59	58
60	87	92	97	80	77	75
70	110	116	124	100	97	93
80	136	144	154	123	118	114
90	164	174	187	148	141	136
100	194	207	223	174	167	160
110	227	243	262	203	194	186
120	263	281	304	234	223	214
130	302	323	350	267	254	243

Revised
June 2019

applicable for
Shanahan Road

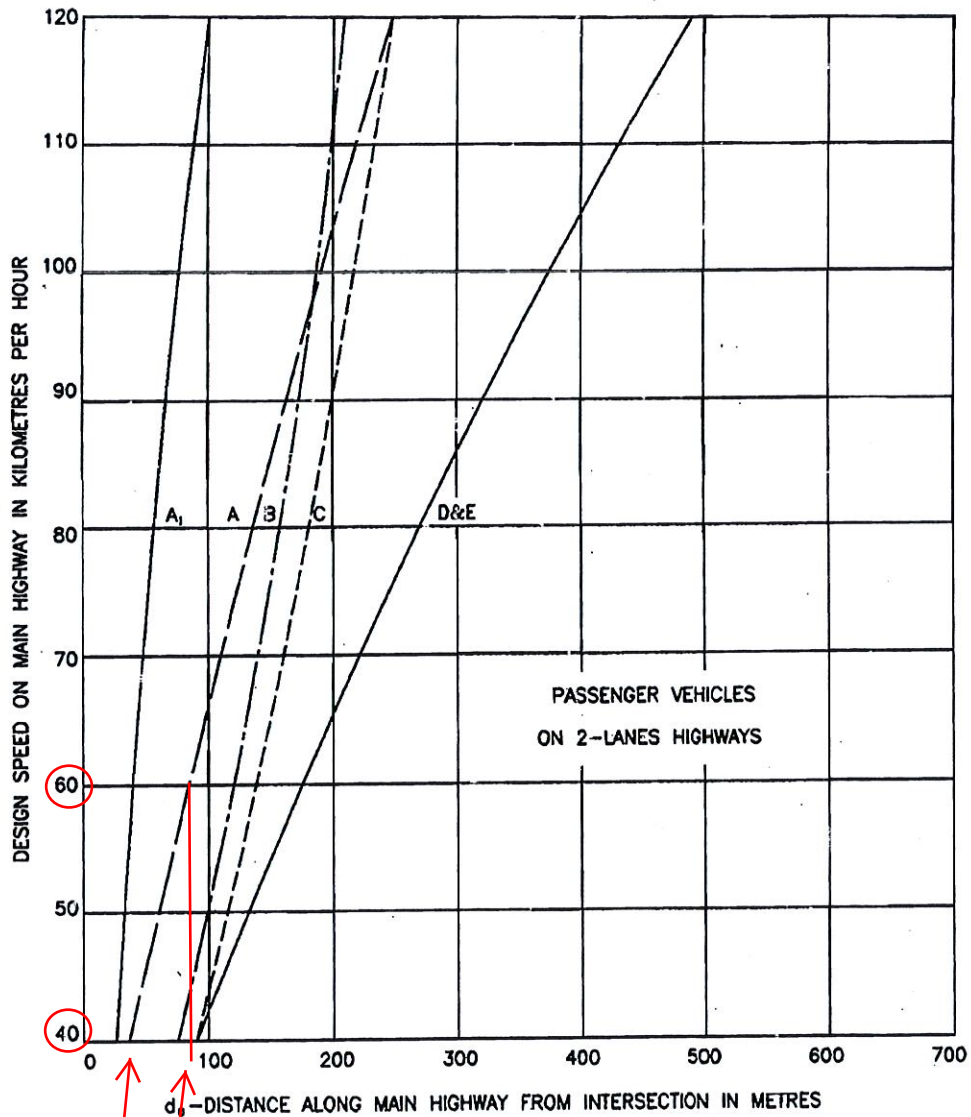
applicable for
Poyntz Street

2.5.3.1 Stopping Sight Distance: Variations for Trucks

The stopping sight distance outlined in Tables 2.5.2 and 2.5.3 are based on passenger car operations and do not explicitly consider design for truck operations. In general trucks need longer stopping sight distances for a given speed than passenger vehicles. However, one balancing factor is that a truck driver can generally see further than a passenger car driver due to an eye height advantage. As a result, a separate stopping sight distances for trucks are not generally used in highway design.

In some instances the higher eye height is not an advantage or maybe a disadvantage — for example, trucks have no advantage when a sightline obstruction is located on inside of a horizontal curve. Also, trucks are at a disadvantage on sag vertical curves where visibility is “cut off” by an overpass and at the end of long downgrades. In these situations it is desirable to provide stopping sight distances that exceed the values in Tables 2.5.2 and 2.5.3.

- A - Minimum Stopping Sight Distance, Table E3-1.
- A₁ - Distance travelled in 3 s, Table E3-2.
- B - Safe Sight Distance for P vehicle, crossing 2-lane highway from stop.
- C - Safe Sight Distance for P vehicle, turning left into 2-lane highway across P vehicle approaching from left.
- D - Safe Sight Distance for P vehicle to turn left into 2-lane highway and attain assumed operating speed before being overtaken by P vehicle approaching in same direction at design speed.
- E - Safe Sight Distance for P vehicle to turn right into 2-lane highway and attain assumed operating speed before being overtaken by P vehicle approaching in same direction at design speed.



Stopping sight distance is approx. 40m for 40km/h design speed.

Stopping sight distance is approx. 85m for 60km/h design speed.

Figure E3-6

Sight Distance Requirements for Stopping Crossing and Turning Movements



TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS

ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 7AM AND 9AM

Date: 26-Oct-21

Project No.: 21-678

Project: 95 & 97 Poyntz St. Penetanguishene

Prepared By: JR

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [$\ln(T) = 0.95\ln(X) - 0.51$]
95 & 97 Poyntz St. Penetanguishene	220: Multi-Family Housing (Low-Rise)	5 units	3

Notes:

This analysis is based on the Conceptual Site Plan for the 95 & 97 Poyntz St. Development, prepared by Innovative Planning Solutions, dated May 28, 2021.

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TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS

ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 4PM AND 6PM

Date: 26-Oct-21

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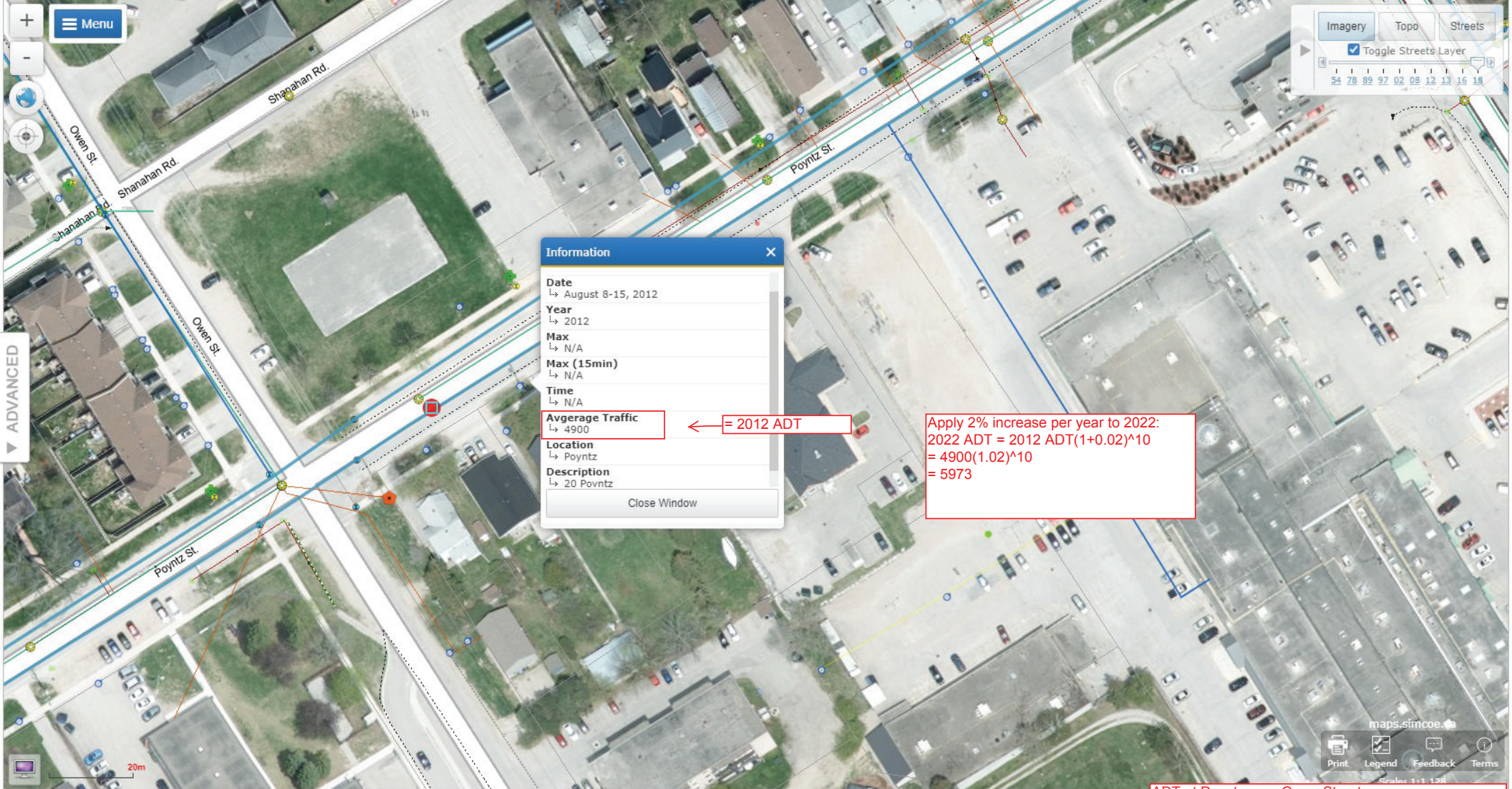
References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [$\ln(T) = 0.89\ln(X) - 0.02$]
95 & 97 Poyntz St. Penetanguishene	220: Multi-Family Housing (Low-Rise)	5 units	5

Notes:

This analysis is based on the Conceptual Site Plan for the 95 & 97 Poyntz St. Development, prepared by Innovative Planning Solutions, dated May 28, 2021.

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Information

Date
→ August 8-15, 2012

Year
→ 2012

Max
→ N/A

Max (15min)
→ N/A

Time
→ N/A

Average Traffic
→ 4900

Location
→ Poyntz

Description
→ 20 Poyntz

Close Window

← = 2012 ADT

Apply 2% increase per year to 2022:
2022 ADT = 2012 ADT(1+0.02)¹⁰
= 4900(1.02)¹⁰
= 5973

ADT at Poyntz near Owen Street.