McGOWAN•RUSSELL

May 10, 2019

City of Winnipeg
Planning, Property and Development Department
Zoning and Permits Branch
31 – 30 Fort Street
Winnipeg, Manitoba R3C 4X7

RE: PROPOSED SECONDARY PLAN - MAJOR REDEVELOPMENT SITE D – PUBLIC MARKETS – STATUS OF TITLES 2835774/1, 2835770/1, 2835751/1, 2835786/1, 2835759/1, 1198487, 1198490/1, 1225764/1, 2312935/1, 2466721/1, 2684230/1, 2691167/1, 2704118/1 AND 2835783/1.

This application encompasses an approximate 222-acre parcel of land bounded by Marion Street to the north, CN Sprague Rail Line to the east, the Stock Yards single family residential neighbourhood to the south and CP Emerson Line to the west.

Olexa Development Corporation is hereby requesting approval for the Secondary Plan that will guide the development of this new community in a logical, integrated manner which will result in a neighbourhood of high quality, consistent with *OurWinnipeg*. The Public Markets will be developed as an employment hub, including industrial and commercial uses, complemented by medium to high density residential and recreational uses. A wide range of employment opportunities will be provided in a business park setting and the Public Markets will offer retail, institutional, active and passive recreation for employees, residents, and visitors.

Please contact the undersigned should you have any questions or require additional information.

Yours truly,

MCGOWAN RUSSELL GROUP INC.

S. Russell

Susan Russell, M.A.L.A., C.S.L.A.
President

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Memo

To:	Susan Russell McGowan Russell.	From:	Bob Kurylko, P.Eng. 500-311 Portage Ave Winnipeg, MB R3B 2B9
File:	113708060	Date:	May 3, 2019

Reference: Public Markets Redevelopment Traffic Impact Assessment

BACKGROUND

The following memorandum provides a summary of the preliminary traffic impact analysis for the Public Markets site (MRS D) redevelopment as a partial requirement for a full TIA for the site. The work is done in a five step process.

1. The initial step is to identify the current operating conditions of the study area intersections
2. The second phase is to identify the projected operating conditions at those intersections with future volumes based on the projected growth rate for background traffic.
3. The third phase is to identify potential improvements to the existing geometry of the study intersections or other operation improvements that are required to bring those operating conditions to City standards, (LOS D or better for the overall intersection and reasonable delays for non-critical movements)
4. The fourth phase involves determining the traffic generated by the proposed development, the anticipated distribution of that traffic, assignment of the traffic to the study intersections and then evaluate the operating conditions of the intersections that result from addition of the development traffic to the anticipated future background traffic.
5. The fifth phase is to identify any additional improvements to the study intersections that are determined to be attributable to the new development traffic based on the same operation requirements identified above.

This preliminary review is constrained by the age of current traffic counts at existing intersections. Additional counts are planned to correct this lack of current data. This review is also constrained by a need to more closely investigate the impact of pass by, diverted and integrated trip ends within a mixed-use community. This was not done due to the age of the current counts. To estimate these impacts and to estimate a partial build out scenario, trips ends were reduced by an average of 25%. Additional analysis is required to confirm this number. A closer look at the potential for increasing the transit mode share is also underway.

CAPACITY MODELING

Traffic analysis for all scenarios and intersections is performed using PTV *Vistro* Version 5, a complete traffic analysis and signal optimization software:

- Traffic counts were obtained from the City of Winnipeg for the intersections of Marion St/Archibald St (2013), Marion St/Panet Rd (2012), Marion St/Dawson Rd (2012), Lagimodiere Blvd/Marion St (2012), and Lagimodiere Blvd/Maginot St (2016). Further counts will be collected prior to project completion for intersections lacking traffic count data and for counts deemed to be out-of-date.

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- The analysis includes two design periods, 2019 and 2030. The 2019 background traffic scenarios are developed with a growth factor of 1% from existing traffic counts between 2012 and 2016. The 2030 future background traffic scenarios are developed with a growth factor of 1.12. This is based on the 11-year time horizon from 2019 to 2030 and an annual growth rate of 1%, consistent with current practice in the City of Winnipeg. This growth rate will be confirmed by examining previous and current count information.

- Trip generation resulting from the proposed land use zones is based on average trip generation rates provided in the ITE *Trip Generation Manual – 10th Edition*. The proposed land use zone are characterized in multiple ways, depending on the land use, such as number of dwellings and the square footage of ground floor area. The January 18, 2019 site plan is used as a basis for land use in modeling.

- Both the AM and PM peak periods are analyzed as critical periods that correspond to the expected highest level of traffic activity at the site.

- The distribution of generated trips between proposed land use zones in the study site and other areas of the city are based on new origin-destination data for the period of February 2018. This data was obtained for the Winnipeg Transit Master Plan project currently underway. The data is similar to the 2007 WATS information.

- The assignment of generated trips is based on a combination of path length, traffic control, network considerations, and engineering judgement.

- For the purpose of this exercise, general assumptions are made for internal trips (trips with both an origin and destination within the proposed development) by land use type. The resulting number of trips impacting existing infrastructure is reduced by these assumptions.

- Mitigation scenarios may require property acquisition in order to be accomplished. This requirement will be investigated as the project progresses.

ANALYSIS RESULTS

The following figures and charts identify the operating conditions based on movement delays expected for the allowed movements at study intersections. The assumptions made for traffic signal timing are based on optimizing the signal phasing by minimizing the delays for critical movements. The actual signal timing in the field may be different for the existing conditions and this is not uncommon for planning level studies. This discrepancy will be addressed as the study evolves. Future scenarios will retain optimized signal timing plans.

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**

MARION ST AT ARCHIBALD ST

The following figures show the current operating conditions for the intersection of Marion and Archibald

The analysis shows that the current (2019) intersection is operating at capacity in the PM peak period. Through movements on Marion Street operate with reasonable delays but the north south cross street traffic (Archibald Street) has turning movements experiencing excessive delays. Projecting volumes to the 2030 - no development scenario, these cross street delays are increased, but Marion Street through traffic delays remain at acceptable levels

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**



Figure 1: Marion St at Archibald St 2019 AM Background



Figure 2: Marion St at Archibald St 2019 PM Background

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

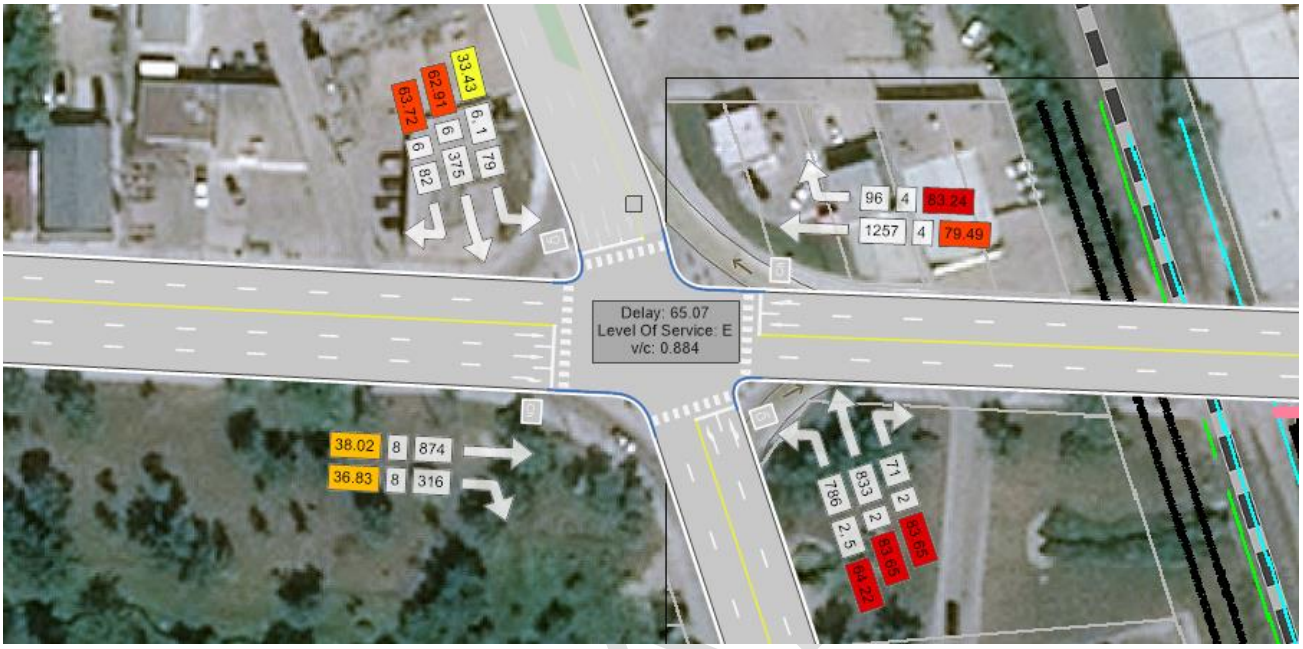

Figure 3: Marion St at Archibald St 2030 AM Future Background



Figure 4: Marion St at Archibald St 2030 PM Future Background

Treatments examined at the Marion St and Archibald St intersection to address existing and anticipated capacity concerns and resulting in an acceptable level of service while accommodating future background traffic growth (before development traffic is added) (Mitigation 1) are identified below.:

- Add a second EB right-turn lane, having a storage length of 100 m
- Add two exclusive NB left-turn lanes while converting the existing left-turn lane to a through lane (resulting in a total of two NB left-turn lanes, one through lane, and one shared through/right-turn lane)
- Increase NB left-turn lane storage to 150 m
- Modify control of NB left-turning lanes to protected from permissive-protected phasing
- Modify SB left-turn lane to protected as a result of the opposing dual left turn
- Add an exclusive SB right-turn lane with 100 m of storage
- Increase storage for existing SB left-turn lane to 100 m

These extensive improvements result in the average delay at the intersection improving from approximately 65 seconds to 38 seconds in the AM Peak and approximately 111 seconds to 49 seconds in the PM Peak.

When the preliminary development traffic was assigned to the intersection the following improvements to Marion Street were considered. The westbound left turn movement was added to accommodate an anticipated demand for this movement based on the available origin destination information. The treatments proposed for the Marion Street and Archibald Street intersection to provide accommodation of future background traffic combined with full development traffic (Mitigation 2) include:

- Add WB left-turn lane with 50 m of storage
- Add WB right-turn lane with 50 m of storage

The addition of the development traffic increases the delays at the Marion Street and Archibald Street from 39 seconds to 54 seconds in the AM peak period and from 49 seconds to 144 seconds in the PM peak period. As the total delay is negatively impacted by the provision of the westbound left turn movement, the accommodation of this movement needs to be reviewed in more detail to determine if it can be either; mitigated by providing alternate route assignments; or reduced through changes to trip generation based on a reassessment of the mixed-use interaction. The increases to the east bound through movements generated by the development are a factor in the intersection operation and these may be influenced by a reduction through inclusion of pass-by trips to the commercial development. A reassessment of those movements will be completed as the study progresses.

The alternative to allowing the left turn movements at the intersection is to assign the traffic destined to the south of the development to alternated routes such as out the east side of the development via Marion or Speers/Maginot or to other routes further west. As mentioned these alternatives will be examined further as the study progresses.

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**



Figure 5: Marion St at Archibald St 2030 AM Future Traffic with Mitigations (1)



Figure 6: Marion St at Archibald St 2030 PM Future Traffic with Mitigations (1)

Reference: **Public Markets Redevelopment Traffic Impact Assessment**



Figure 7: Marion St at Archibald St 2030 AM Future Traffic with Full Development Traffic and Further Mitigations (1 & 2)



Figure 8: Marion St at Archibald St 2030 PM Future Traffic with Full Development Traffic and Further Mitigations (1 & 2)

Table 1 provides a more detailed summary of the preliminary analysis results for the Marion Street and Archibald Street intersection Option 1. In summary the intersection is operating with considerable delays under current conditions, especially in the PM Peak period. Improvements reduce the delays to acceptable levels for the anticipated background growth only scenario. When development traffic is added, and a west bound left turn is accommodated the delays anticipated would be identified as unacceptable. Additional mitigation measure investigation will be conducted as the study progresses.

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

Table 1: AM Peak Period Traffic Analysis at Marion St and Archibald St

AM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	46.72	65.07	38.40		54.09
Intersection LOS	D	E	D		D
Intersection v/c	0.792	0.884	0.703		0.791
Turning Movement	**Delay (s)**				
EBL					
EBT	32.77	38.05	24.65		70.23
EBR	32.09	36.83	4.49		7.27
WBL					34.58
WBT	55.57	79.49	44.90		42.71
WBR	57.66	83.24	46.80		19.75
NBL	38.94	64.22	48.41		48.88
NBT	60.68	83.65	41.85		66.83
NBR	60.68	83.65	42.47		76.50
SBL	27.38	33.43	46.61		77.05
SBT	46.01	62.91	43.81		62.59
SBR	46.38	63.72	38.96		51.54

Table 2: PM Peak Period Traffic Analysis at Marion St and Archibald St

PM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	81.69	110.80	48.57		143.61
Intersection LOS	F	F	D		F
Intersection v/c	1.066	1.178	0.825		1.143
Turning Movement	**Delay (s)**				
EBL					
EBT	22.00	24.38	63.67		232.28
EBR	152.82	215.92	19.35		94.12
WBL					211.71
WBT	20.74	22.48	41.81		35.19
WBR	20.98	22.81	43.25		15.96
NBL	173.04	229.92	64.74		224.21
NBT	65.54	87.66	26.43		75.91
NBR	65.54	87.66	26.51		78.63
SBL	29.25	31.44	56.50		147.56
SBT	127.30	178.73	72.74		235.20
SBR	127.55	179.14	25.76		47.72

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MARION ST AT DAWSON RD

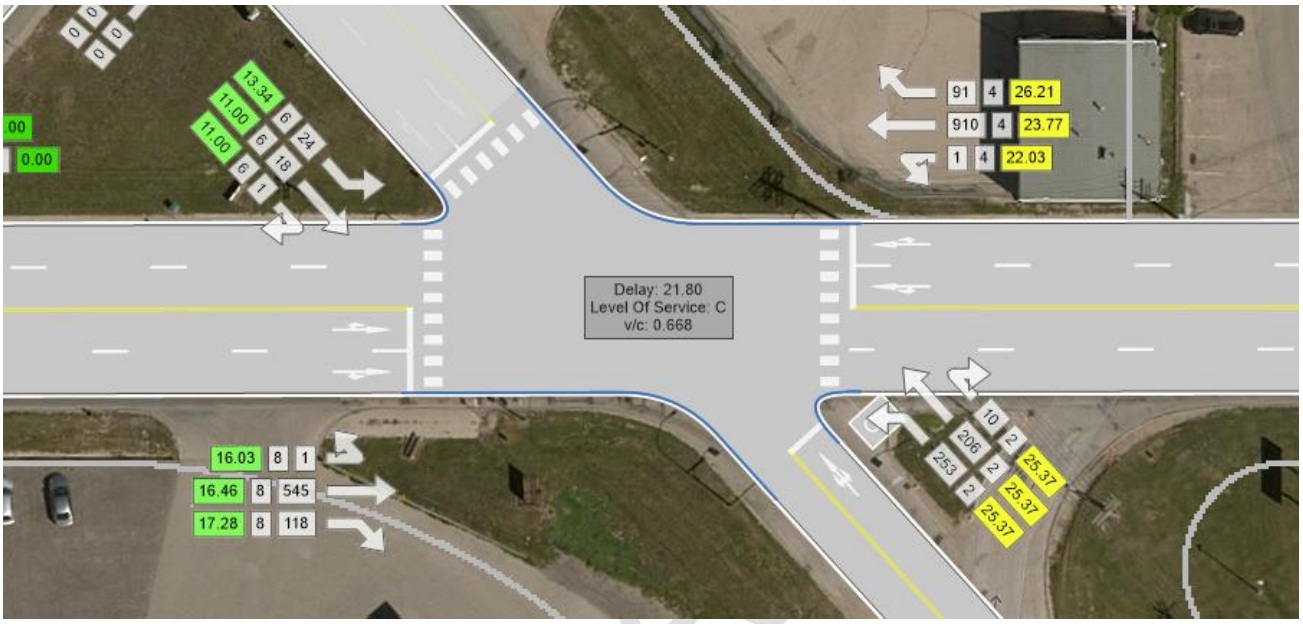

Figure 9: Marion St at Dawson Rd 2019 AM Background

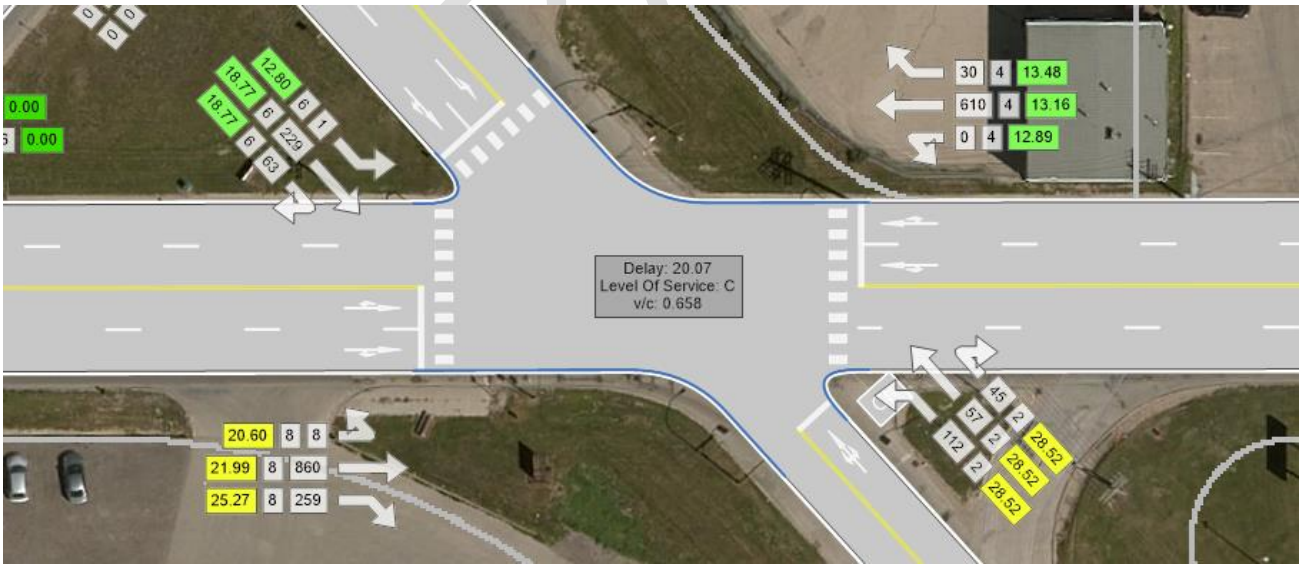

Figure 10: Marion St at Dawson Rd 2019 PM Background

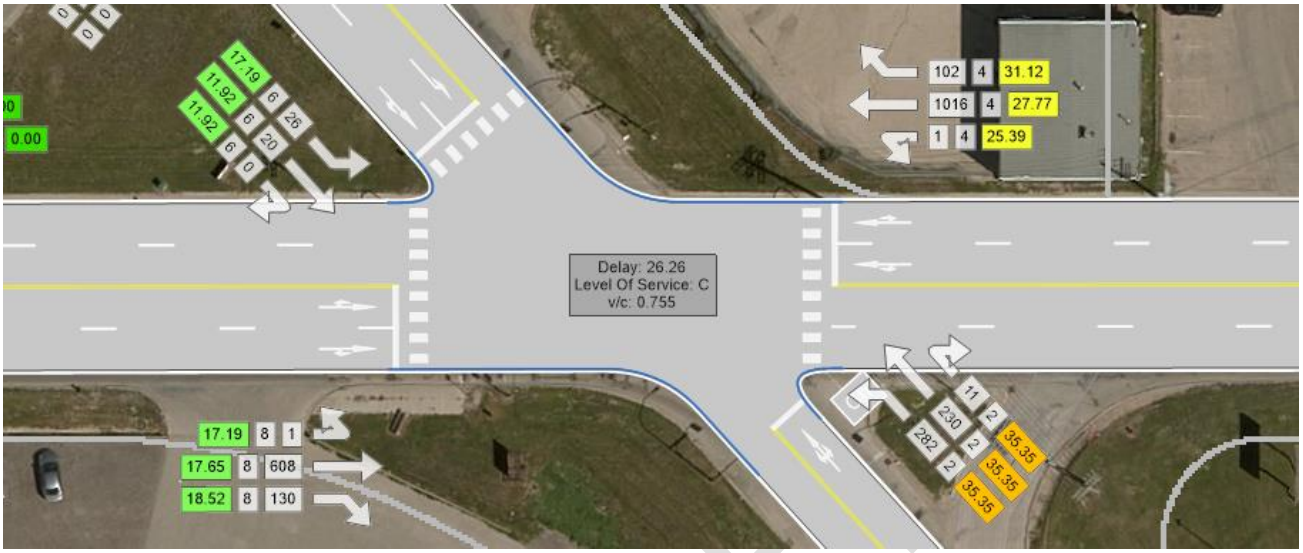

Figure 11: Marion St at Dawson Rd 2030 AM Future Background

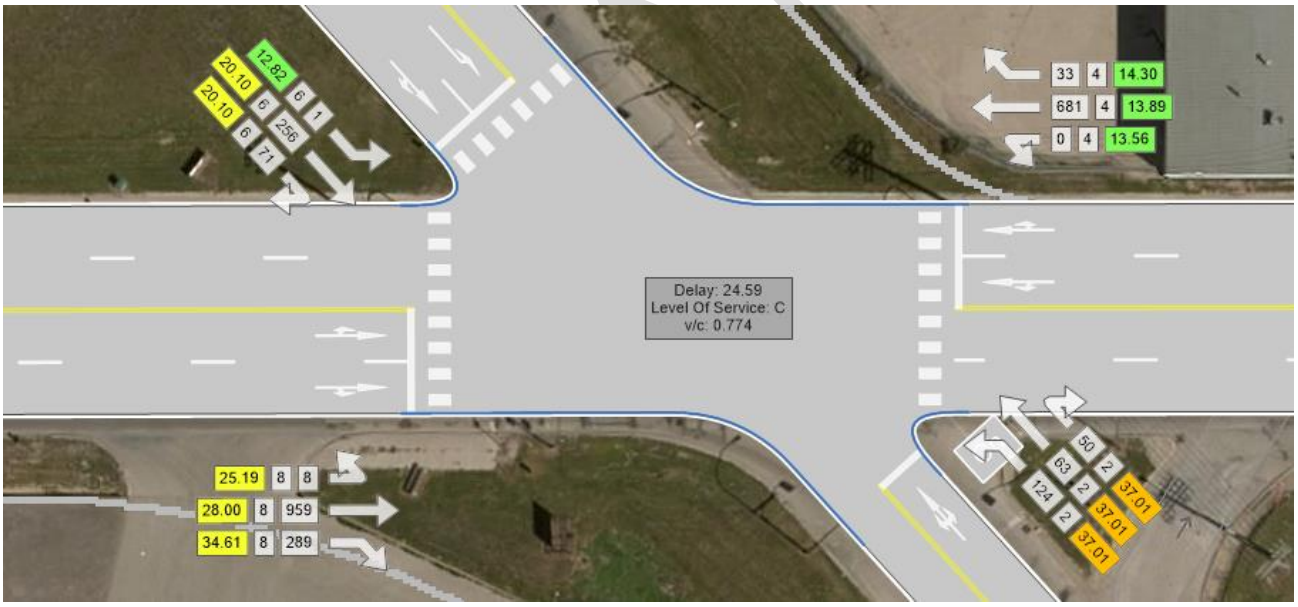

Figure 12: Marion St at Dawson Rd 2030 PM Future Background

The Marion Street and Dawson Road intersection appears to operate with no concerns in overall or individual movement delays in all current and future scenarios and no mitigation measures are anticipated.

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

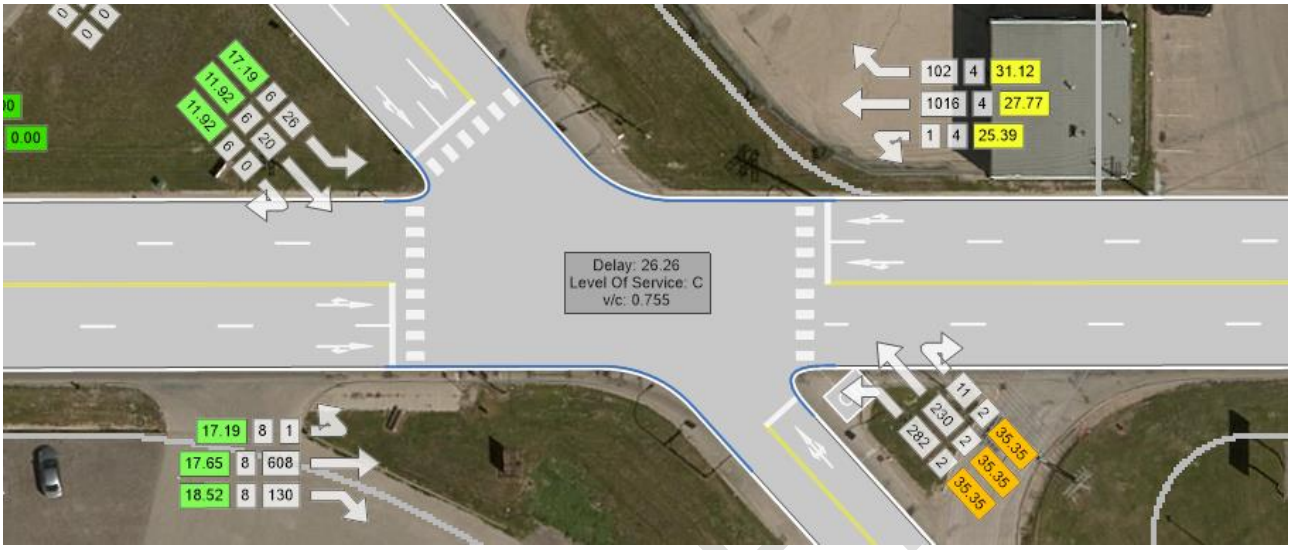

Figure 13: Marion St at Dawson Rd 2030 AM Future Traffic

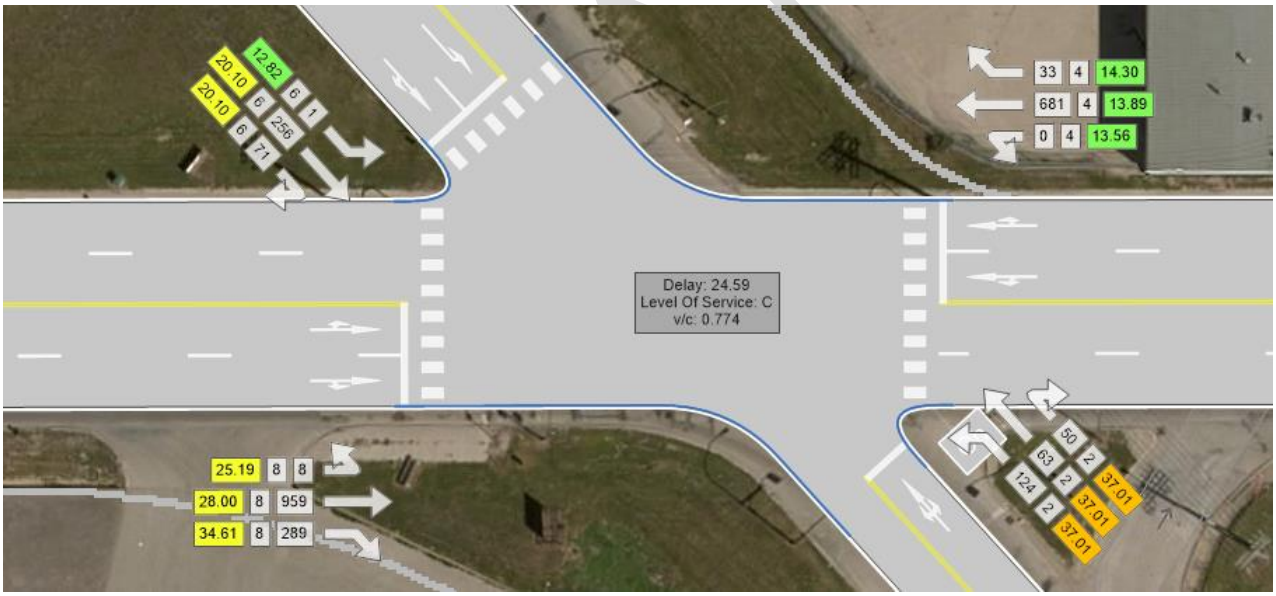

Figure 14: Marion St at Dawson Rd 2030 PM Future Traffic

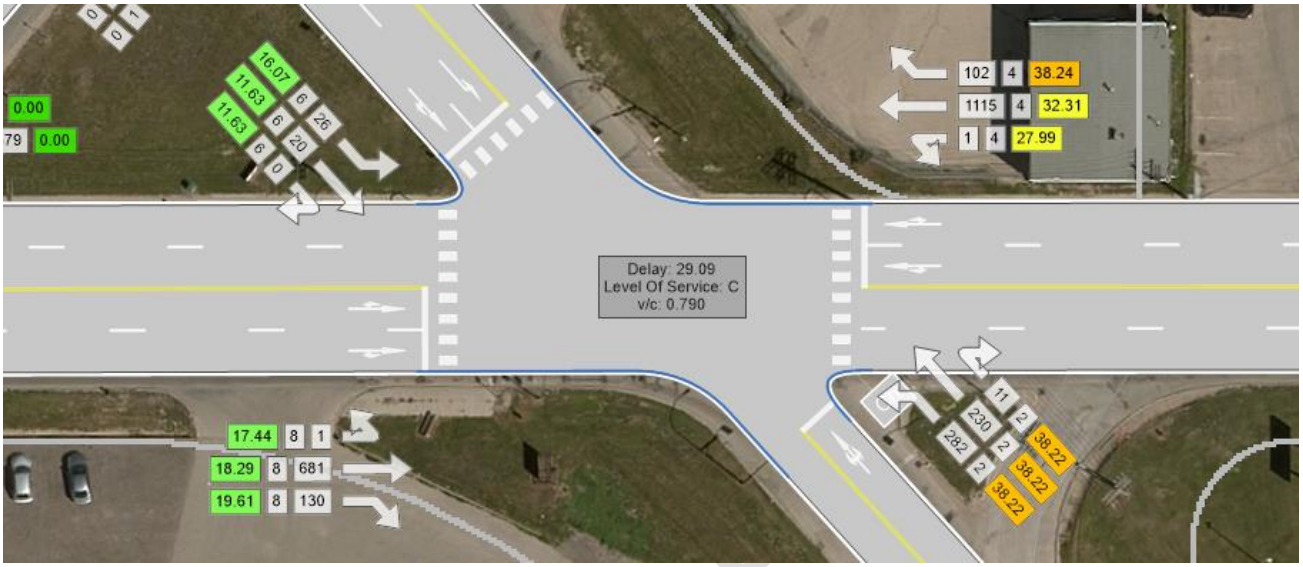

Figure 15: Marion St at Dawson Rd 2030 AM Future Traffic with Full Development Traffic

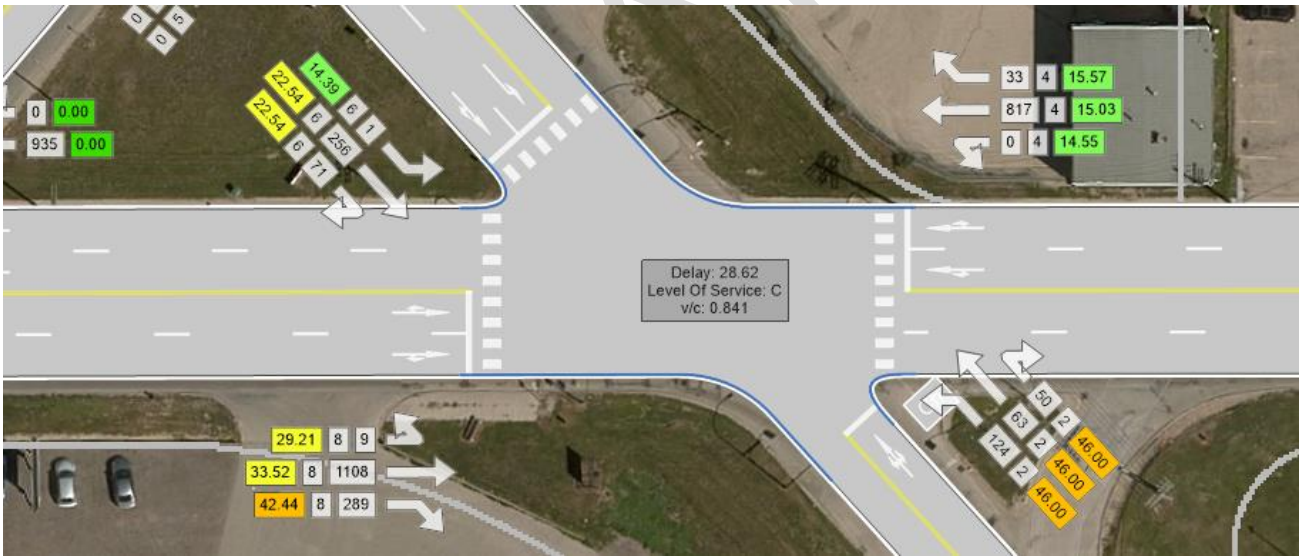

Figure 16: Marion St at Dawson Rd 2030 PM Future Traffic with Full Development Traffic

Table 3: AM Peak Period Traffic Analysis at Marion St and Dawson Rd

AM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	21.80	26.26	26.26		29.09
Intersection LOS	C	C	C		C
Intersection v/c	0.668	0.755	0.755		0.790
Turning Movement	**Delay (s)**				
EBL	16.03	17.19	17.19		17.44
EBT	16.46	17.65	17.65		18.29
EBR	17.28	18.52	18.52		19.61
WBL	22.03	25.39	25.39		27.99
WBT	23.77	27.77	27.77		32.31
WBR	26.21	31.12	31.12		38.24
NBL	25.37	35.35	35.35		38.22
NBT	25.37	35.35	35.35		38.22
NBR	25.37	35.35	35.35		38.22
SBL	13.34	17.19	17.19		16.07
SBT	11.00	11.92	11.92		11.63
SBR	11.00	11.92	11.92		11.63

Table 4: PM Peak Period Traffic Analysis at Marion St and Dawson Rd

PM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	20.07	24.59	24.59		28.62
Intersection LOS	C	C	C		C
Intersection v/c	0.658	0.774	0.774		0.841
Turning Movement	**Delay (s)**				
EBL	20.60	25.19	25.19		29.21
EBT	21.99	28.00	28.00		33.52
EBR	25.27	34.61	34.61		42.44
WBL	12.89	13.56	13.56		14.55
WBT	13.16	13.89	13.89		15.03
WBR	13.48	14.30	14.30		15.57
NBL	28.52	37.01	37.01		46.00
NBT	28.52	37.01	37.01		46.00
NBR	28.52	37.01	37.01		46.00
SBL	12.80	12.82	12.82		14.39
SBT	18.77	20.10	20.10		22.54
SBR	18.77	20.10	20.10		22.54

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LAGIMODIERE BLVD AT MARION ST

The intersection of Lagimodiere Blvd and Marion Street currently (2019) operates with delays in the 56 second range in the AM peak period and the 68 second range in the PM peak period. The east bound approach delays in both peak periods are between 90 seconds and 104 seconds. When traffic is increased by the anticipated growth rate without improvements to the intersection delays increase to approximately 78 seconds in the AM peak period and 95 seconds in the PM peak period. The east bound approach delays increase to between approximately123 seconds to 143 seconds during both peak periods

To improve the operating conditions based on the background growth traffic scenario the following treatments were investigated for the Lagimodiere Blvd and Marion St intersection. These improvement were designed to provide an acceptable level of service for future background traffic (Mitigation 1):

- Add an exclusive EB right-turn lane with 100 m of storage and adjust the previous left/right turn curb lane to be a second exclusive left-turn lane

- Add an additional NB left-turn lane, matching the storage of 120 m to the existing NB left-turn lane

- Introduce overlap control for SB right-turn lane (corresponding to all EB traffic movements) and for the EB right-turn lane (corresponding to the NB left-turn movement)

These improvements reduce overall intersection delay to 39 seconds in the AM peak and 51 seconds in the PM peak period. The east bound approach delays decrease to less than 80 seconds and as low as 18 seconds for the AM WBRT.

When the development traffic is added to the improved intersection the anticipated intersection delays increase to approximately 43 seconds in the AM peak period and approximately 63 seconds in the PM peak period. The maximum west bound approach delay is approximately 90 seconds and occurs in the PM peak period which is similar if not better than the current conditions. No additional improvements are therefore required due to the addition of the development generated traffic.

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**

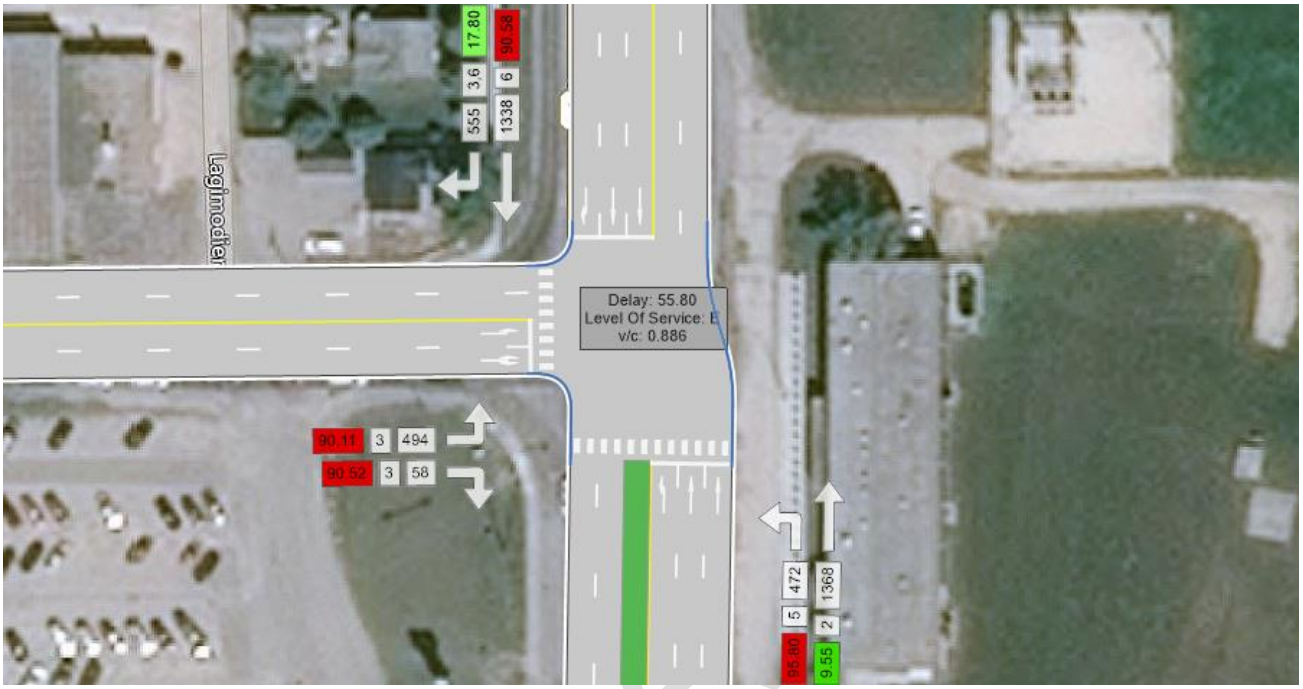

Figure 17: Lagimodiere Blvd at Marion St 2019 AM Background

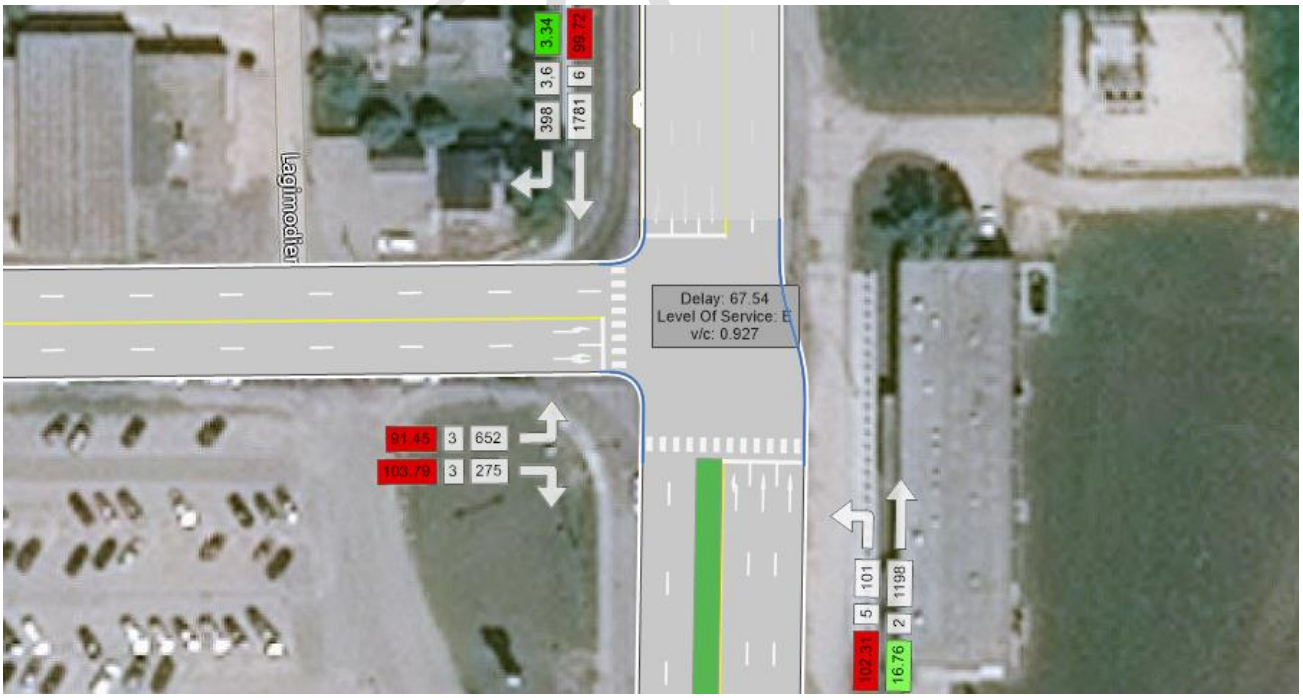

Figure 18: Lagimodiere Blvd at Marion St 2019 PM Background

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

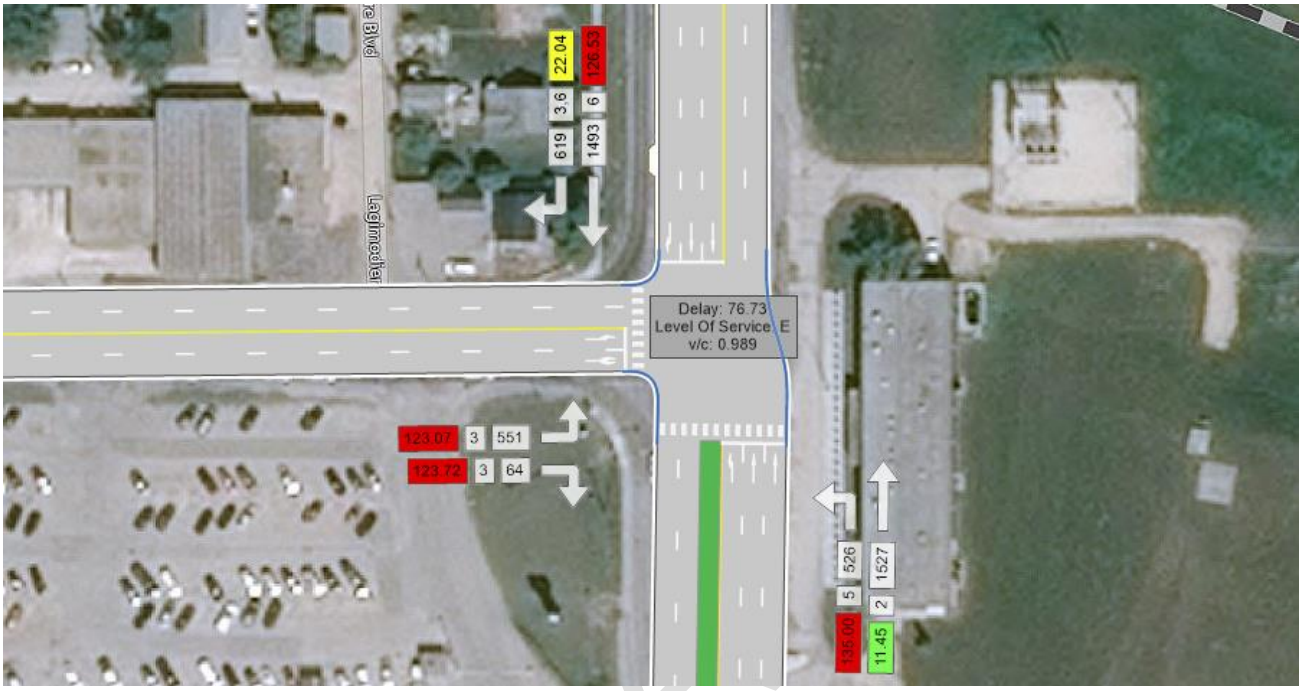

Figure 19: Lagimodiere Blvd at Marion St 2030 AM Future Background

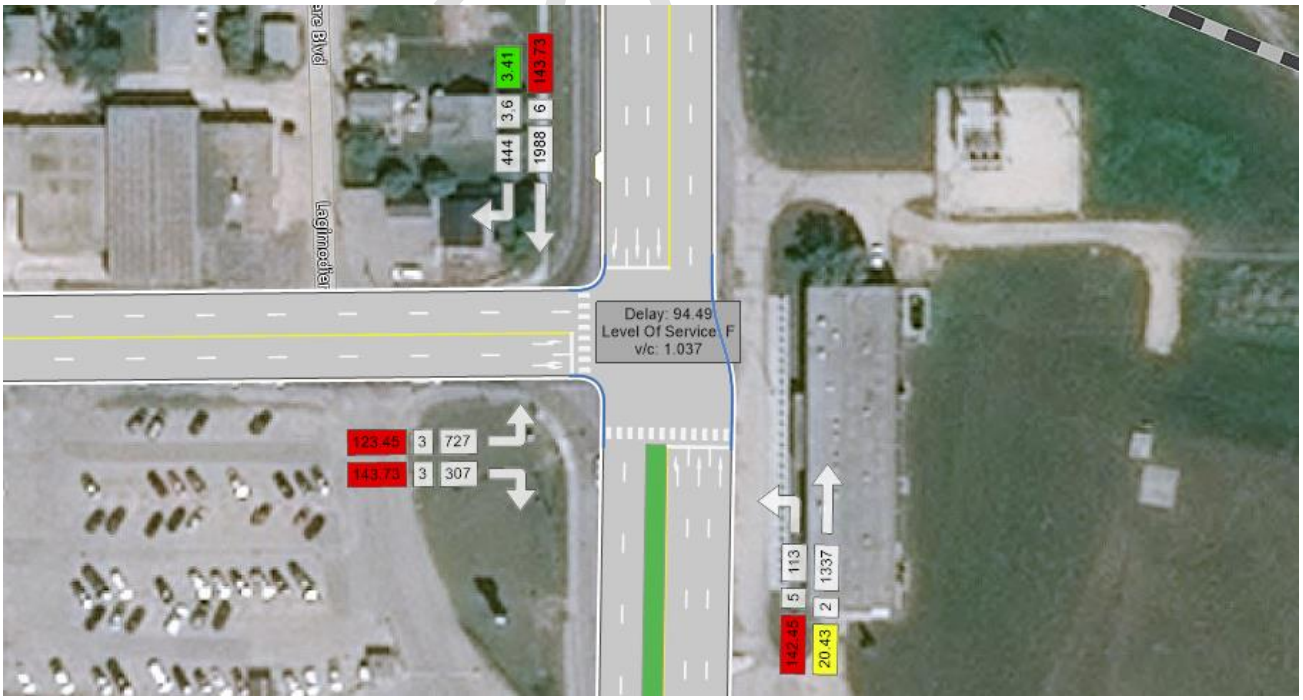

Figure 20: Lagimodiere Blvd at Marion St 2030 PM Future Background

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

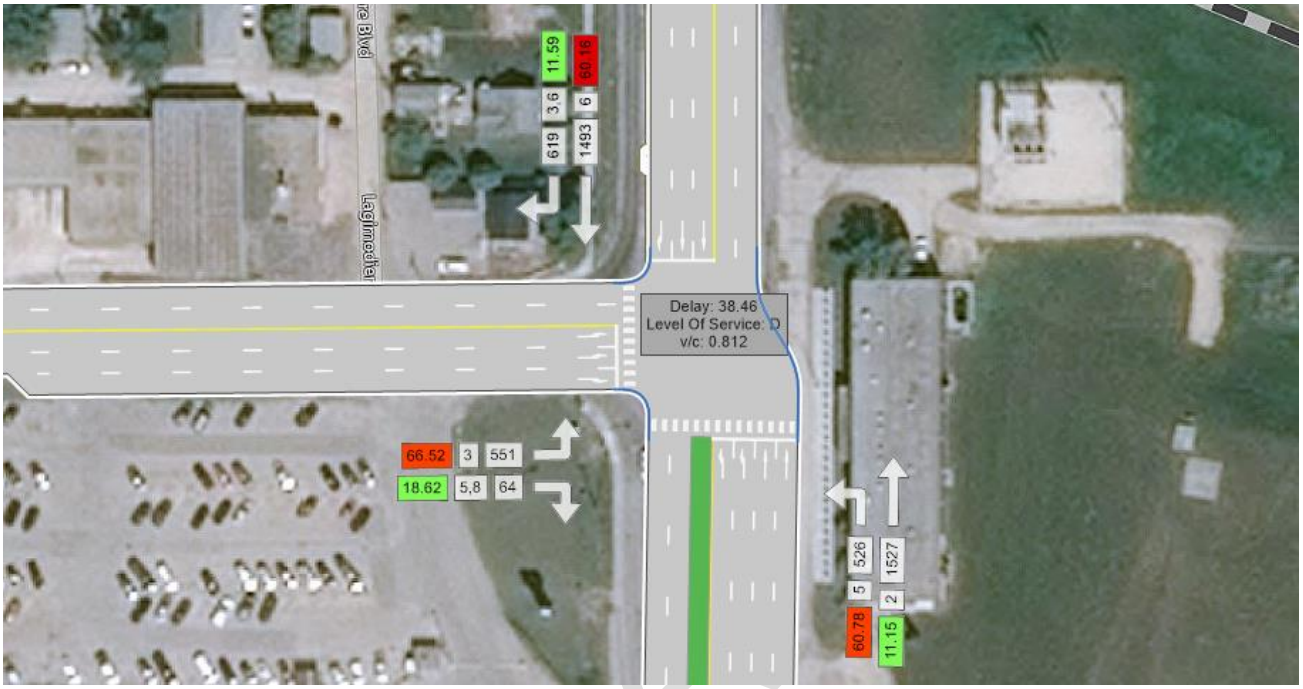

Figure 21: Lagimodiere Blvd at Marion St 2030 AM Future Traffic with Mitigations (1)

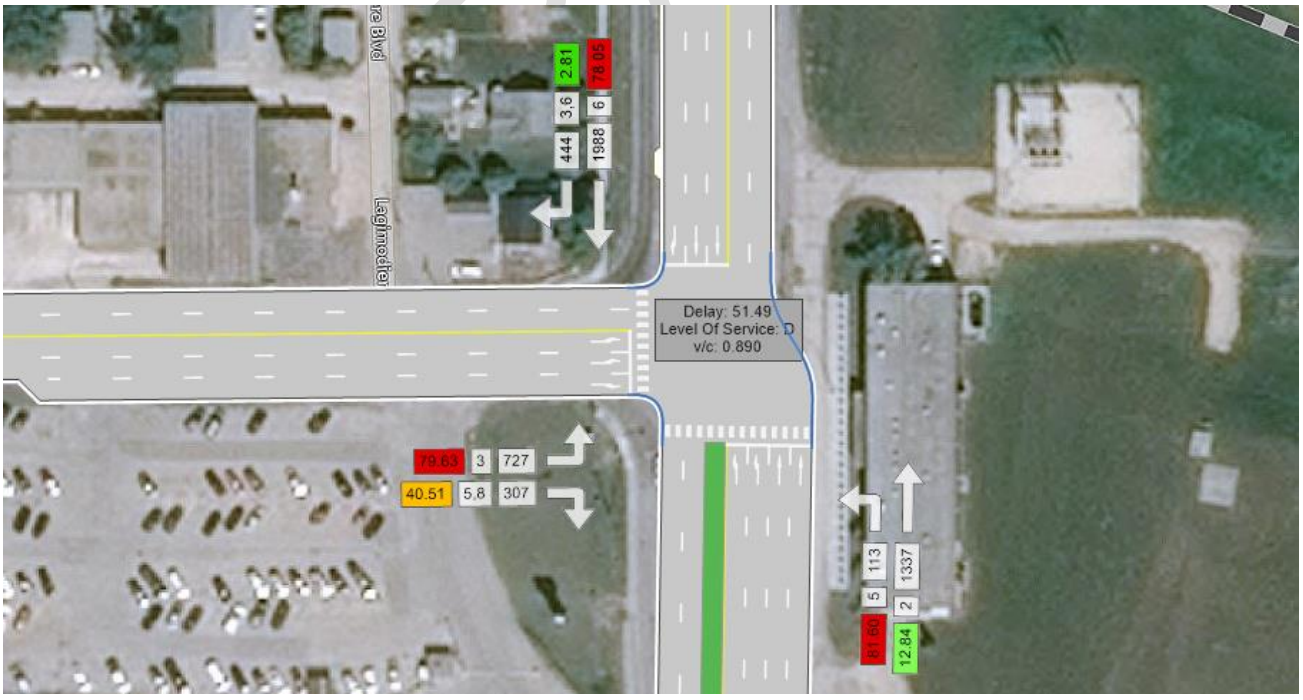

Figure 22: Lagimodiere Blvd at Marion St 2030 PM Future Traffic with Mitigations (1)

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

Table 5: AM Peak Period Traffic Analysis at Lagimodiere Blvd and Marion St

AM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	55.80	76.73	38.46		42.63
Intersection LOS	E	E	D		D
Intersection v/c	0.886	0.989	0.812		0.841
Turning Movement	**Delay (s)**				
EBL	90.11	123.07	66.52		68.12
EBT					
EBR	90.52	123.72	18.62		20.34
WBL					
WBT					
WBR					
NBL	95.80	135.00	60.78		73.25
NBT	9.55	11.45	11.15		12.01
NBR					
SBL					
SBT	90.58	126.53	60.16		66.57
SBR	17.80	22.04	11.59		13.21

Table 6: PM Peak Period Traffic Analysis at Lagimodiere Blvd and Marion St

PM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	67.54	94.49	51.49		62.36
Intersection LOS	E	F	D		E
Intersection v/c	0.927	1.037	0.890		0.948
Turning Movement	**Delay (s)**				
EBL	91.45	123.45	79.63		90.84
EBT					
EBR	103.79	143.73	40.51		51.19
WBL					
WBT					
WBR					
NBL	102.31	142.45	81.60		92.88
NBT	16.76	20.43	12.84		14.34
NBR					
SBL					
SBT	99.72	143.73	78.05		97.07
SBR	3.34	3.41	2.81		3.88

LAGIMODIERE BLVD AT MAGINOT ST

At the intersection of Lagimodiere Blvd and Maginot Street the current (2019) traffic flows result in intersection delays of approximately 59 seconds in the AM peak period and 68 seconds in the PM peak period. When traffic volumes are increased to the 2030 anticipated flows the intersection delays increase to approximately 74 seconds in the AM peak period and 96 seconds in the PM Peak period.

Maginot Street is currently fully developed with two through lanes and dual eastbound left turn lanes already in place. To reduce the delays at this intersection to acceptable levels the improvements investigated at this time are limited to addition of through lane capacity on Lagimodiere Blvd. Therefore, the treatments required at Lagimodiere Blvd and Maginot St to provide an acceptable level of service for future background traffic investigated (Mitigation 1) are limited to:

- Addition of a NB through lane on Lagimodiere Blvd
- Addition of a SB through lane on Lagimodiere Blvd

These improvements decrease intersection delay to approximately 46 seconds in the AM peak period and approximately 49 seconds in the PM Peak period.

When the development traffic is added to the 2030 background traffic the intersection delays increase to approximately 50 seconds in the AM peak period and approximately 60 seconds in the PM peak period.

The development traffic does not impact the overall capacity of the intersection and does not generate the need for intersection infrastructure improvements.

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**

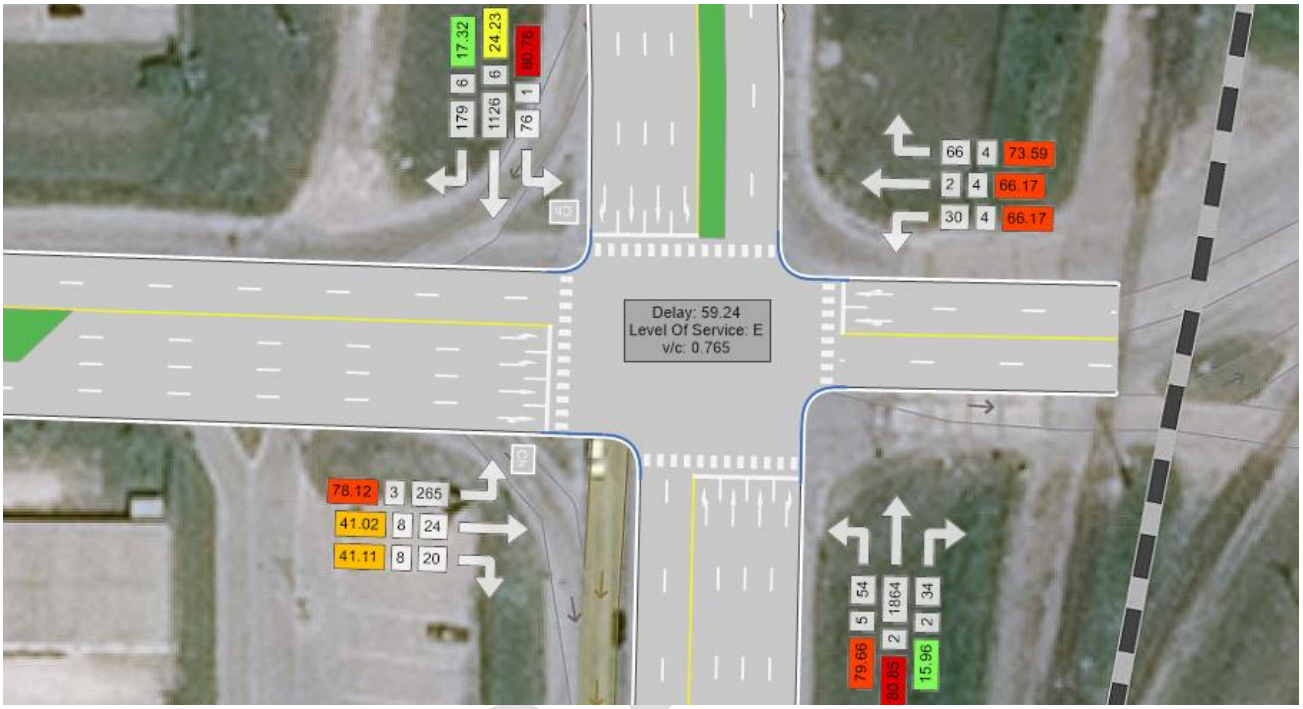

Figure 23: Lagimodiere Blvd at Maginot St 2019 AM Background

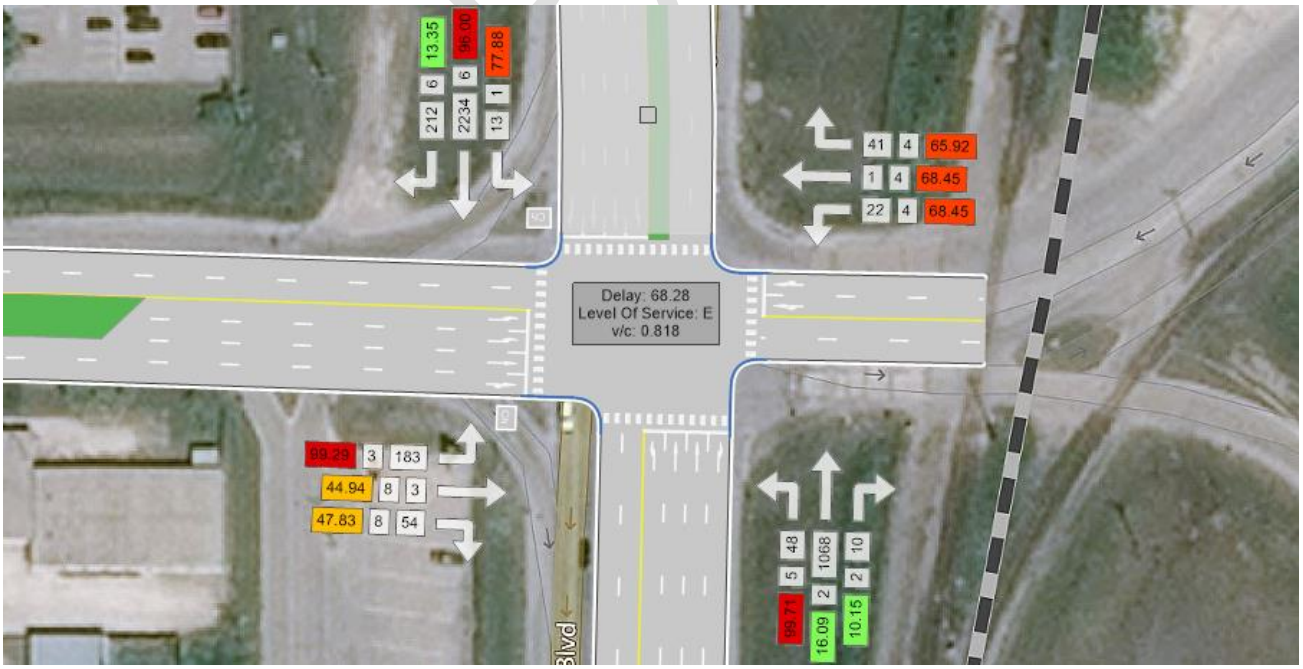

Figure 24: Lagimodiere Blvd at Maginot St 2019 PM Background

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

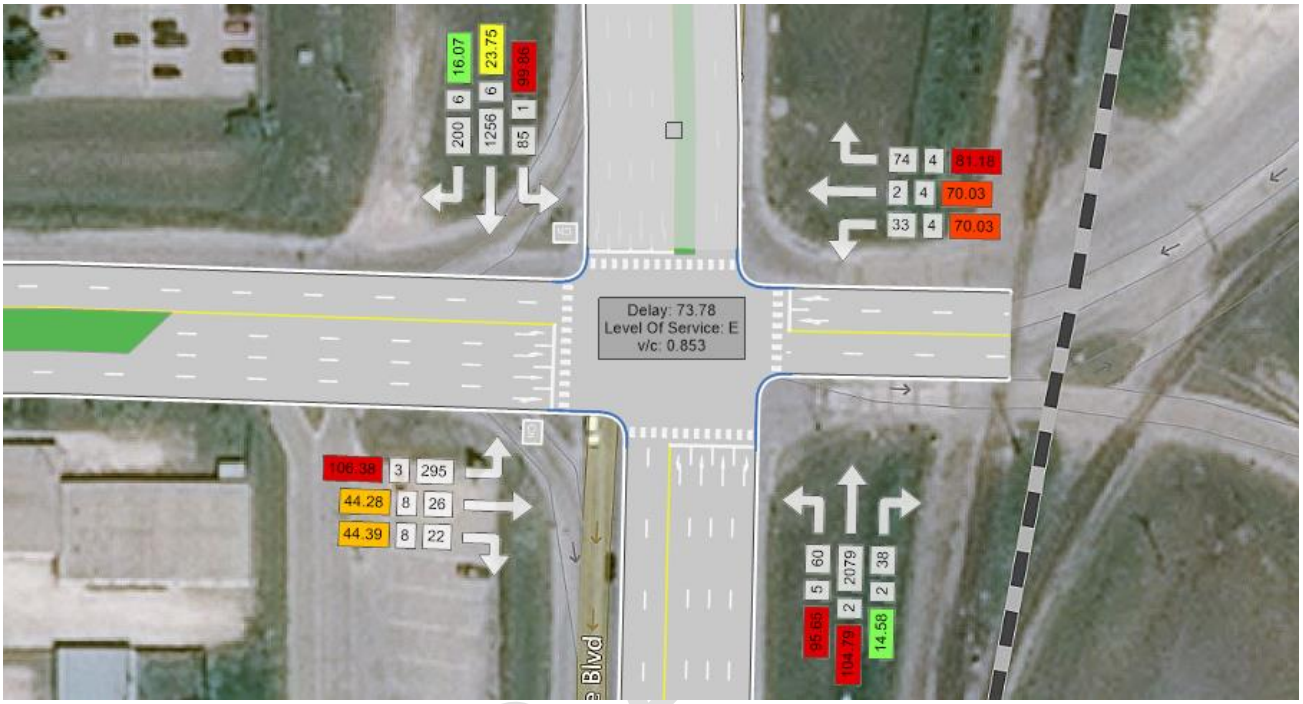

Figure 25: Lagimodiere Blvd at Maginot St 2030 AM Future Background

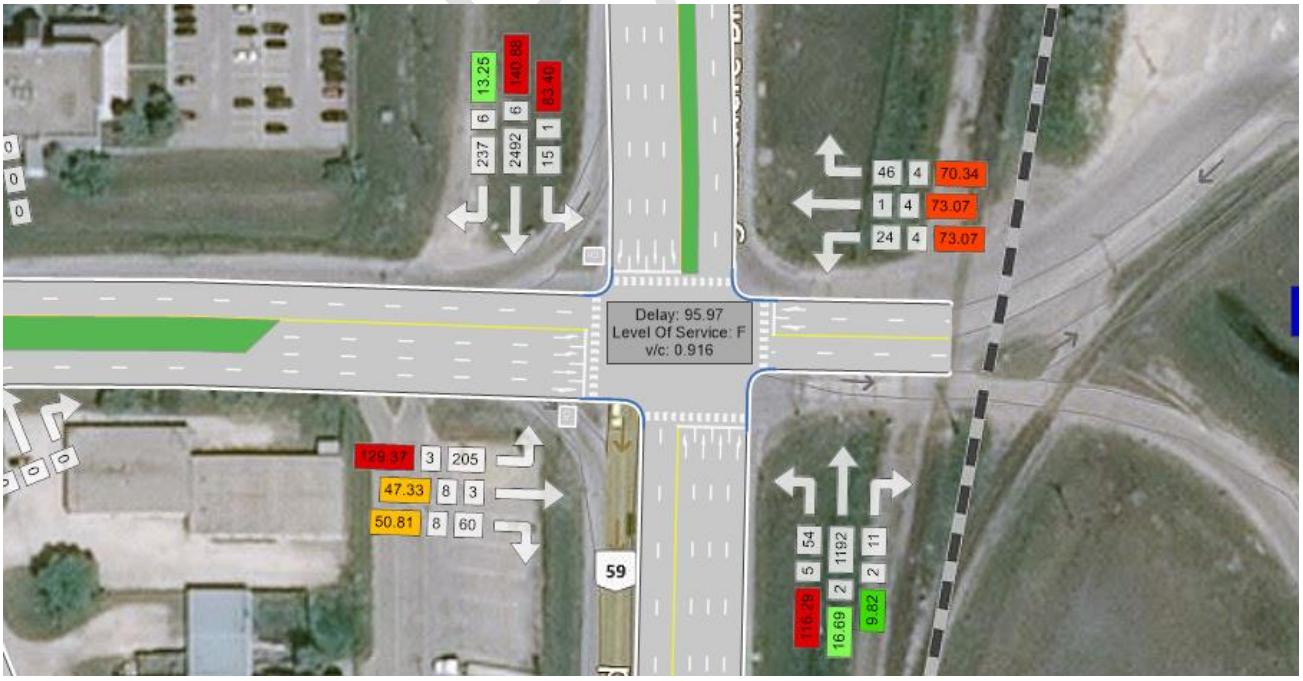

Figure 26: Lagimodiere Blvd at Maginot St 2030 PM Future Background

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

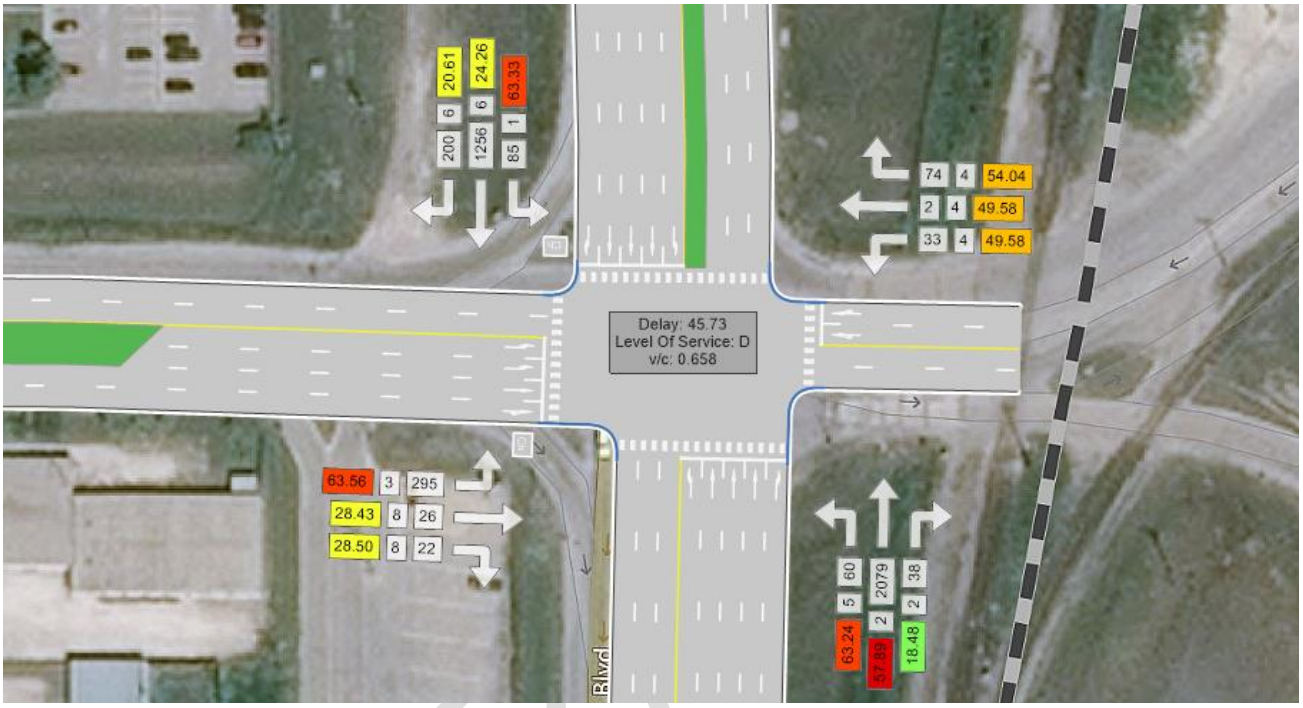

Figure 27: Lagimodiere Blvd at Maginot St 2030 AM Future Traffic with Mitigations (1)

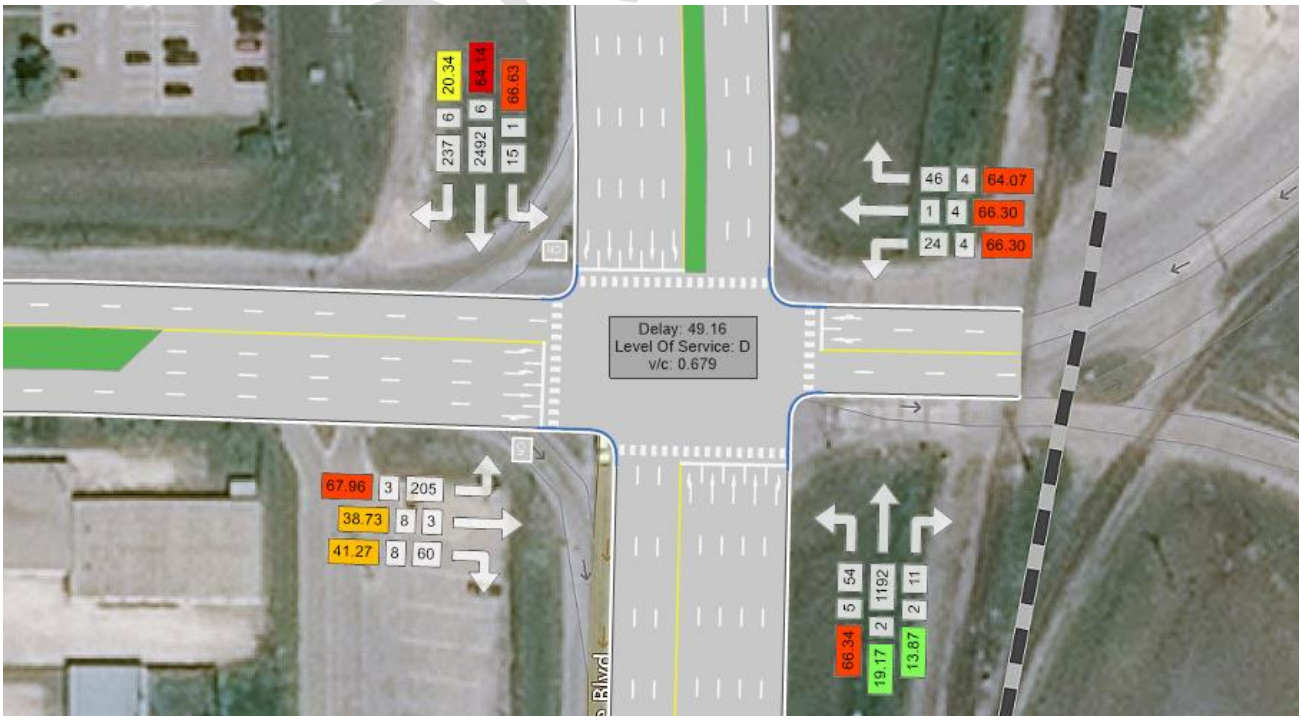

Figure 28: Lagimodiere Blvd at Maginot St 2030 PM Future Traffic with Mitigations (1)

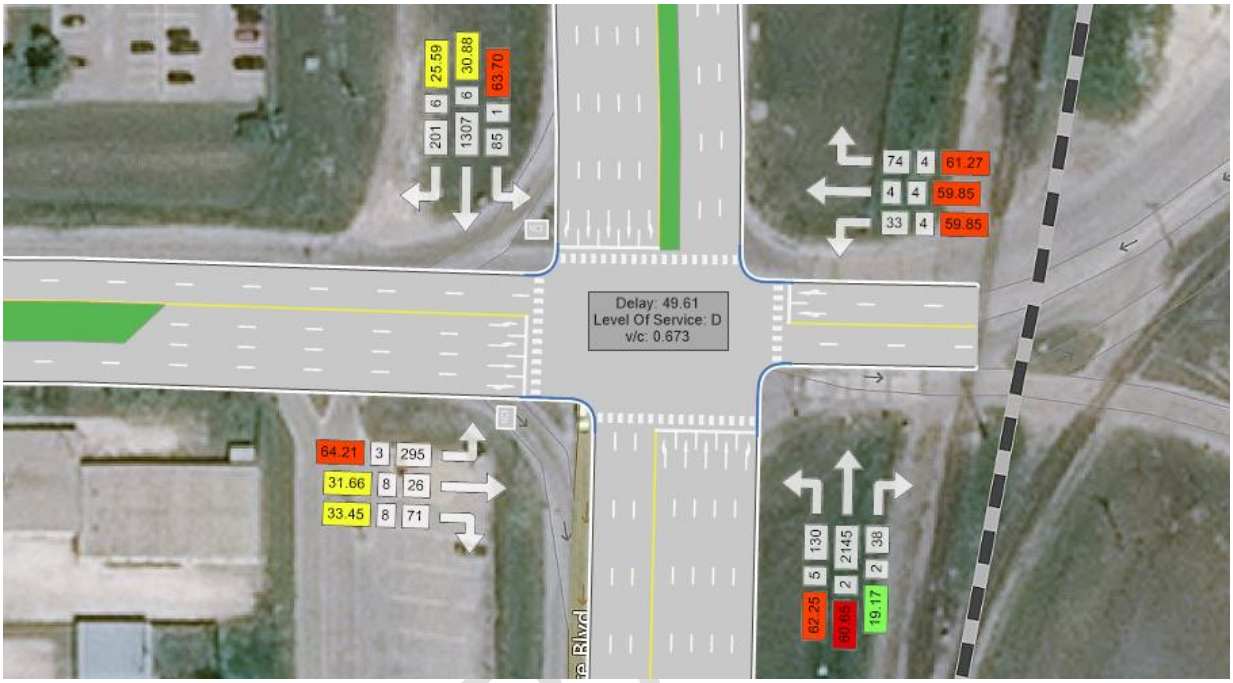

Figure 29: Lagimodiere Blvd at Maginot St 2030 AM Future Traffic with Full Development Traffic and Further Mitigations

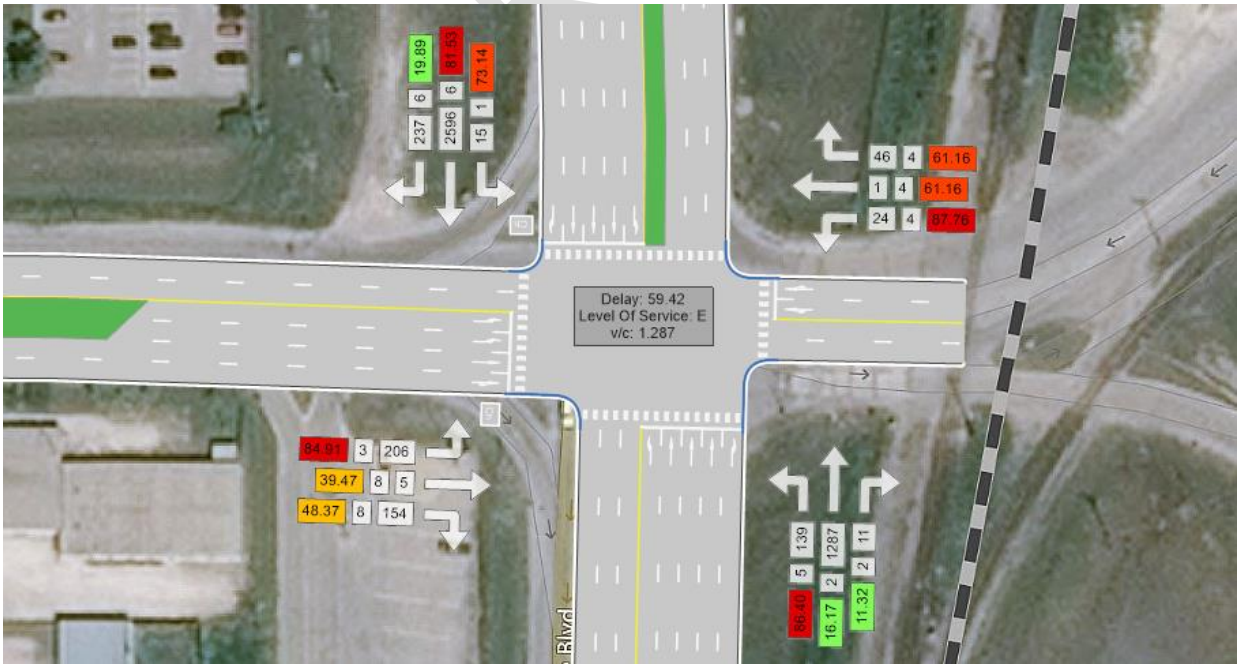

Figure 30: Lagimodiere Blvd at Maginot St 2030 PM Future Traffic with Full Development Traffic and Further Mitigations

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

Table 7: AM Peak Period Traffic Analysis at Lagimodiere Blvd and Maginot St

AM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	59.24	73.78	45.73		49.61
Intersection LOS	E	E	D		D
Intersection v/c	0.765	0.853	0.658		0.673
Turning Movement	**Delay (s)**				
EBL	78.12	106.38	63.56		64.21
EBT	41.05	44.28	28.43		31.66
EBR	41.11	44.39	28.50		33.45
WBL	66.17	70.03	49.58		59.85
WBT	66.17	70.03	49.58		59.85
WBR	73.59	81.18	54.04		61.27
NBL	79.66	95.65	63.24		62.25
NBT	80.85	104.79	57.89		60.65
NBR	15.96	14.58	18.48		19.17
SBL	80.78	99.86	63.33		63.70
SBT	24.23	23.75	24.56		30.88
SBR	17.32	16.07	20.61		25.59

Table 8: PM Peak Period Traffic Analysis at Lagimodiere Blvd and Maginot St

PM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay	68.28	95.97	49.16		59.42
Intersection LOS	E	F	D		E
Intersection v/c	0.818	0.916	0.679		1.287
Turning Movement	**Delay (s)**				
EBL	99.29	129.37	67.96		84.91
EBT	44.94	47.33	38.73		39.47
EBR	47.83	50.81	41.27		48.37
WBL	68.45	73.07	66.30		87.76
WBT	68.45	73.07	66.30		61.16
WBR	65.92	70.34	64.07		61.16
NBL	99.71	116.29	66.34		86.40
NBT	16.09	16.69	19.17		16.17
NBR	10.15	9.82	13.87		11.32
SBL	77.88	83.40	66.63		73.14
SBT	96.00	140.88	64.14		81.53
SBR	13.35	13.25	20.34		19.89

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MARION ST AT LOUIS RIEL WAY

The development proposes construction two new intersections with Marion Street. The primary intersection is located approximately 400 meters east of the Archibald Street intersection. Proposed intersection configuration includes a:

- Dual NB left-turn lane to handle PM peak traffic leaving the multi-use site and travelling west on Marion St
- An EB pocket right-turn lane with 150 m of storage – this may be implemented as an activity lane between the intersection of Marion St and Louis Riel Way and the right-in, right-out intersection that also serves the commercial area at the northwest extent of the site

The intersection is anticipated to operate with approximately 40 seconds of overall delay in the AM peak period and approximately 74 seconds in the PM peak period under full development. As with the Marion Street and Archibald Street intersection, some additional analysis is required to investigate the impact of pass-by trips and internal integration in the commercial area. There is likely to be improvements to the anticipated operating conditions documented in this memo.

As well additional intersections treatments may be considered as the study progresses.

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Reference: **Public Markets Redevelopment Traffic Impact Assessment**

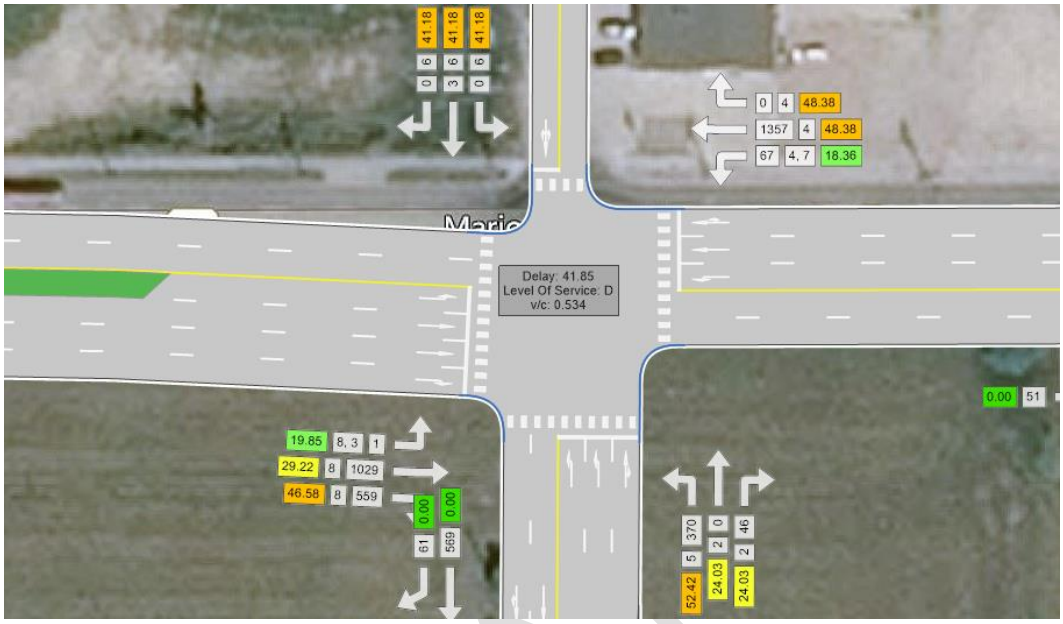


Figure 31: Marion St at Louis Riel Way 2030 AM Future Traffic with Full Development Traffic and Further Mitigations

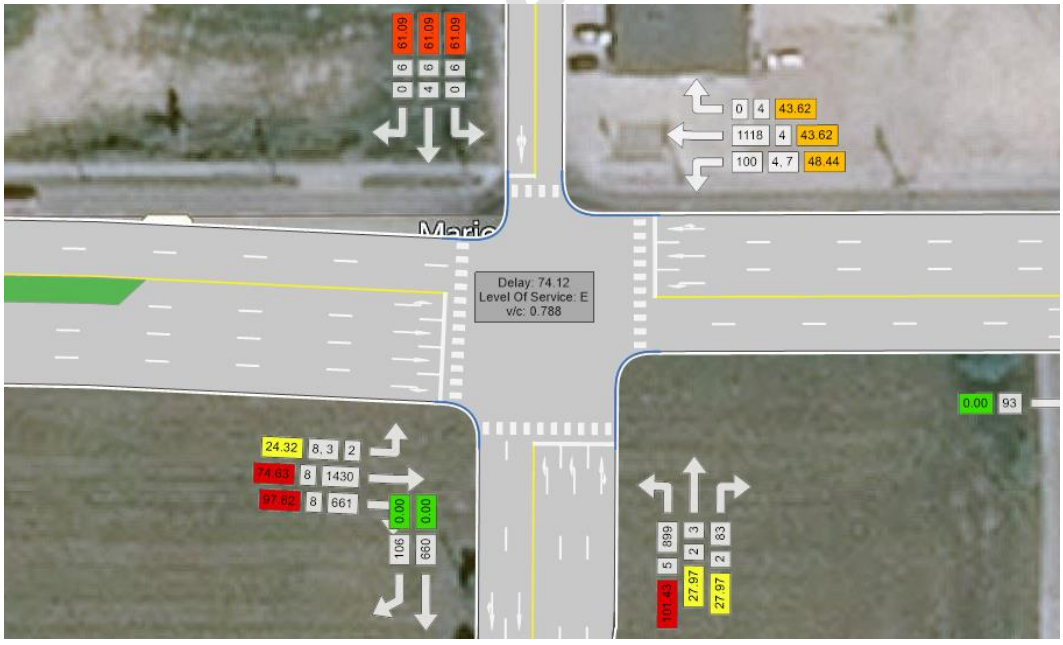


Figure 32: Marion St at Louis Riel Way 2030 PM Future Traffic with Full Development Traffic and Further Mitigations

Table 9: AM Peak Period Traffic Analysis at Marion St and Louis Riel Way

AM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay					41.85
Intersection LOS					D
Intersection v/c					0.534
Turning Movement	**Delay (s)**				
EBL					19.85
EBT					29.22
EBR					46.58
WBL					18.36
WBT					48.38
WBR					48.38
NBL					52.42
NBT					24.03
NBR					24.03
SBL					41.18
SBT					41.18
SBR					41.18

Table 10: PM Peak Period Traffic Analysis at Marion St and Louis Riel Way

PM Traffic	Background (2019)	Future (2030)	Future Mitigated 1 (2030)	Future Mitigated 1 with Full Development (2030)	Future Mitigated 2 with Full Development (2030)
Intersection delay					74.12
Intersection LOS					E
Intersection v/c					0.788
Turning Movement	**Delay (s)**				
EBL					24.32
EBT					74.63
EBR					97.62
WBL					48.44
WBT					43.62
WBR					43.62
NBL					101.43
NBT					27.97
NBR					27.97
SBL					61.09
SBT					61.09
SBR					61.09

Reference: **Public Markets Redevelopment Traffic Impact Assessment**

SUMMARY

This memo provides an interim analysis of anticipated impact of background growth and the addition of development traffic from the MRS D lands to the existing transportation infrastructure. The study clearly identifies that significant operational concerns currently exist and provides options to bring the current and anticipated background traffic operational concerns to acceptable levels. Additional options need to be investigated and discussed to determine the acceptable solutions to move forward with.

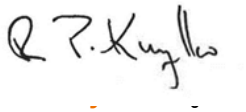
The report also indicates that if the current and future background traffic operational concerns are addressed at the study intersections, the addition of new development traffic would not require additional measures to be implemented. How to address the westbound left turn at Archibald issue does need to be resolved.

The report is constrained by traffic data that is stale dated and there is a plan to address this by conducting new traffic counts where necessary. The results will be adjusted to reflect the new counts. There is also the need to address some additional trip adjustments that may reduce the impact somewhat. These will be completed as the report progresses.

The preliminary conclusions at this point are not out of line with those reached earlier in the planning process; that improvements required along Marion Street itself are limited to the new intersections and the current infrastructure at the intersections of Marion Street and Archibald Street and Marion Street and Lagimodiere Blvd require improvements to better accommodate existing and future nondevelopment traffic growth. These improvements, if made, will be sufficient to accommodate the additional traffic from the proposed development near current levels of service and delay without requiring additional improvements to be made.

The other anticipated conclusion to be confirmed in the TIA is that transit service improvements anticipated through the Transit Master Plan process will have a positive impact in reducing the growth in background traffic as well as reduce the reliance on automobiles trips in the proposed development.

Stantec Consulting Ltd.



Associate, Transportation

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Attachment:

c. C.C.

DRAFT

Stantec

Memo

To:	Robert Scaletta, Olexa Developments 200 - 1355 Taylor Avenue, Winnipeg, MB Canada R3M 3Y9	From:	Luis Escobar. P.Eng., PTOE Stantec Consulting 500-311 Portage Avenue, Winnipeg, MB Canada R3B 2B9
File:	113708060	Date:	May 28, 2019

Reference: Public Markets (MRS D) Emergency Response Mitigating Measures

Below is a summary of measures intended to address accessibility, safety and emergency service access and response to this development. These measures are presented to address concerns brought up at a meeting held on January 11, 2019 by the Winnipeg Fire Paramedic Service (WFPS). This meeting was attended by representatives of various City departments, including the Winnipeg Fire Paramedics Service (WFPS).

The following measures and initiatives, either by Olexa Developments (Olexa) or by The City of Winnipeg (City), are intended to mitigate unnecessary risk associated with the location of this development and are intended to be consistent with Sustainable Cities and Communities' framework.

TRAIN ACTIVITY DETECTION AT RAILWAY CROSSINGS ON MARION STREET

Train Detection and Real-Time Data Integration:

Since 2017 and as part of the Smart Cities initiatives, there have been discussions between Public Works and WFPS departments to deploy train detection and activity sensors at the Marion Street railway crossings (CN and CP) to relay train blockage information to the WFPS' Computer Aided Dispatch system. This information would help emergency responders select the correct direction (from the east or from the west) of travel when approach the development site in case of an emergency call. A business case and plans were already underway to implement this initiative, which when implemented, will set the bar for best practice in emergency response initiatives across North America.

This technology has been successfully implemented locally on Waverley Street as part of the Waverley Street Underpass project. The technology consists of sensors located at or near the railway crossing and they detect the presence of trains and estimate the duration of the blockage caused by the train. This information is then relayed to many locations. In the case of the Waverley Street Underpass project, the information is relayed to a variable message board facing motorists on Waverley Street, and to the City's Transportation Management Centre (TMC). For this case, The TMC can relay the information to others via social media (as it does now) and to the WFPS. The information can be sent directly to the Computer-Aided Dispatch (CAD) system. Furthermore, the data is also posted to Waze, an app that facilitates routing in real-time for users based on traffic conditions.

This real-time train detection information can be even enhanced by having dedicated traffic cameras which can transfer the real-time video to WFPS to get a visual sense of any kind of incidents (not just train blockages) that may affect their ability to attend an emergency call.

This can be accomplished by leveraging current capabilities of the City's TMC and incorporating the enhanced data with the WFPS CAD system.

Reference: **Public Markets (MRS D) Emergency Response Mitigating Measures**

SUSTAINABLE CITIES AND COMMUNITIES - RESILIENT CITIES

According to the OECD, urban resiliency refers to Cities having the ongoing capacity to absorb, adapt, transform and prepare for shock and stresses that are brought by the economy, society, institutions or the environment; with the purpose of maintaining functions of a city and improving the response for future shocks and stresses. These principles create a framework for communities to manage sustainability, improve sustainable development, and assess the progress of communities as part of their development.

Sustainable Transportation:

The development is being planned with the ability to facilitate and support sustainable transportation by providing walking trails and sidewalks for pedestrians, cyclists, and including the accommodation of a transit park and ride. This will facilitate the mobility and accessibility to people of all ages and abilities.

Furthermore, this development is located at a strategic place to take advantage of a potential Rapid Transit route, as well as setting itself for improved frequent service to downtown and educational institutions such as College St Boniface and Red River College, making this a potential true transit-oriented development.

In addition to this, Olexa has considered opening the conversation with relevant railway companies to potentially adjusting their operations abutting immediately south of the development lands. There could be mutual benefits to adjusting this operation. A portion or all these operations could be relocated to a place that is more efficient for the railway company, which could help reduce their operating cost. This in turn could help improve access to the development from its current situation. While these discussions are still for consideration, it is worth noting the potential benefits and interest in Olexa to establish this development as a resilient community.

Sprinkler System:

The development is including the implementation of a sprinkler system for the residential, commercial and industrial structures to address fire hazards. This initiative will reduce the stress and shock associated with reacting to real threats such as fire-related emergencies. This will help reduce the risk and magnitude associated with loss of life and property as a result of fire emergencies.

Emergency Services within the Development:

A third initiative that will be part of this development, includes the ability to accommodate emergency services within the development. This type of initiative is not uncommon and can be incorporated seamlessly as part of the existing development. This accommodation can be done in a fashion similar to what has been done in other cities such as Calgary's Royal Vista multi-facility complex that includes a fire hall (Fire Hall 34) or Vancouver's Fire Hall 5, which is part of a high-rise building.

Integrating a fire hall within the development in a seamless manner would ensure an enhanced level of service not only for the development itself, but also to the immediate area. Having the information associated with train blockages would allow fire response teams to choose the most efficient way to depart from the fire hall and be on site in the most expeditious manner. This would be significantly more efficiently that the current method, which does not have the tools or information in real-time to adjust travel routes based on the current traffic congestion activity.

Reference: **Public Markets (MRS D) Emergency Response Mitigating Measures**

SUMMARY

The implementation of initiatives proposed by Olexa and initiatives that have been under discussion within the City, will result in a progressive and unique kind of development that can showcase best practices and ideas that support the framework associated with Sustainable Cities and Communities. From integrating a fire hall within the development to implementing smart city initiatives such as train detection for real-time travel routing, to creating a transit-oriented development to support active transportation and transit services compatible with transit initiatives, this development is setting itself as one of the most progressive and sustainable developments in Winnipeg.



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Development of MRS-D Traffic Impact Study

Draft Report for Review by Client

DRAFT

August 12, 2019

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Approved by _____
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Luis Escobar, P. Eng, PTOE

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1.0 INTRODUCTION

1.1 BACKGROUND

Olexa Developments (7319829 Manitoba Ltd) has retained Stantec Consulting Ltd. (Stantec) to complete a Traffic Impact Study (TIS) for the proposed development to be located on the south side of Marion Street between Dawson Road and Archibald Street, comprising the Major Redevelopment Site D as defined in *OurWinnipeg*. Major Redevelopment Sites are defined in this document as *"Large, functionally obsolete or underutilized lands, such as former industrial areas. They are often located adjacent to existing communities along rail lines, major corridors or rapid transit corridors. Although existing infrastructure is often insufficient for immediate redevelopment, these areas present opportunities for strategic mixed-use infill and intensification in existing urban areas".*

1.2 OBJECTIVES

The TIS will have the following purposes:

- Estimate the trips generated by the development and distribute them to the adjacent transportation network
- Determine current transportation network characteristics and identify deficiencies based on forecast background growth
- Determine any additional impacts on the adjacent transportation network and infrastructure resulting from trips generated by the proposed development
- Identify offsite improvements required due to new trips from the proposed development to maintain safe and efficient operation of the adjacent road network at current levels of service.
- Determine infrastructure needs to support active modes and transit service enhancements
- Determine infrastructure needs within the development to support transportation requirements based on current City Policy documents

2.0 CONTEXT

2.1 LOCATION

The proposed development is to be located in the Northeast area of the City of Winnipeg. The development area is bounded by Marion Street to the North, the Emerson CPR line to the West, the CN Sprague line to the East and the CNR (Canadian National Railway) Paddington yards to the South.

Figure 1 shows the proposed development site in the regional context.



Figure 1: Regional Context

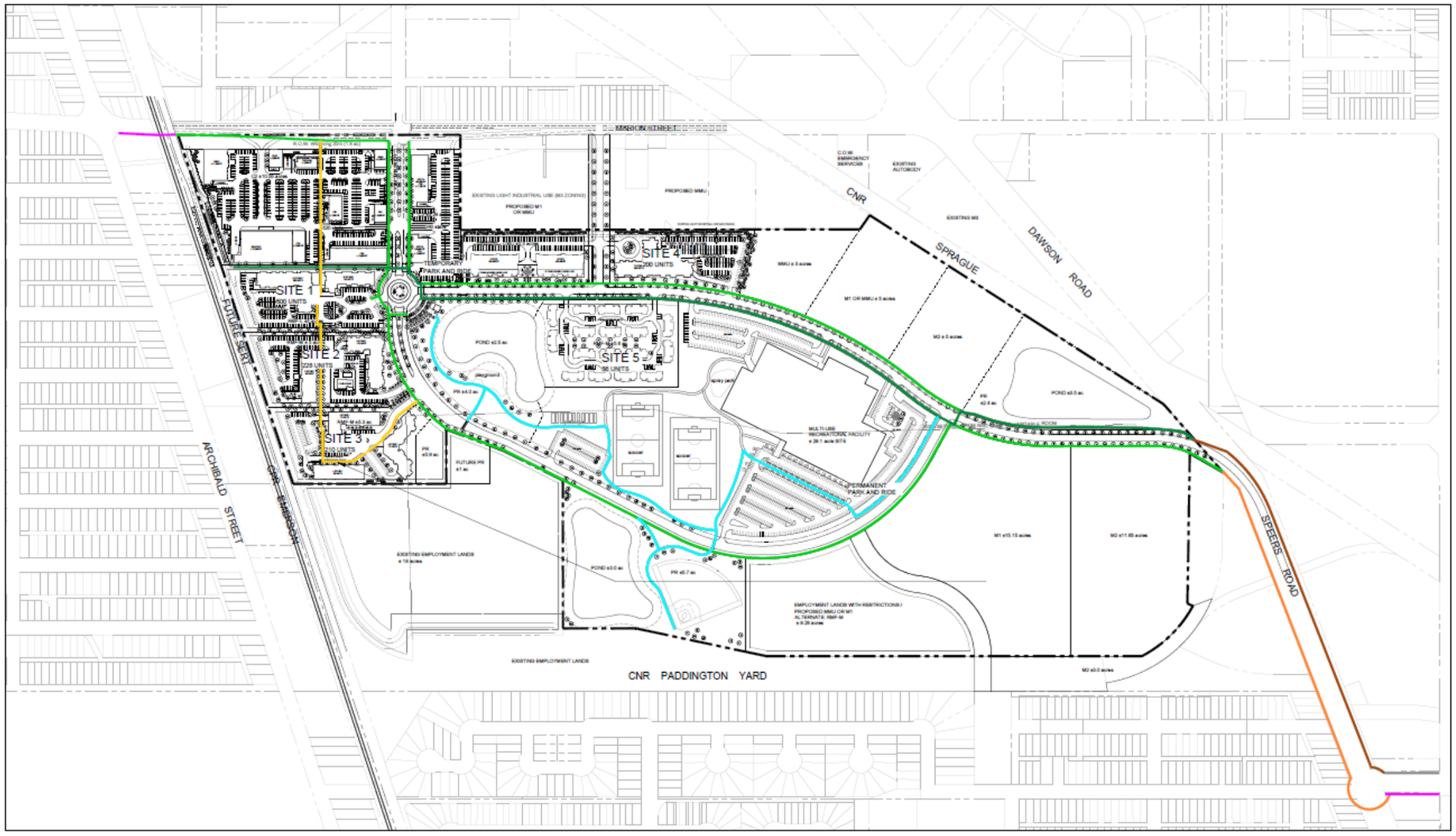
2.3 PROPOSED LAND USE

The development site covers approximately 222 acres. Proposed land uses include:

- 10.55 acres of commercial land use
- 3.29 acres of mixed commercial/office land use
- 3.3 acres mixed office/residential (town house) land use
- 24.7 acres of multifamily (mid-rise) residential homes
- 29 acres multi-use recreational
- 49.1 acres of mixed office/ general light industrial

Figure 2 on the following page shows the proposed site layout.

Figure 2: Public Markets (MRS D) Conceptual Development Plan



PUBLIC MARKETS (MRS D)
ORDER OF MAGNITUDE ITEMS

JULY 18, 2019
SCALE 1:2500
0 10 25 50 100 200m
NORTH

2.4 EMERGENCY VEHICLE ACCESS CONCERNS

Below is a summary of measures intended to address accessibility, safety and emergency service access and response to the proposed development. These measures are presented to address concerns brought up at a meeting held on January 11, 2019 by the Winnipeg Fire Paramedic Service (WFPS). This meeting was attended by representatives of various City departments, including the Winnipeg Fire Paramedics Service (WFPS).

The following measures and initiatives, either by Olexa Developments or by The City of Winnipeg (City), are intended to mitigate unnecessary risk associated with the location of this development and are intended to be consistent with Sustainable Cities and Communities' framework.

2.4.1 Train Activity Detection at Railway Crossings on Marion Street

2.4.1.1 Train Detection and Real-Time Data Integration

Since 2017 and as part of the Smart Cities initiatives, there have been discussions between Public Works and WFPS departments to deploy train detection and activity sensors at the Marion Street railway crossings (CN and CP) to relay train blockage information to the WFPS' Computer Aided Dispatch system. This information would help emergency responders select the correct direction (from the east or from the west) of travel when approaching the development site in case of an emergency call. A business case and plans were already underway to implement this initiative, which when implemented, will set the bar for best practice in emergency response initiatives across North America.

This technology has been successfully implemented locally on Waverley Street as part of the Waverley Street Underpass project. The technology consists of sensors located at or near the railway crossing to detect the presence of trains and estimate the duration of the blockage caused by the train. This information is then relayed to potential interested users. In the case of the Waverley Street Underpass project, the information is relayed to a variable message board facing motorists on Waverley Street, and to the City's Transportation Management Centre (TMC). With respect to Waverley, The TMC is able to relay the information to others via social media (as it does now) and to the WFPS. With respect to the MRS D proposed development scenario, the information can be sent directly to the Computer-Aided Dispatch (CAD) system to inform them of blockages and delay. Furthermore, the data can be posted to Waze, an app that facilitates routing in real-time for users based on traffic conditions.

Information enhancements are possible by incorporating dedicated traffic cameras capable of providing real-time video to WFPS to provide visual confirmation of incidents (not just train blockages) that may affect their ability to attend an emergency call.

This can be accomplished by leveraging current capabilities of the City's TMC and incorporating the enhanced data with the WFPS CAD system.

2.4.2 Sustainable Cities and Communities - Resilient Cities

According to the OECD, urban resiliency refers to Cities having the ongoing capacity to absorb, adapt, transform and prepare for shock and stresses that are brought by the economy, society, institutions or the



environment; with the purpose of maintaining functions of a city and improving the response for future shocks and stresses. These principles create a framework for communities to manage sustainability, improve sustainable development, and assess the progress of communities as part of their development.

2.4.2.1 Sustainable Transportation

The development is being planned with the ability to facilitate and support sustainable transportation by providing walking trails and sidewalks for pedestrians, cyclists, and including the accommodation of a transit park and ride and designs that are considered to be Transit service friendly. This commitment to design that is multimodal mobility friendly will provide accessibility choices to people of all ages and abilities.

Furthermore, this development is located at a strategic place to take advantage of a potential Rapid Transit route, as well as setting itself for improved frequent service to downtown and educational institutions such as College St Boniface and Red River College, making this a potential true transit-oriented development.

In addition, Olexa Developments has considered opening the conversation with relevant railway companies to potentially adjusting their operations abutting lands immediately south of the development lands. There could be mutual benefits to adjusting this operation. A portion or all these operations could be relocated to a place that is more efficient for the railway company, which could help reduce their operating cost. This in turn could help improve access to the development from its current situation. While these discussions are still for consideration, it is worth noting the potential benefits and interest for Olexa Developments to establish this development as a resilient community.

2.4.3 Sprinkler System

The residential component of the development consists exclusively of multifamily units that are required to include a sprinkler system. This is also a requirement for the commercial and industrial structures to address fire hazards. This initiative will reduce the stress and shock associated with reacting to real threats such as fire-related emergencies. This will help reduce the risk and magnitude associated with loss of life and property as a result of fire emergencies.

2.4.4 Emergency Services Within the Development

A third initiative that will be part of this development includes the ability to accommodate emergency services within the development. This type of initiative is not uncommon and can be incorporated seamlessly as part of the existing development. This accommodation can be done in a fashion similar to what has been done in other cities such as Calgary's Royal Vista multi-facility complex, which includes a fire hall (Fire Hall 34) or Vancouver's Fire Hall 5, which is part of a high-rise building.

Integrating a fire hall within the development in a seamless manner would ensure an enhanced level of service not only for the development itself, but also to the immediate area. Having the information associated with train blockages would allow fire response teams to choose the most efficient way to depart from the fire hall and be on site in the most expeditious manner. This would be significantly more



efficient that the current method, which does not have the tools or information in real-time to adjust travel routes based on the current traffic congestion activity.

2.4.5 Summary

The implementation of initiatives proposed by Olexa Developments and initiatives that have been under discussion within the City, will result in a progressive and unique kind of development that can showcase best practices and ideas that support the framework associated with Sustainable Cities and Communities. From integrating a fire hall within the development to implementing smart city initiatives such as train detection for real-time travel routing, to creating a transit-oriented development to support active transportation and transit services compatible with transit initiatives, this development is setting itself as one of the most progressive and sustainable developments in Winnipeg.

2.5 ADJACENT SITES / ROADWAY CONDITIONS

2.5.1 Land Use

Adjacent land use currently consists of industrial lands to the north and east, single family homes to the south and commercial, single family homes, multifamily homes and Happyland Park to the west. A Southeast Rapid Transit Corridor has been proposed to be located along the CPR Emerson right-of-way. This enhanced transit service is being reviewed through the Transit Master Plan. Some form of enhanced transit service to preserve the Transit focus of this development will be available

2.5.2 Transportation

Table 1 shows the characteristics of the roads near the proposed development.

Table 1: Study Area Street Characteristics

Road	Functional Classification	Basic Cross Section	Posted Speed Limit
Archibald St	Regional Street	4 Lane Undivided	60 km/h
Marion St	Regional Street	4 Lane Undivided	60 km/h
Lagimodière Blvd	Regional Expressway	4 Lane Divided	80 km/h
Dawson Rd	Local Collector	2 Lane Undivided	60 km/h
Maginot St	Local Collector	2 Lane Undivided	50 km/h

2.6 STUDY AREA

The study area is bounded by Marion Street to the north, Archibald Street to the east, Lagimodière Boulevard to the west and Maginot Street to the south. The proposed development includes the completion of the connection of Marion Street and Maginot Street via Speers Rd.

The intersections expected to be most affected by the MRS D development were selected as study intersections and include:

- Marion St and Archibald St
- Marion St and Nicolas Ave
- Marion St and Dawson Rd
- Marion St and Panet Rd
- Marion St and Lagimodière Blvd
- Lagimodière Blvd and Maginot St
- Maginot St and Speers Rd

The study area and is shown in Figure 3.

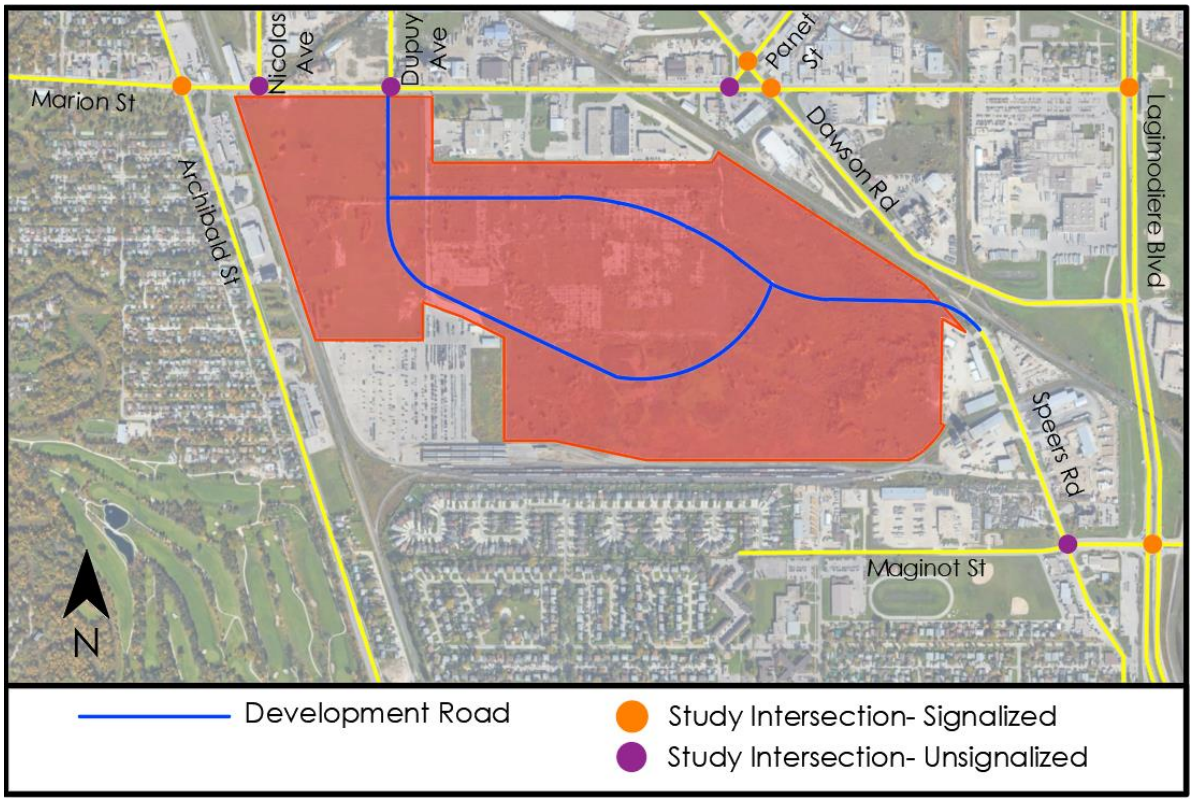


Figure 3: Study Area

2.7 HORIZON YEARS AND TIME PERIODS FOR ANALYSIS

The proposed development is anticipated to be 100% built out by 2030 (approximately 10 years). A partial build-out scenario in 2025 has also been analyzed. The development progress assumptions made for the partial build out scenario include:

- Commercial development 75% complete
- Office Development 75% complete
- Residential development 50% complete
- Light industrial development 50% complete
- Recreational Development 0% complete
- Connection of development to intersection of Speers Rd and Maginot St not yet complete

The full list of analysis scenarios chosen by the study team are as follows:

- 2019 Existing Conditions
- 2025 Background Growth Only
- 2025 Background Growth + Partial Build Out
- 2030 Background Growth Only
- 2030 Background Growth + Full Build Out



3.0 TRAFFIC VOLUMES

3.1 EXISTING TRAFFIC VOLUMES

Existing (2019) traffic volumes were based on a combination of existing traffic counts obtained from the City of Winnipeg and traffic counts conducted by Stantec in 2019. City of Winnipeg traffic count data was used for the following intersections:

- **Lagimodière Blvd and Marion St**
  Thursday November 6, 2014
  From 7:00 to 9:00 AM and 12:00 to 6:00 PM

- **Lagimodière Blvd and Maginot St**
  Wednesday March 9, 2016
  From 7:00 to 9:00 AM and 3:30 to 5:30 PM

Traffic growth projections (described in Section 3.2) were used to bring the 2014 and 2016 traffic volumes to 2019 levels.

Updated traffic counts were conducted by Stantec at the following intersections:

- **Archibald St and Marion St**
  Tuesday May 7, 2019
  From 6:00 AM to 6:00 PM

- **Dawson St and Marion St**
  Tuesday May 14, 2019
  From 6:00 AM to 6:00 PM

- **Dupuy St and Marion St**
  Tuesday May 21, 2019
  From 6:00 AM to 6:00 PM

- **Marion St and Nicolas Ave**
  Wednesday, May 8, 2019
  From 6:00 AM to 6:00 PM

- **Panet St and Dawson St**
  Thursday, May 16, 2019
  From 6:00 AM to 6:00 PM

- **Maginot St and Speers Rd**
  Wednesday, May 22, 2019
  From 6:00 AM to 3:00 PM
  Thursday, May 23, 2019
  From 3:00 PM to 6:00 PM



All count data was provided in 15-minute intervals. To be consistent, the same AM and PM peak hour timeframe was used for all intersections. The AM peak hour was taken as 7:30-8:30 AM while the PM peak hour was taken as 4:30 to 5:30 PM. These time frames were chosen based on the most common peak hour ranges observed at each count, which ranged from 7:15 to 8:45 AM and 3:15 to 5:00 PM in the AM and PM peak hours respectively.

A separate count was not conducted at the unsignalized intersection of Marion & Panet due to its proximity to the intersections of Dawson & Panet and Dawson & Marion for which updated counts were conducted (locations shown on Figure 4) . Instead, traffic volumes at Marion & Panet were determined by balancing the volumes obtained from the aforementioned counts, as summarized in Table 2.

Table 2: Marion St and Panet St Volume Calculations

Movement at Marion & Panet	Volume calculations
Southwestbound right	SWB left + NWB left + SEB right at Panet & Dawson
Eastbound left	Sum of all NEB volumes at Panet & Dawson
Eastbound thru	Sum of all EB volumes at Marion & Dawson
WB thru	WB thru + NWB left + SWB right at Marion & Dawson
WB right	Assumed to be 0.

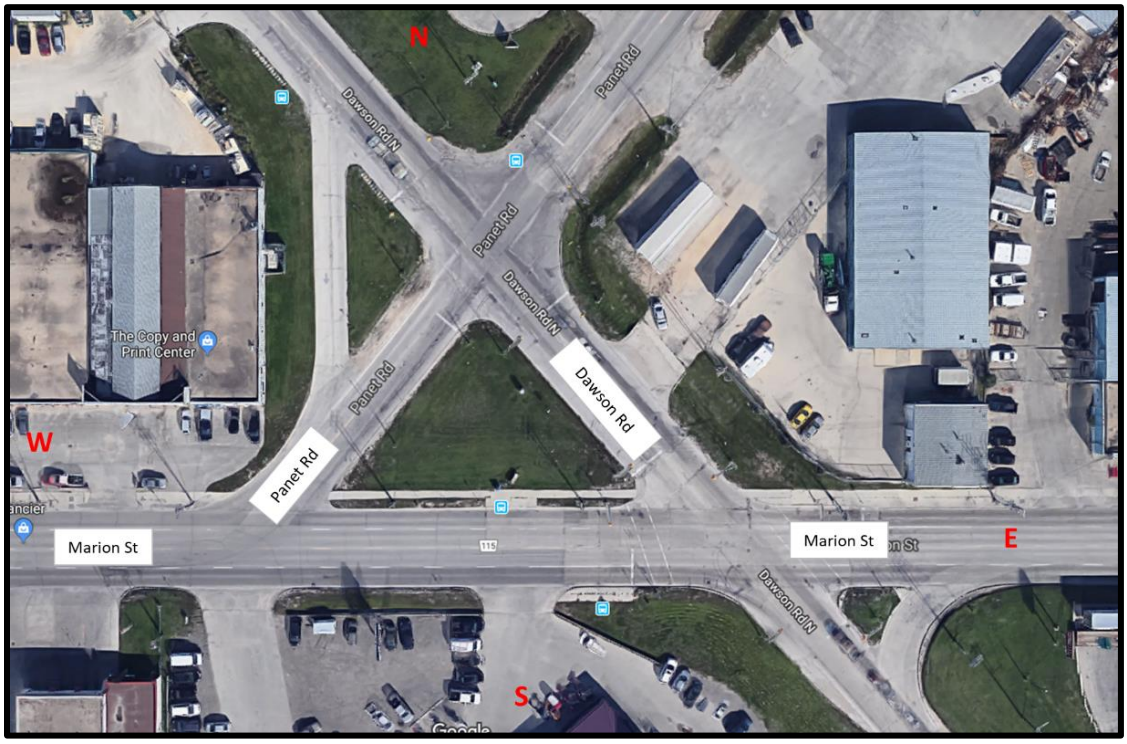


Figure 4: Intersections of Marion St and Panet Rd and Dawson Rd

Figure 5 shows the 2019 existing traffic conditions at the study intersections.

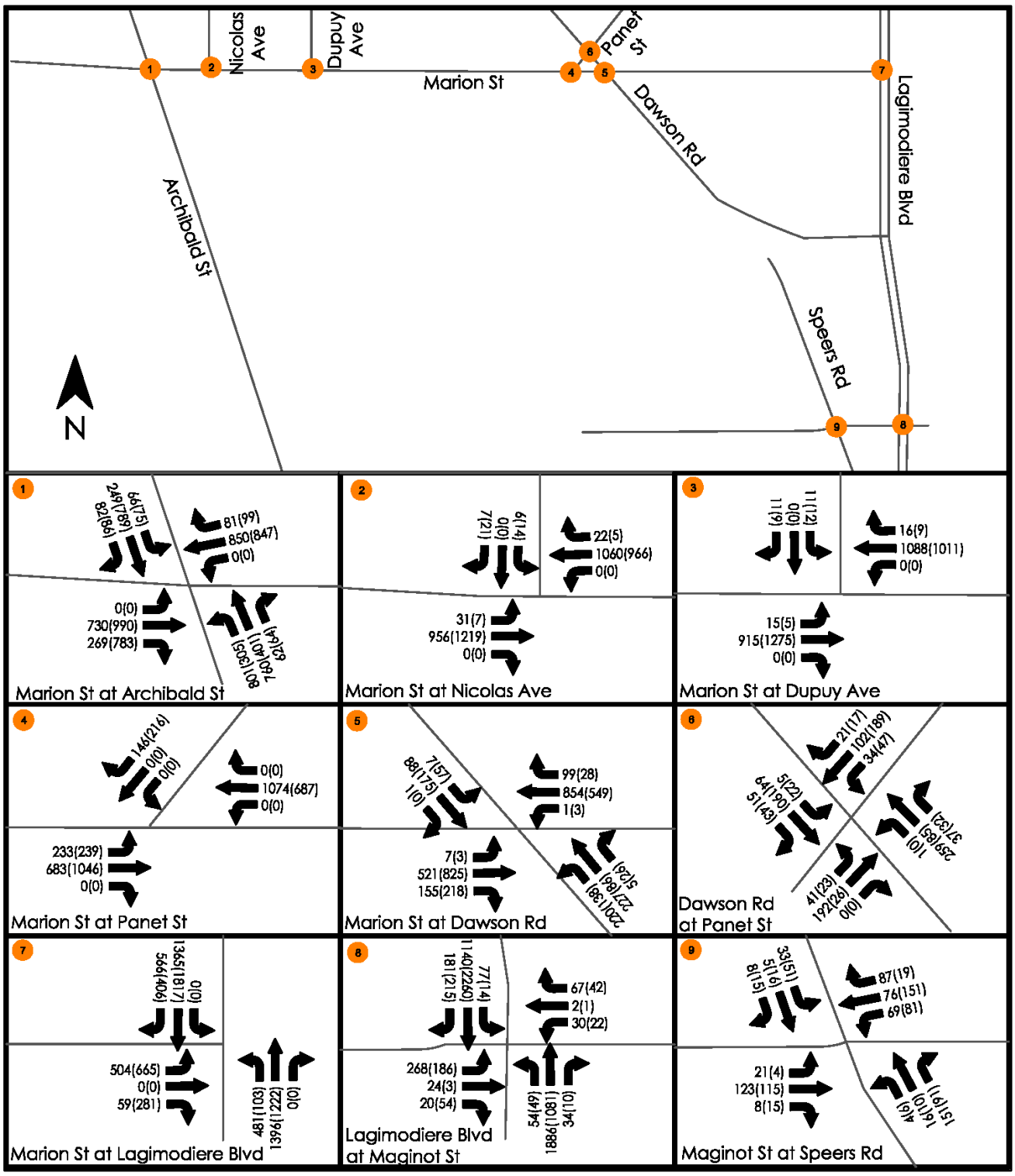


Figure 5: 2019 Existing Conditions - AM Peak (PM Peak)

3.1.1 Peak Hour Factors and Heavy Vehicles

The peak hour factor (PHF) represents the fluctuation of traffic flow within the peak hour. PHF is defined as:

$$PHF = \frac{Peak\ Hour\ Volume}{Peak\ 15\ Minute\ Volume\ \times 4}$$

Notice that lower PHFs indicate that more of the peak hour volume occurs within the peak 15 minutes, while higher PHFs indicate a more consistent flow within the peak hour. Volume fluctuation within the peak hour depends on many factors, and thus is difficult to predict into the future. As such, observed PHFs were used for analysis of the 2019 Background scenario, and PHFs for future scenarios were set to a typical value of 0.92. The only exception was the intersection of Marion & Archibald which had an observed PHF of 0.85 in the PM peak hour. This PHF was considered to be unrepresentative of typical conditions due to current construction occurring on Fermor resulting in trips being re-routed to Marion. Therefore, the PHF for Marion & Archibald was also set to a typical value of 0.92 in the PM Peak existing conditions scenario.

Heavy vehicle percentages at existing intersections were set for individual movements based on observed field values for existing conditions and background growth scenarios. For the full and partial build out scenarios heavy vehicle volume percentages were set to a typical value of 2%. This adjustment was made because the new development is expected to generate mainly residential and commercial traffic, as opposed to the industrial traffic that is currently more common in the study area.

3.1.2 Future Background Traffic

Future background traffic for the 2025 and 2030 scenarios was calculated using an annual growth rate of 1.4%. This growth rate was determined based on the average of actual observed growth rates at intersections where both past count data and updated 2019 data was available, which include:

- Marion St & Archibald St (2013 to 2019)
- Marion St & Dawson Rd (2012 to 2019)
- Marion St & Panet St (2012 to 2019)

The 2025 and 2030 background traffic volumes at the study intersections are shown in Figure 6 and Figure 7 respectively.



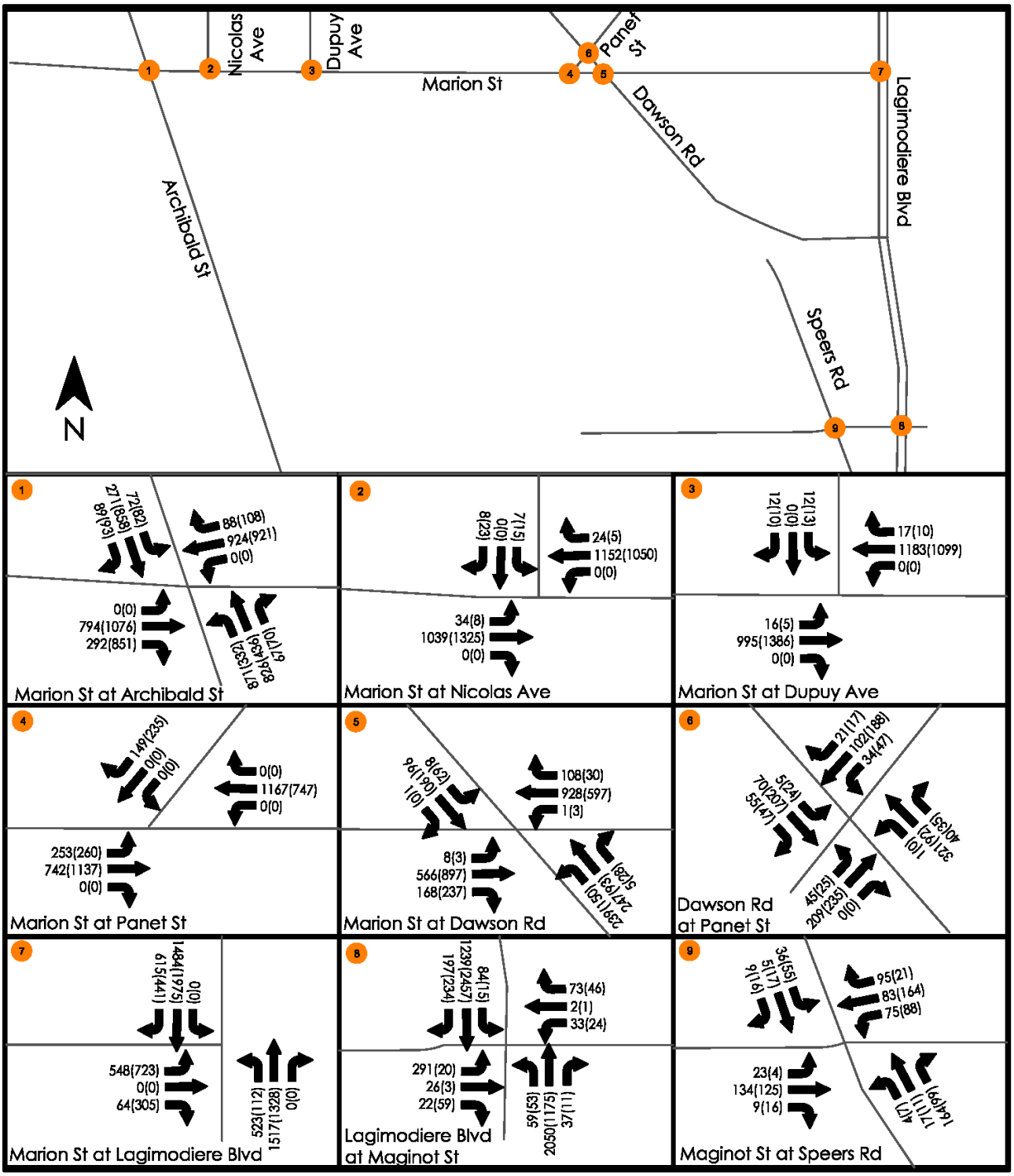


Figure 6: 2025 Background Growth - AM Peak (PM Peak)

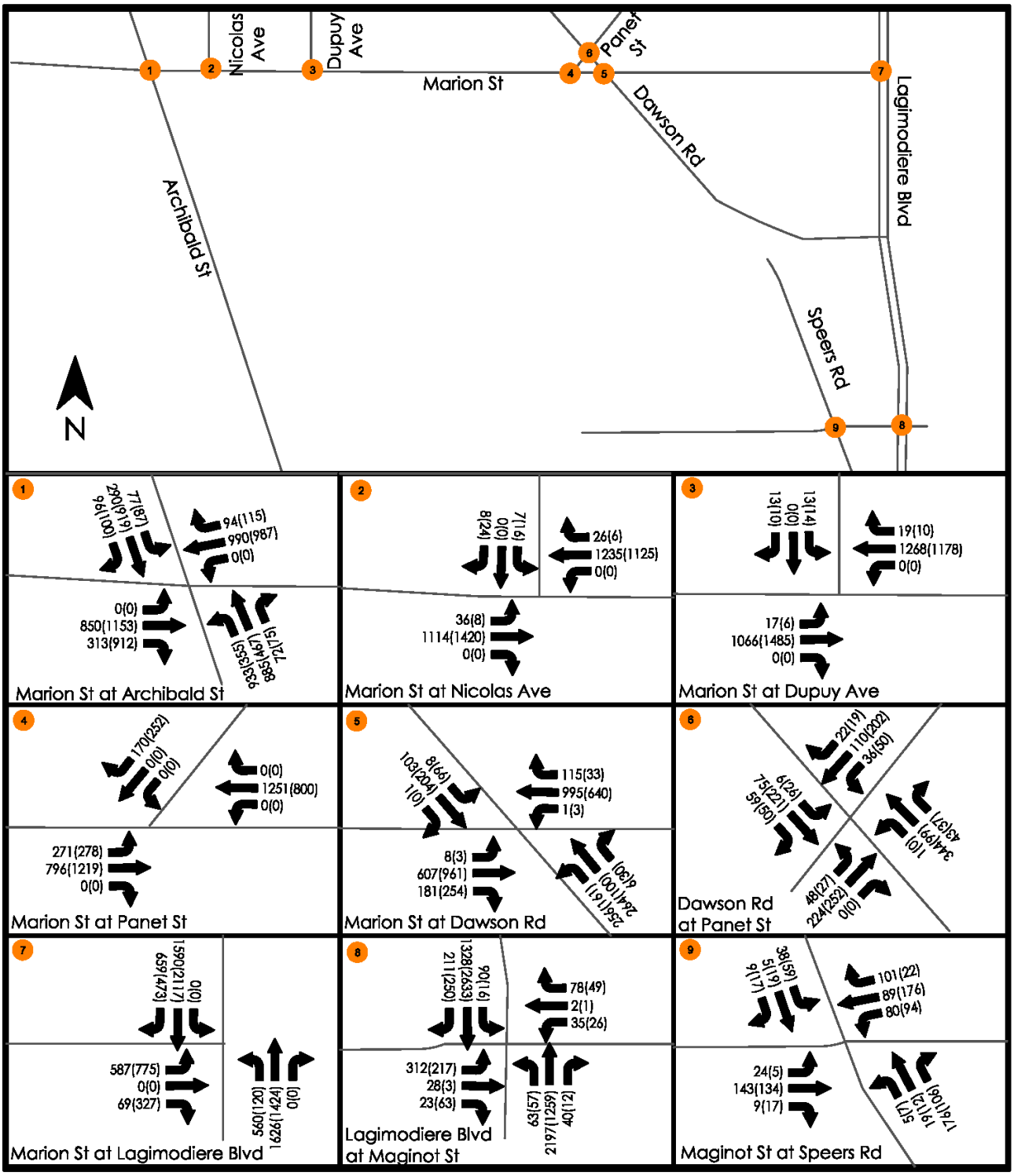


Figure 7: 2030 Background Growth - AM Peak (PM Peak)

3.2 DEVELOPMENT GENERATED TRAFFIC

3.2.1 Trip Generation

Trip generation estimates have been developed using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition.* The *Trip Generation Manual* includes trip generation rates for a variety of land uses for different time periods, based on development size, occupancy or other features.

Table 3 shows the trip generation for the partial build out scenario which includes 75% of the commercial and mixed-use commercial/office development, 50% completion of the residential development and 50% completion of the general light industrial development.

Table 3: Trip Generation – Partial Build Out

ITE Land Use (Land Use Code)	Land Use Quantity	Time Period	Trip Generation Rate	Trip Generation Estimate
Shopping Center (820)	102.5 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	0.94 3.81 37.75	96 (60 in, 36 out) 391 (188 in, 203 out) 3870 (1935 in, 1935 out)
Multifamily Housing Mid-Rise (221)	600 dwellings	AM PM ADT	0.36 0.44 5.44	216 (56 in, 160 out) 264 (160 in, 104 out) 3264 (1632 in, 1632 out)
Multifamily Housing Low-Rise (220)	8 dwellings	AM PM ADT	0.46 0.56 7.32	4 (1 in, 3 out) 5 (3 in, 2 out) 58 (29 in, 29 out)
General Office Building (710)	100 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	1.16 1.15 9.74	116 (100 in, 16 out) 114 (18 in, 96 out) 974 (487 in, 487 out)
General Light Industrial (110)	141 (1,000 Sq. Ft Gross Floor Area)	AM PM ADT	0.70 0.63 4.96	99 (86 in, 13 out) 89 (11 in, 78 out) 700 (350 in, 350 out)
			Partial Build Out Total	531 (303 in, 228 out) 863 (380 in, 483 out) 8866 (4433 in, 4433 out)

Table 4 shows the trip generation for the full build out scenario which includes 100% completion of commercial, office, residential, recreational and light industrial development. As per the site plan, the recreational development area is expected to consist of a recreational community centre, a soccer complex, tennis courts and a ballpark.

Table 4: Trip Generation – Full Build Out

ITE Land Use (Land Use Code)	Land Use Quantity	Time Period	Trip Generation Rate	Trip Generation Estimate
Shopping Center (820)	137.5 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	0.94 3.81 37.75	129 (80 in, 49 out) 523 (251 in, 272 out) 5190 (2595 in, 2595 out)
Multifamily Housing Mid-Rise (221)	1226 dwellings	AM PM ADT	0.36 0.44 5.44	441 (115 in, 326 out) 539 (329 in, 210 out) 6668 (3334 in, 3334 out)
Multifamily Housing Low-Rise (221)	16 dwellings	AM PM ADT	0.46 0.56 7.32	8 (2 in, 6 out) 9 (6 in, 3 out) 118 (59 in, 59 out)
General Office Building (710)	132.5 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	1.16 1.15 9.74	154 (132 in, 22 out) 152 (24 in, 128 out) 1290 (645 in, 645 out)
Recreational Community Center (495)	281 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	1.76 2.31 28.82	494 (326 in, 168 out) 649 (305 in, 344 out) 8098 (4049 in, 4049 out)
Soccer Complex (488)	2 fields	AM PM ADT	0.99 16.43 71.33	2 (1 in, 1 out) 33 (22 in, 11 out) 142 (71 in, 71 out)
General Light Industrial (110)	242 (1,000 Sq. Ft. Gross Floor Area)	AM PM ADT	0.7 0.63 82	374 (328 in, 46 out) 336 (43 in, 293 out) 2648 (1324 in, 1324 out)
			Full Build Out Total	1602 (984 in, 618 out) 2241 (980 in, 1261 out) 24154 (12077 in, 12077 out)

3.2.2 Mode Split Adjustments

The proposed development site meets the proposed criteria for Transit Orientated Development. It is located adjacent to the proposed Southeast Rapid Transit Corridor identified in the existing Council-approved planning documents *OurWinnipeg* and the *Transportation Master Plan*. The Transit Master Plan, currently under way for the City of Winnipeg, is being developed in consideration of this development. There is consideration for Frequent Transit lines that could pass through or adjacent to this development. The Frequent on-street transit service will connect directly to the University of Manitoba, Downtown and the employment areas of St. Boniface. These routes also cross other frequent /rapid routes, providing convenient and efficient access to all areas of the City.

There is no existing bike infrastructure along the sections of Marion St and Lagimodière Blvd bordering the development site. The closest active transportation route consists of a multi-use path along Archibald St ending 750 m south of the intersection at Marion St. Access to downtown is provided by a neighborhood greenway through St. Boniface, crossing the Seine River using the Tremblay Bridge. The



Winnipeg Pedestrian and Cycling Strategy proposes further infrastructure along the remainder of Marion St and Dawson Rd to better connect this area towards downtown and other areas of the City.

With consideration of the developing Frequent/Rapid Transit Network and general improvements to Transit service and reliability, better connectivity via active route network completion and increased awareness of environmental impact of single occupant vehicles***, it is anticipated, based on experience in other jurisdictions, that new developments located near or serviced by Frequent and Rapid transit services will attract transit mode share in the 20% to 30% range***. However, as the future proposed rapid transit corridor and active transportation infrastructure are not yet in place, a conservative 10% modal split reduction was applied to all trip generation estimates for this report. This modal split is based on normally accepted values by the City. Existing city-wide transit usage accounts for approximately 6% of all trips. The 10% modal split assumes, based on proximity to existing transit routes, increased transit usage and some trips occurring via active transportation, rather than vehicular modes. Reducing the total trip generation by 10% to account for modal split gives the following trip generation totals:

- Partial Build Out Scenario:
    - AM: 478 (273 in, 205 out)
    - PM: 777 (342 in, 435 out)
    - ADT: 7,890 (3,990 in, 3,990 out)
- Full Build Out Scenario:
    - AM: 1,442 (886 in, 556 out)
    - PM: 2,017 (882 in, 1,135 out)
    - ADT: 21,738 (10,869 in, 10,869 out)

While a higher mode split for transit use is likely due to the proximity of anticipated enhanced transit service under development in the Transit Master Plan. At this time, it has not been applied due to the preliminary nature of the Transit Master Plan project. With the anticipated transit service provided through changes being considered in the Transit Master Plan, a 30% mode share for transit for some aspects of the development traffic is not unreasonable.

The proposed changes to the transit system are also anticipated to increase overall transit use throughout the city, slowing down the background growth in traffic. As noted, the current analysis assumes a mode split reduction of 10%, however if the changes in the transit system increase this mode share to 15%, 20% or 30%, the reduction in existing vehicle trips entering the study intersections would be 5.6%, 11% and 22% respectively. The reductions in background vehicle trips was calculated by reducing the projected traffic by the incremental mode share expected. Adjusted background growth and site generated traffic volumes that show the effect of a potential increase in mode share are presented in Appendix C.



Table 5 provides the potential impact on total trip generation assuming modal split reductions of 15%, 20% and 30%. While significant, these values are provided for information purposes only, the traffic analysis has been performed assuming a 10% modal reduction and no reduction to background traffic.

Table 5: Effect of Further Mode Share Reductions

Mode Share Reduction	Time Period	Partial Build Out Scenario	Full Build Out Scenario
15%	AM PM ADT	452 (258 in, 194 out) 734 (323 in, 411 out) 7536 (3768 in, 3768 out)	1361 (836 in, 525 out) 1905 (833 in, 1072 out) 20530 (10265 in, 10265 out)
20%	AM PM ADT	424 (242 in, 182 out) 690 (304 in, 386 out) 7092 (3546 in, 3546 out)	1281 (787 in, 494 out) 1793 (784 in, 1009 out) 19324 (9662 in, 9662 out)
30%	AM PM ADT	372 (212 in, 160 out) 604 (266 in, 338 out) 6206 (3103 in, 3103 out)	1122 (689 in, 433 out) 1569 (686 in, 883 out) 16908 (8454 in, 8454 out)

3.2.3 Internal Capture

For a development site consisting of two or more land uses (i.e. a mixed-use development) such as MRS D, there is potential for interaction among the different land uses. A key characteristic of a mixed-use development is that trips can be made between the different land uses without using the external street system. This is referred to as internal capture. Per Chapter 6 of the ITE trip generation handbook, an internal capture rate is defined as the percentage of total person trips generated by a site that are made entirely within the site. The trip, origin, destination, and travel paths are all within the site. When internal capture is present, the result is that the total external trip generation is less than the simple sum of the trips generated by each land use.

The internal capture rates for the proposed development have been calculated using the process outlined in Chapter 6 of the ITE Trip Generation Handbook, which is consistent with the recommended procedure presented in NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* The procedure only provides internal capture rates for the following generic land use categories: office, retail, restaurant, resident, hotel, and cinema entertainment. Therefore, for the full build out scenario, which includes recreational development, a 10% internal capture rate was applied for the PM peak scenario (0% assumed in AM peak) based on engineering judgement. No internal capture was applied to the “general light industrial” land uses.

The internal capture rates used for each of the analysis scenarios are summarized in Table 6 and Table 7. Note that the internal capture rate has been applied after the 10% mode split reduction, therefore all internal trips were assumed to be vehicle trips. These trips have been included in the traffic analysis of the development site internal intersections.

Table 6: Internal Capture Rates - Partial Build Out Scenario

Generic Land Use	ITE Land Use	Internal Trip Capture Percentages			
		AM		PM	
		Entering	Exiting	Entering	Exiting
Retail	Shopping center (820)	9%	17%	3%	15%
Residential	Multi-family mid-rise (221)	3%	3%	17%	7%
Office	General office building (710)	8%	31%	51%	5%

Table 7: Internal Capture Rates - Full Build Out Scenario

Generic Land Use	ITE Land Use	Internal Trip Capture Percentages			
		AM		PM	
		Entering	Exiting	Entering	Exiting
Retail	Shopping center (820)	13%	16%	3%	15%
Residential	Multi-family mid-rise (221) Single family detached (210)	2%	2%	11%	5%
Office	General office building (710)	7%	29%	58%	5%
Recreational	Recreational community center (495) Soccer complex (488)	0%	0%	10%	10%

3.2.4 Pass-By Trips

Vehicle trips generated by a site can be separated into two major categories: pass-by trips and non-pass-by trips. Pass-by trips are defined as trips made as an intermediate trip between an origin and primary destination. Pass-by trips are attracted from existing traffic passing the site on adjacent street and do not require diversion from another roadway. Retail sites such as shopping centers, discount stores, restaurants, banks, service stations, and convenience markets can attract a portion of their trips from motorists already on the adjacent street system. Such “pass-by” trips do not add new traffic to the adjacent street system and may be reduced from the total external trips generated by a study site.

Only the commercial land uses in the proposed development are considered to attract pass-by trips. A pass-by trip percentage of 30% was applied to the trips generated from the proposed Shopping Center land areas in the PM Peak hour. This percentage was based on the fitted curve provided in *Figure E.7 Shopping Center (820)* provided in Appendix E: Database on Pass-By, Diverted, and Primary Trips of the ITE Trip Generation Handbook. The pass-by trips have been reallocated from adjacent street traffic to routes entering and exiting the shopping center locations based on engineering judgement.

The site generated trips have been split into pass-by and non-pass-by trips after the mode split reduction and internal capture reductions as recommended in Chapter 10 of the ITE Trip Generation Manual.

A summary of internal, external and pass-by trips are provided in Table 8, Table 9, Table 10, and Table 11 for the partial and full build out scenarios.



Table 8: 2025 Partial Build Out – AM Peak Trip Breakdown

AM Peak						
Generic Land Use	Entering			Exiting		
	Internal	External		Internal	External	
		Non-Pass-By	Pass-By		Non-Pass-By	Pass-By
Retail	5	49	0	5	27	0
Residential	1	50	0	4	143	0
Office	7	83	0	4	10	0
Other Land Use	0	77	0	0	12	0

Table 9: 2025 Partial Build Out – PM Peak Trip Breakdown

PM Peak						
Generic Land Use	Entering			Exiting		
	Internal	External		Internal	External	
		Non-Pass-By	Pass-By		Non-Pass-By	Pass-By
Retail	5	115	49	28	109	47
Residential	25	122	0	14	81	0
Office	8	8	0	4	82	0
Other Land Use	0	10	0	0	70	0

Table 10: 2030 Full Build Out - AM Peak Trip Breakdown

AM Peak						
Generic Land Use	Entering			Exiting		
	Internal	External		Internal	External	
		Non-Pass-By	Pass-By		Non-Pass-By	Pass-By
Retail	9	63	0	7	37	0
Residential	2	103	0	8	291	0
Office	9	110	0	6	14	0
Recreational	0	294	0	0	152	0
Other Land Use	0	295	0	0	41	0

Table 11: 2030 Full Build Out - PM Peak Trip Breakdown

PM Peak						
Generic Land Use	Entering			Exiting		
	Internal	External		Internal	External	
		Non-Pass-By	Pass-By		Non-Pass-By	Pass-By
Retail	6	154	66	38	145	62
Residential	37	264	0	52	140	0
Office	13	9	0	5	110	0
Recreational	29	265	0	32	288	0
Other Land Use	0	39	0	0	264	0



3.2.5 Directional Distribution

The directional distribution of external trips was based on new origin-destination data for the months of February, May and August 2018. This data was obtained for the Winnipeg Transit Master Plan project currently underway. The current data confirms the general pattern identified in the 2007 WATS report, but the information is provided in more detail.

The anticipated directional distribution for external trips generated (entering and exiting) by the development in the AM and PM peak periods is summarized in Table 12 below.

Table 12: Directional Distribution for External Trips

	AM		PM	
	From (Entering)	To (Exiting)	From (Entering)	To (Exiting)
Archibald St South	19.4%	13%	13.2%	20%
Marion St West	17.2%	38%	37.1%	14%
Archibald St North	9.9%	7%	5.9%	11%
Lagimodière Blvd North	22%	16%	12%	19%
Lagimodière Blvd South	9.5%	8%	9.6%	11%
Speers Rd South	9.5%	8%	9.6%	11%
Maginot St	9.5%	8%	9.6%	11%
Industrial Destinations	2%	2%	2%	2%
Small Industrial Destinations	1%	1%	1%	1%

The distribution to “industrial” and “small industrial” destinations represents the estimated percentage of trips entering and exiting the following locations within the Study Area:

- Industrial:
    - Nicolas Ave
    - Dupuy Ave
    - Dawson Rd North
    - Panet Rd North
- Small Industrial:
    - Turenne St
    - Holden St
    - Dawson Rd East (access off Lagimodière Blvd)
    - Maginot St East
    - Speers Rd North

The distribution locations listed in this section are shown on Figure 8.

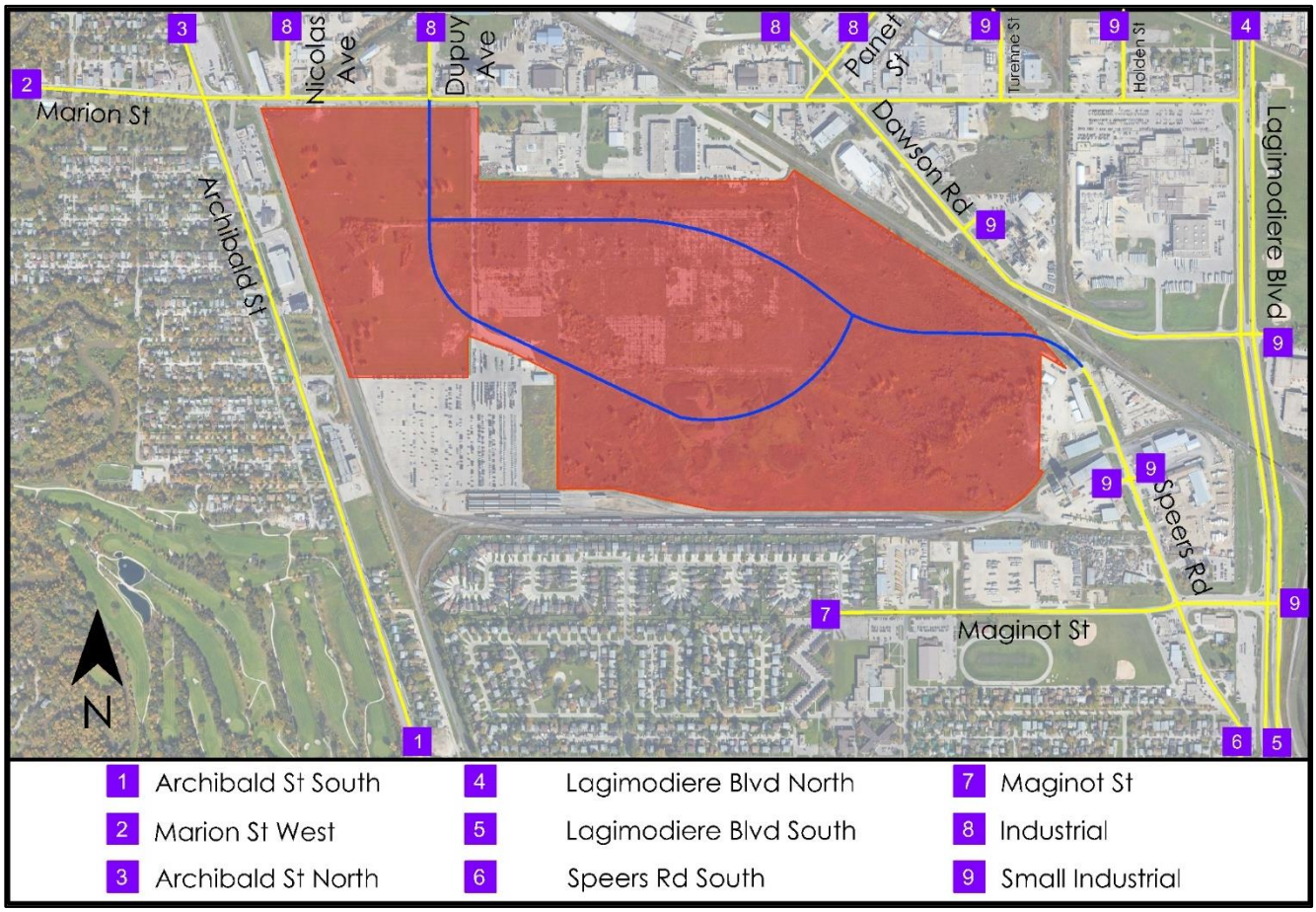


Figure 8: Distribution Locations

3.3 TOTAL FUTURE TRAFFIC

The site generated traffic volumes for the 2025 Partial Build Out Scenario and 2030 Full Build Out scenario are shown in Figure 9 and Figure 10, while the total future traffic volumes for the respective scenarios are shown in Figure 11 and Figure 12.

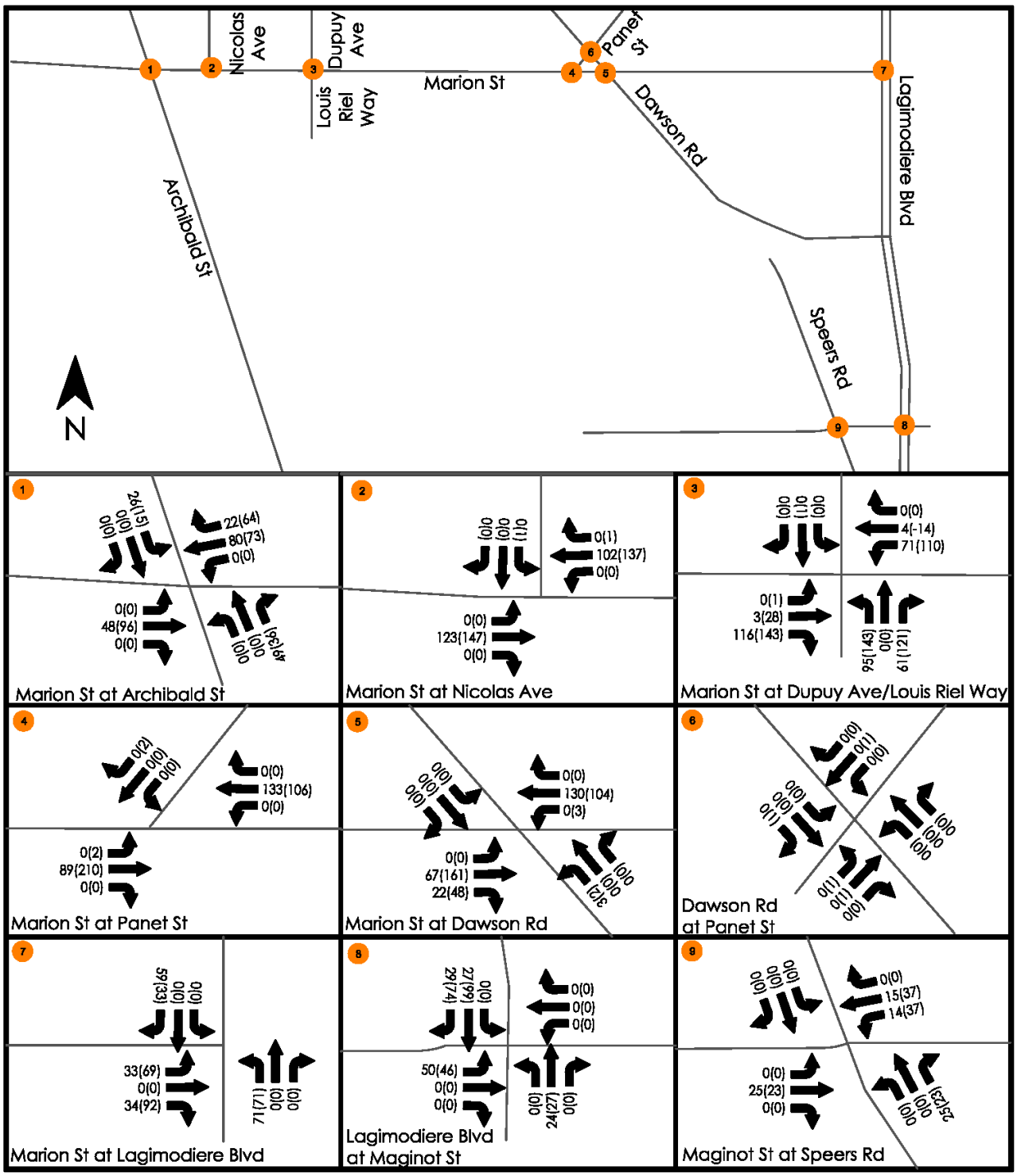


Figure 9: 2025 Partial Build Out Site Generated Traffic Volumes AM Peak (PM Peak)

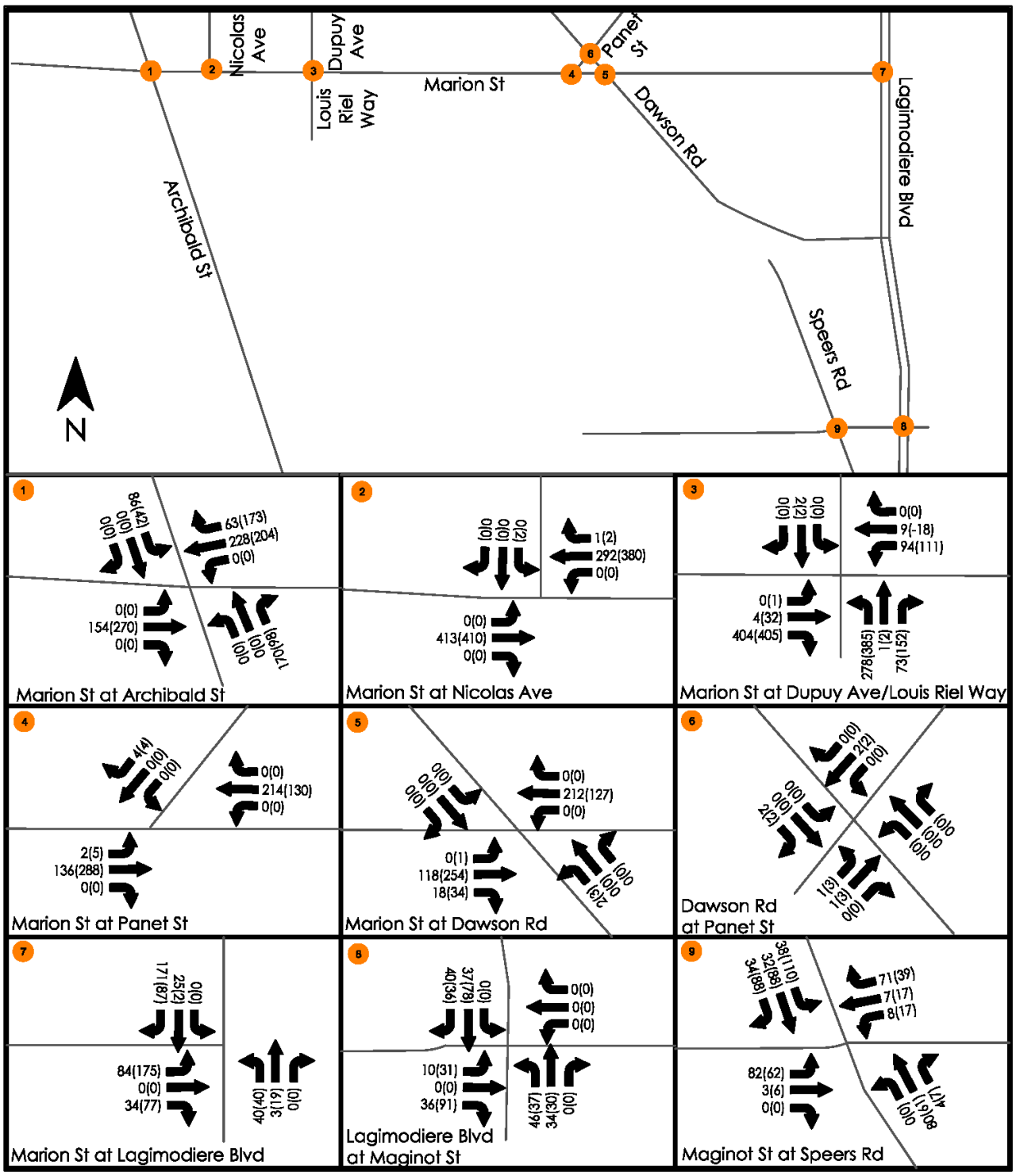


Figure 10: 2030 Full Build Out Site Generated Traffic Volumes AM Peak (PM Peak)

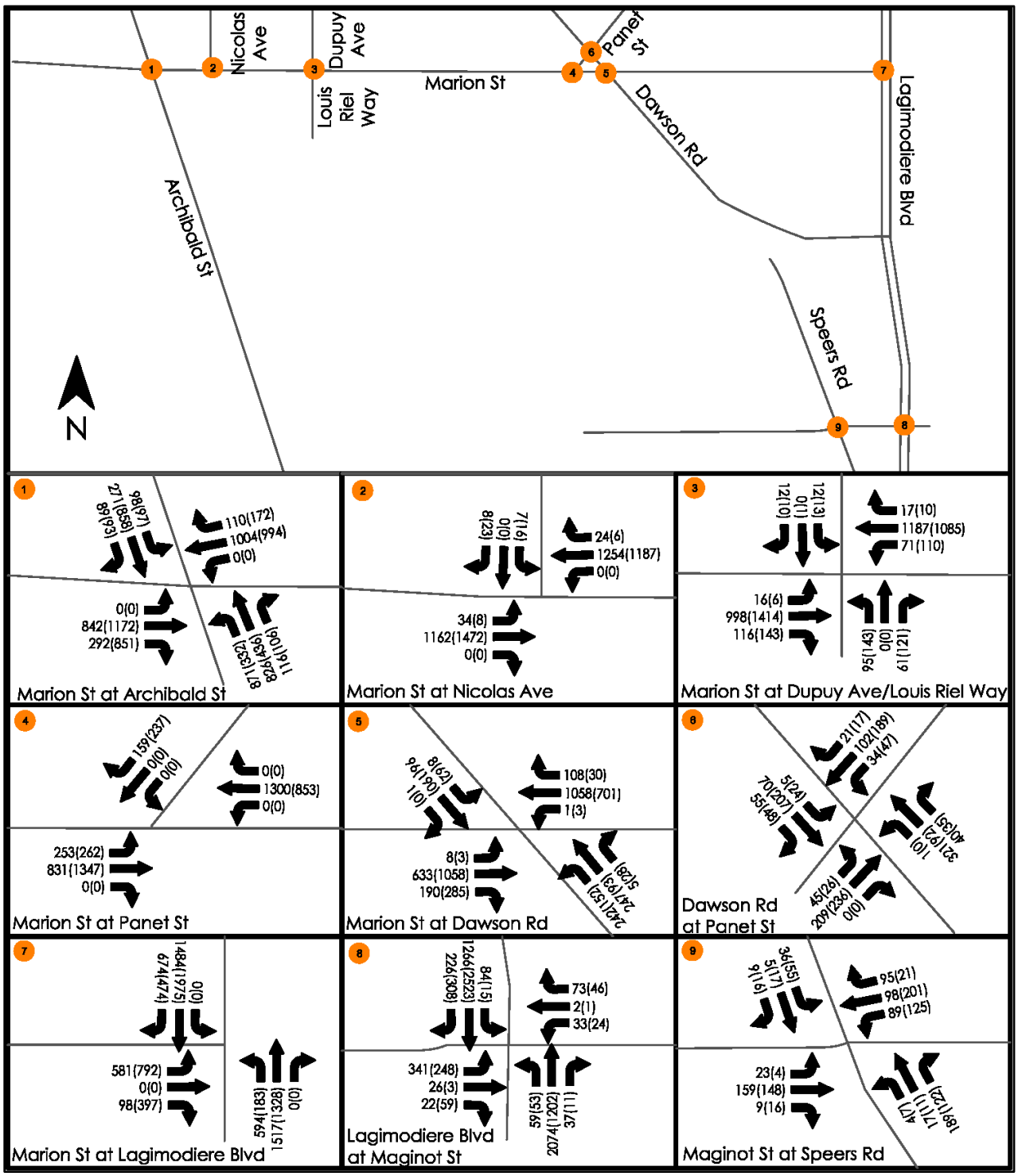


Figure 11: 2025 Partial Build Out Total Future Traffic – AM Peak (PM Peak)

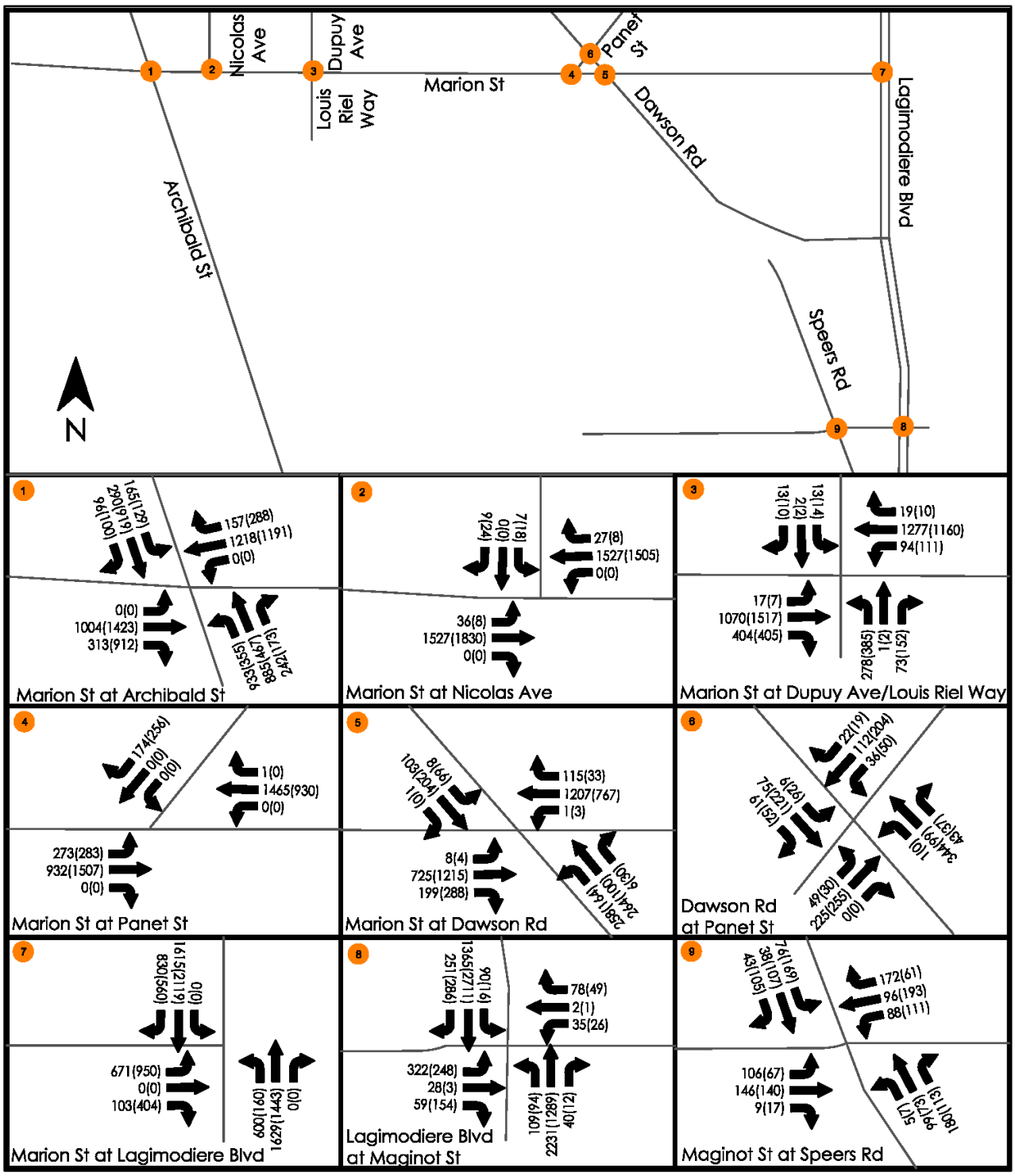


Figure 12: 2030 Full Build Out Total Future Traffic – AM Peak (PM Peak)

Table 13 and Table 14 show the site generated traffic as a percentage of the total future traffic entering each of the study intersections for the partial and full build out scenarios respectively. These percentages may be used as a basis for potential contributions towards infrastructure upgrades.

Table 13: 2025 Partial Build Out - % Site Generated Traffic

Intersection	AM			PM		
	Site Generated	Site Generated + Background Growth	% Site Generated	Site Generated Trips	Site Generated + Background Growth	% Site Generated
Marion St at Archibald St	225	4519	5%	284	5109	6%
Marion St at Nicolas Ave	225	2488	9%	286	2712	11%
Marion St at Dupuy Ave	350	2585	14%	533	3056	17%
Marion St at Panet St	222	2545	9%	320	2698	12%
Marion St at Dawson Rd	222	2597	9%	315	2606	12%
Dawson Rd at Panet St	0	902	0%	4	920	0%
Marion St at Lagimodière Blvd	197	4948	4%	265	5150	5%
Lagimodière Blvd at Maginot St	130	4242	3%	213	4493	5%
Maginot St at Speers Rd	79	732	11%	120	744	16%

Table 14: 2030 Full Build Out - % Site Generated Traffic

Intersection	AM			PM		
	Site Generated	Site Generated + Background Growth	% Site Generated	Site Generated Trips	Site Generated + Background Growth	% Site Generated
Marion St at Archibald St	703	5306	13%	787	5960	13%
Marion St at Nicolas Ave	707	3133	23%	794	3395	23%
Marion St at Dupuy Ave	865	3261	27%	1072	3777	28%
Marion St at Panet St	356	2846	13%	427	2977	14%
Marion St at Dawson Rd	350	2896	12%	419	2875	15%
Dawson Rd at Panet St	6	973	1%	10	992	1%
Marion St at Lagimodière Blvd	357	5450	7%	400	5637	7%
Lagimodière Blvd at Maginot St	203	4611	4%	303	4891	6%
Maginot St at Speers Rd	359	1059	34%	495	1164	43%

4.0 TRANSIT AND ACTIVE MODES

The transit service that currently serves the potential development site uses Marion Street (50) and Archibald Street (19, 57). The suggestion that the site be designed to generate a high transit mode share will require the establishment of quality service (frequency, reliability, routing) that penetrates the development. Potential changes could include routing the 50 route through the development. Assuming that was the case, a portion of Marion Street served by the current 50 route, would need to be served by another route (the 49, for example). (Figure 13)

Establishing bus stops within the development will require further discussion with transit and will be influenced by the recommendations being developed for the upcoming Transit Master Plan project.

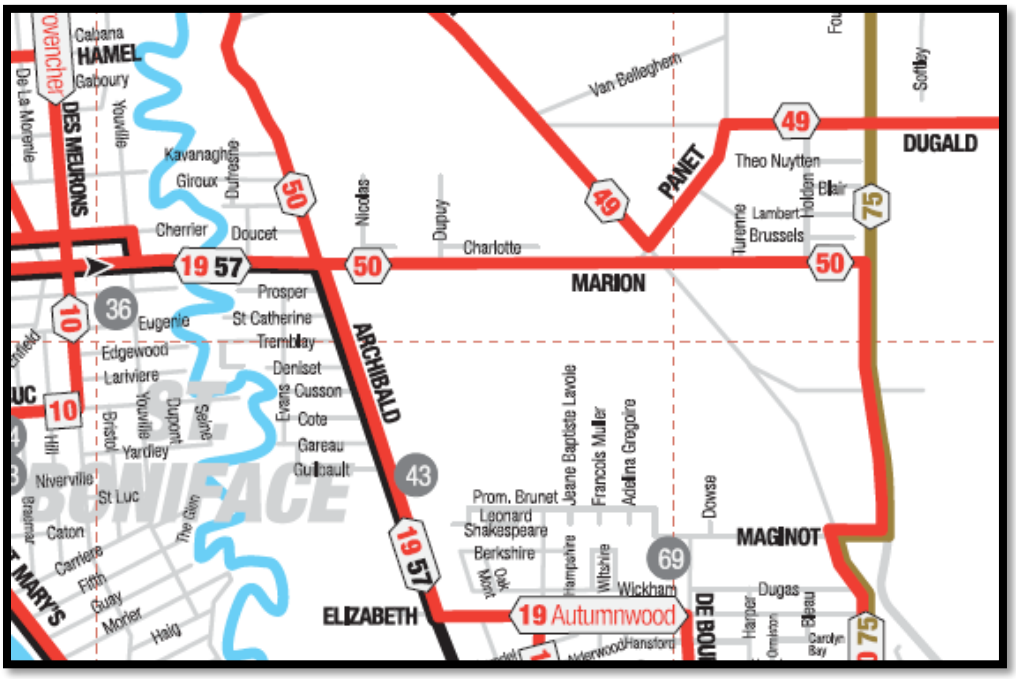


Figure 13: Current Transit Routes

The overall transit mode share for adjacent neighborhoods will be influenced by system changes being developed in the Transit Master Plan. Positive increases in transit mode share will result in less vehicular capacity pressure on the roads and intersections in the development study area. The analysis done assumes a mode share of 10%. The impact to background and generated volumes based on increases in transit modes shares of 15, 20 and 30% are shown in Appendix C. Target transit mode shares range from 20 to 30% for high density transit orientated developments.

A park-and-ride facility has been suggested for this site. A successful implementation of a Park and Ride facility could become a catalyst for a larger modal split. This has not been investigated in this study because of the unknowns associated with this scenario, but it is anticipated that demand could be in the range of 100 to 200 parking stalls, attracting trips from both north and south of the development.

As previously noted, existing active transportation infrastructure in this area consists of a multi-use path along Archibald St ending 750 m south of the intersection at Marion St. A neighborhood greenway through St. Boniface, which uses the Tremblay Pedestrian and Cycling Bridge to cross the Seine River, provides access to downtown. Additional infrastructure along Archibald St (painted bike lanes), Lagimodière Blvd (off-street pathway) and Dawson Rd (painted bike lanes) is recommended in the City of Winnipeg's 2015 Pedestrian and Cycling Strategy Report. This infrastructure would improve the connections from the proposed development to the downtown and other key regional centres, thus promoting the use of active transportation modes. The current and proposed active transportation infrastructure in the area surrounding the proposed development are shown in Figure 14 and Figure 15 below.

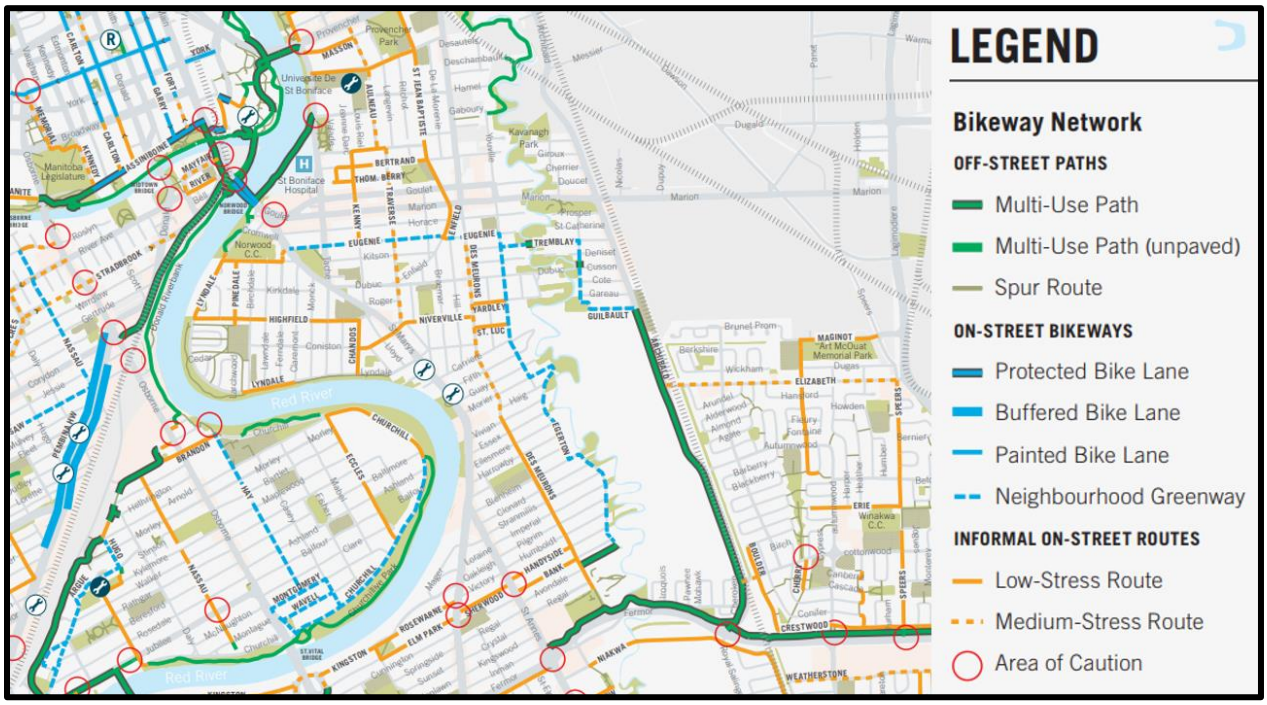


Figure 14: Existing Bike Network (Excerpt from City of Winnipeg Cycling Map)

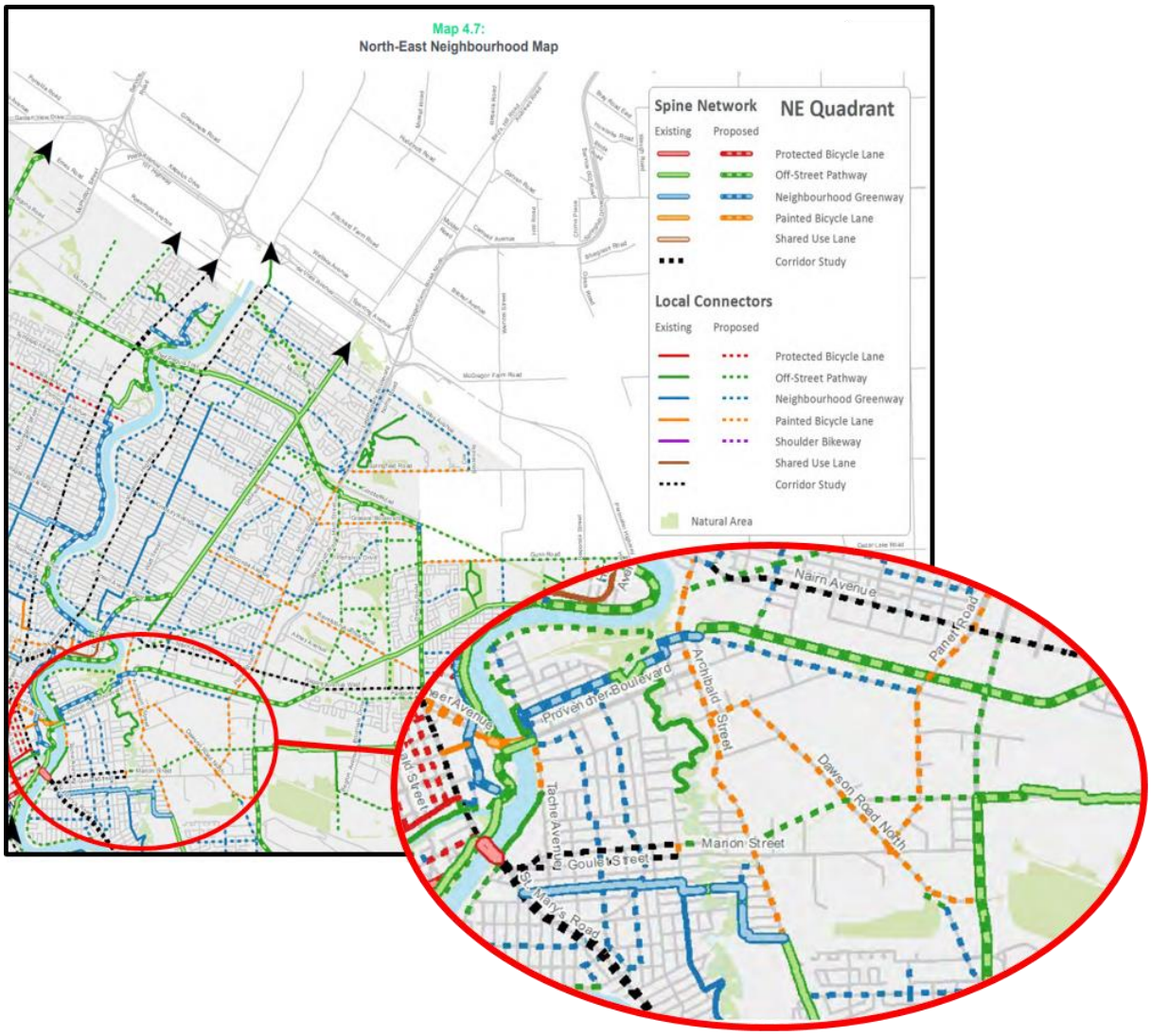


Figure 15: Existing and Proposed Bike Infrastructure (excerpt from Winnipeg Pedestrian and Cycling Strategy)

5.0 TRAFFIC ANALYSIS

Peak hour traffic operations analyses are presented for AM and PM peak hour conditions based on the 10% transit mode share scenario at each of the study intersections. It should be noted that, as per the previous analysis, the 10 % mode share is quite conservative and could be up to 30%. A higher transit mode share would result in better operating performance for all the analyzed intersections.

Analysis was completed using *PTV Vistro Version 7,* a complete traffic analysis and signal optimization software. More information on performance measures is included in Appendix A. Vistro reports from the analyses are included in Appendix D.

The following assumptions were used in the analysis:

- Critical intersection movements were defined as movements with a Level of service (LOS) of D or better.
- Traffic signal timing for the existing conditions (2019) scenarios are based signal timing charts obtained from the City of Winnipeg on June 7, 2019.
- Vistro optimized signal timing conditions are used for the 2025 and 2030 background growth scenarios.
- PHF and heavy vehicle percentages were set as discussed in Section 3.1.1
- Other scenario specific assumptions are noted in the report where necessary.

5.1 MARION STREET AT ARCHIBALD STREET

5.1.1 Existing Conditions and Background Growth Scenarios

The traffic volumes and operating conditions at the intersection of Marion and Archibald for the existing conditions (2019), 2025 background growth and 2030 background growth scenarios for both the AM and PM peak periods are shown in the figures and tables below.

2019 Existing Conditions

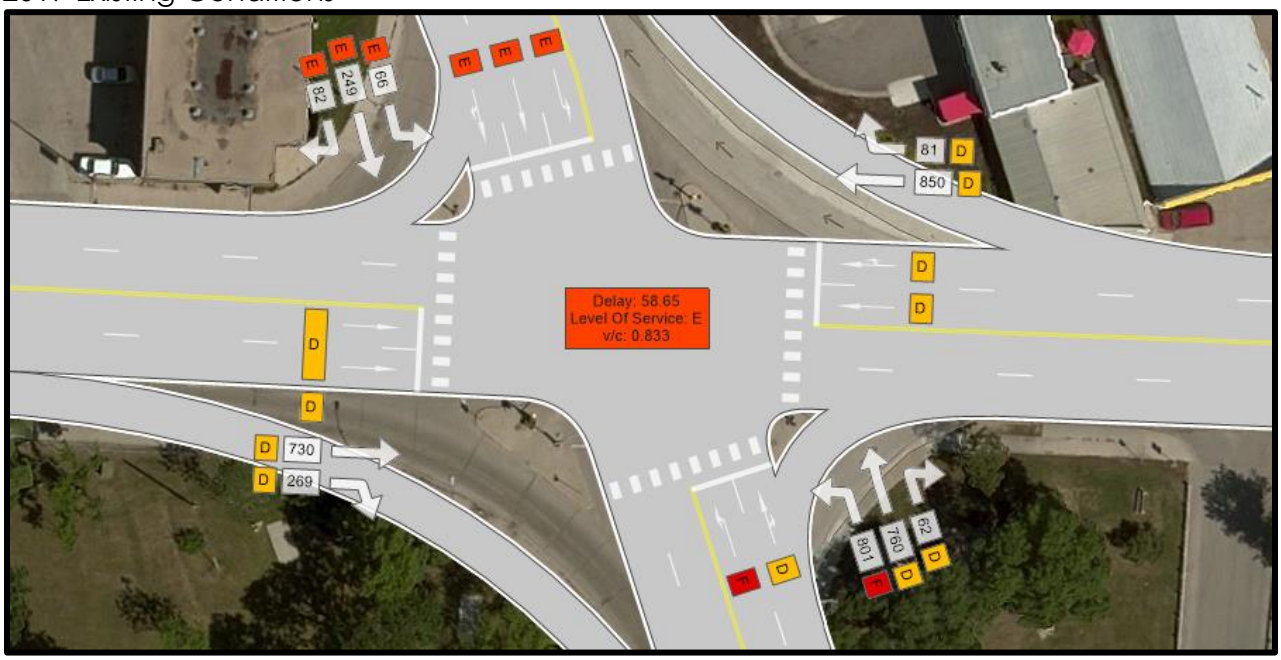


Figure 16: Marion St at Archibald St - 2019 AM Background

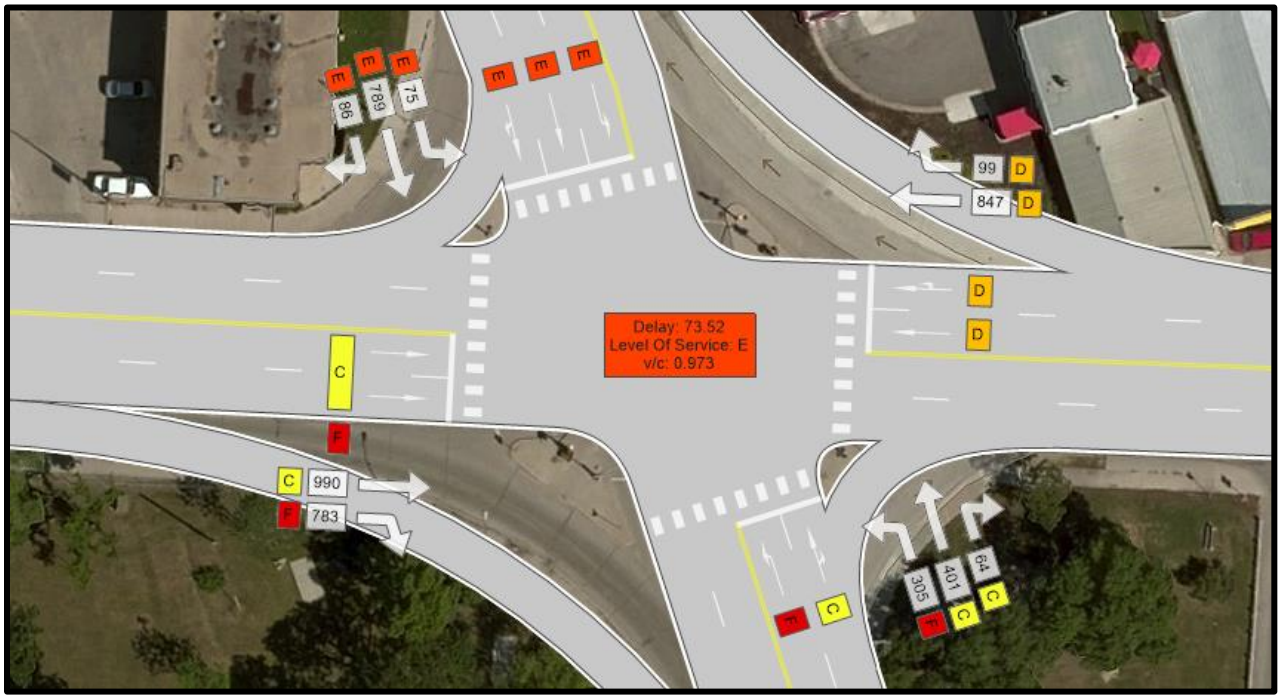


Figure 17: Marion St at Archibald St - 2019 PM Background

Table 15: Existing conditions (2019) Traffic Analysis at Marion St at Archibald St

Movement	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	104.18	1.11	F	99.75	1.06
NBT	D	54.09	0.97	C	33.40	0.71
NBR	D	54.09		C	33.40	
SBL	E	70.11	0.78	E	37.60	0.78
SBT	E	66.34	0.81	E	60.66	0.93
SBR	E	68.81		E	60.93	
EBT	D	35.63	0.63	C	34.96	0.76
EBR	D	35.04	0.52	F	196.45	1.33
WBT	D	44.50	0.79	D	35.70	0.69
WBR	D	45.44		D	36.41	
Intersection	**E**	**58.65**	**0.833**	**E**	**73.52**	**0.973**

2025 Background Growth

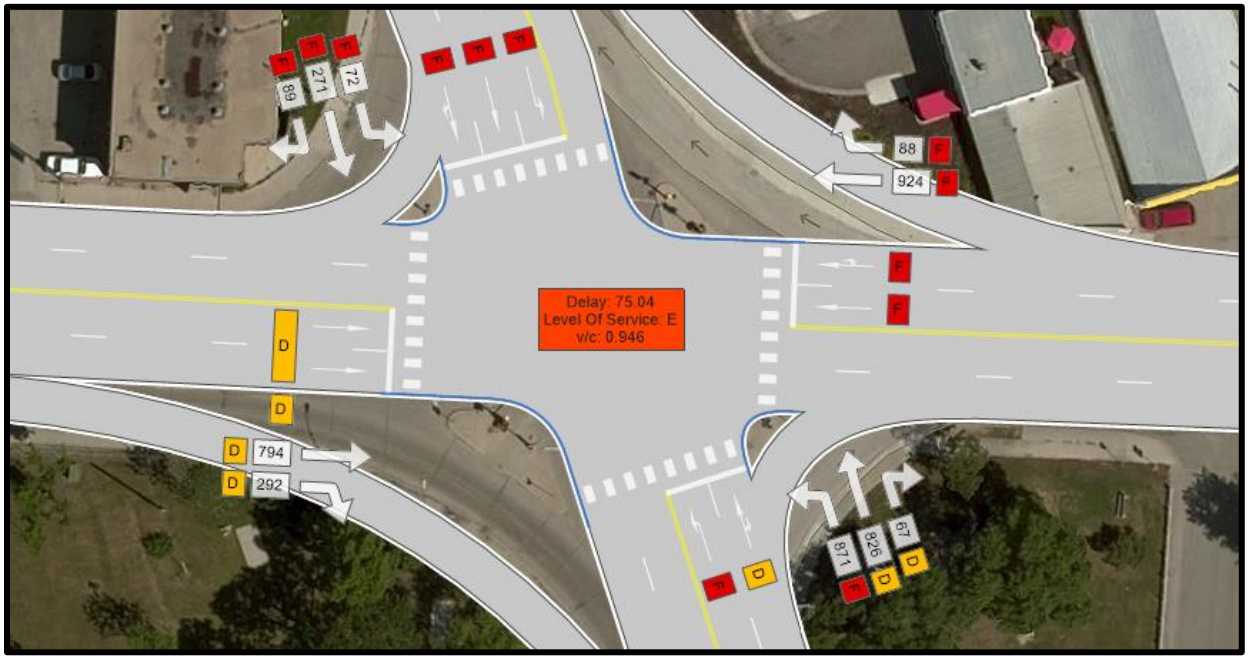


Figure 18: Marion St at Archibald St - 2025 AM Background

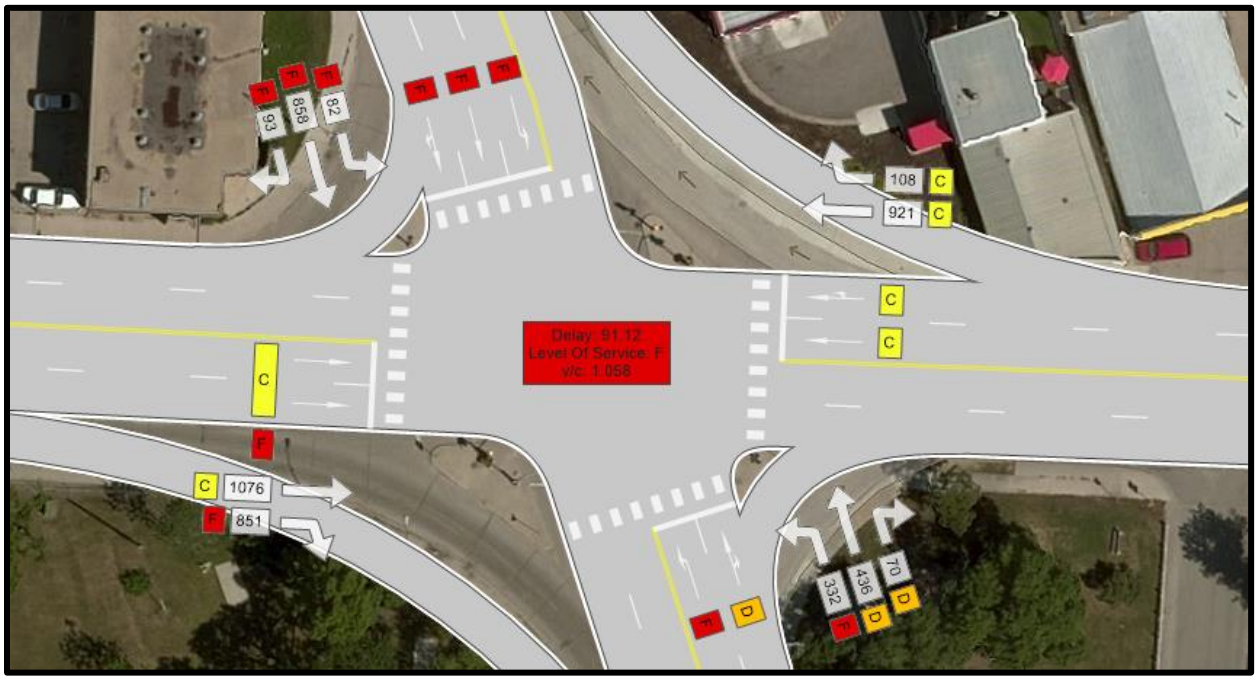


Figure 19: Marion St at Archibald St - 2025 PM Background

Table 16: 2025 Background Growth Traffic Analysis at Marion St at Archibald St

Movement	AM Peak			PM Peak		
	LOS	Delay	V/C	LOS	Delay	v/c
NBL	F	105.53	1.13	F	158.33	1.17
NBT	D	54.59	0.99	D	55.35	0.87
NBR	D	54.59		D	55.35	
SBL	F	87.45	0.8	F	88.32	0.90
SBT	F	89.30	0.96	F	157.23	1.18
SBR	F	94.62		F	157.78	
EBT	D	47.96	0.86	C	32.51	0.71
EBR	D	45.56	0.70	F	158.26	1.24
WBT	F	89.71	1.08	C	32.76	0.64
WBR	F	94.91		C	33.31	
Intersection	**E**	**75.04**	**0.946**	**F**	**91.12**	**1.058**



2030 Background Growth

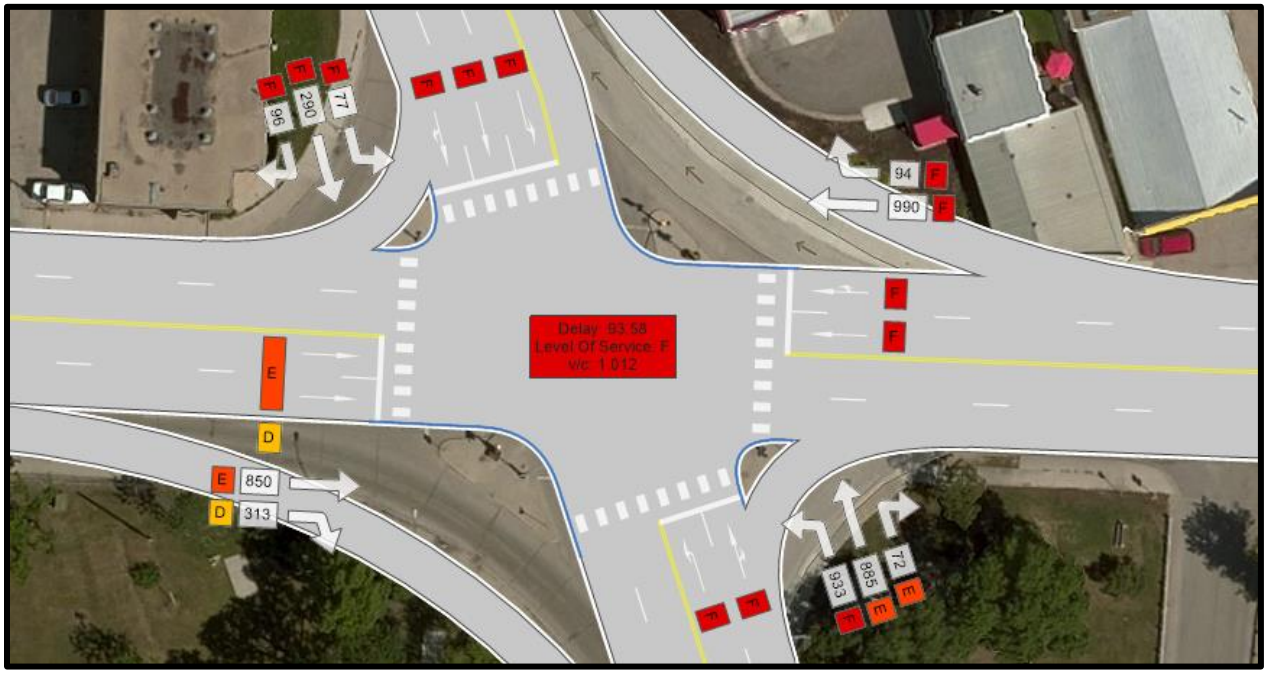


Figure 20: Marion St at Archibald St - 2030 AM Background

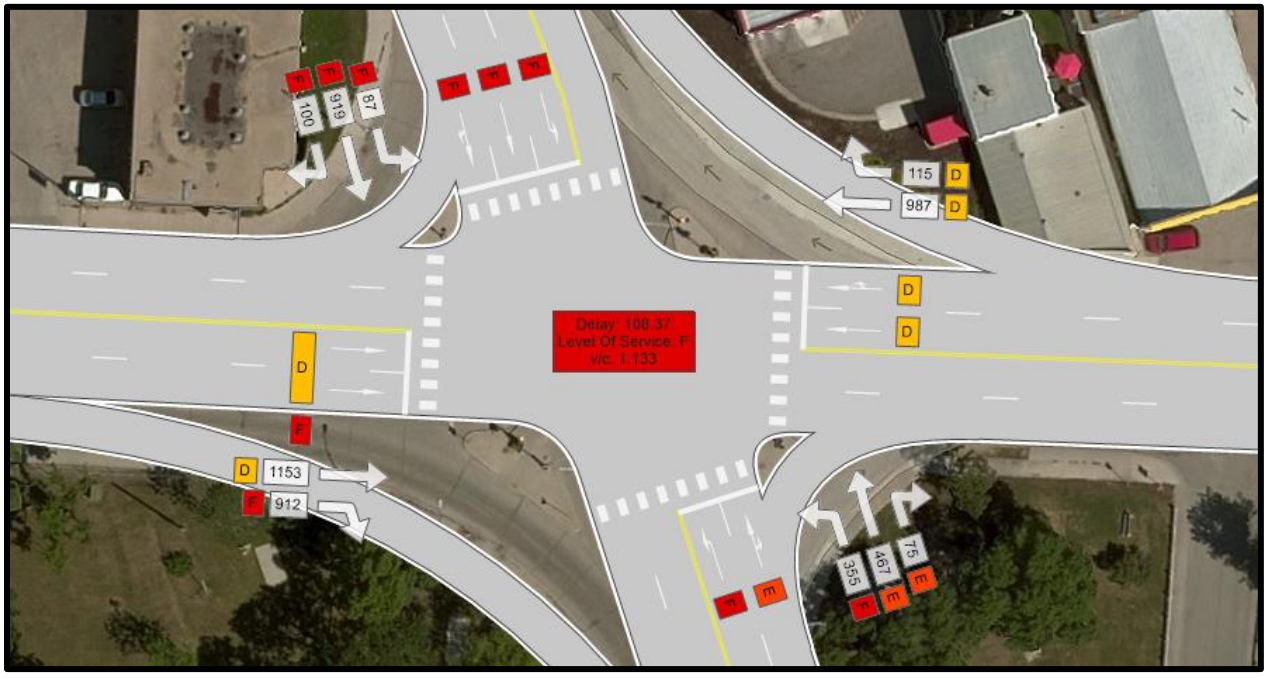


Figure 21: Marion St at Archibald St - 2030 PM Background

Table 17: 2030 Background Growth Traffic Analysis at Marion St at Archibald St

Movement	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	129.57	1.18	F	192.89	1.24
NBT	E	68.01	1.03	E	63.89	0.92
NBR	E	68.01		E	63.86	
SBL	F	112.00	1.00	F	94.00	0.91
SBT	F	101.34	1.05	F	185.22	1.25
SBR	F	107.39		F	186.07	
EBT	E	59.12	0.89	D	36.15	0.75
EBR	D	54.23	0.73	F	195.64	1.33
WBT	F	118.40	1.08	D	36.32	0.71
WBR	F	125.04		D	37.02	
Intersection	**F**	**93.58**	**1.012**	**F**	**108.37**	**1.133**

The analysis shows that the intersection is currently operating at capacity in both the AM and PM peak periods. Thru movements on Marion operate with reasonable delays however the north-south cross street traffic (Archibald St) has both turning and thru movements experiencing excessive delays. With the anticipated background growth, delays for thru traffic along Marion are increased to unacceptable levels in the AM by 2025, while delays for Archibald deteriorate further. The overall result is an expected LOS F at the intersection level in both the AM and PM peak periods by 2030.

5.1.2 Mitigation Scenarios for Background Growth

The development of standard mitigation treatments (typical lane additions) for both 2025 and 2030 background growth scenarios have been analyzed. These treatments are presented as one possible solution to address the current infrastructure requirements based on the current mode share and growth rates.

Our understanding is the City of Winnipeg is aware of the operational concerns along the Archibald, Marion and Lagimodière corridors and are in the process of developing appropriate infrastructure improvements, including investigating transit improvements to increase mode share. The infrastructure improvements suggested for intersections external to the development (Marion & Archibald, Marion & Lagimodière, Lagimodière & Maginot) are to be considered one potential option and there is no suggestion that the developer be responsible to implement or contribute directly to the implementation of these improvements.

The 2030 mitigation treatments are based on the assumption that all 2025 mitigation measures are implemented (i.e. they are incremental measures). A general assumption has been made that improvements to a single approach would be made at one time, therefore mitigation measures have been examined approach by approach when considering what improvements are required by 2025 and which are required by 2030.



2025 Mitigation Scenario

Treatments that result in in an acceptable level of service for the 2025 background growth scenario (Mitigation 1) are identified below:

- Add a second EB right-turn lane, having a storage length of 100 m
- Introduce overlap control for EB right-turn corresponding to northbound left turn movement
- Add two exclusive NB left-turn lanes while converting the existing left-turn lane to a through lane (resulting in a total of two NB left-turn lanes, one through lane, and one shared through/right-turn lane)
- Increase NB left-turn lane storage to 150 m

2030 Mitigation Scenario

Additional treatments required to provide an acceptable level of service for the 2030 background growth scenario (Mitigation 2) are identified below:

- Add an exclusive SB right-turn lane with 100 m of storage
- Increase storage for existing SB left-turn lane to 100 m

Figure 22 shows the proposed intersection configuration for Marion St and Archibald St comprising all mitigation measures (mitigation 1 and 2).



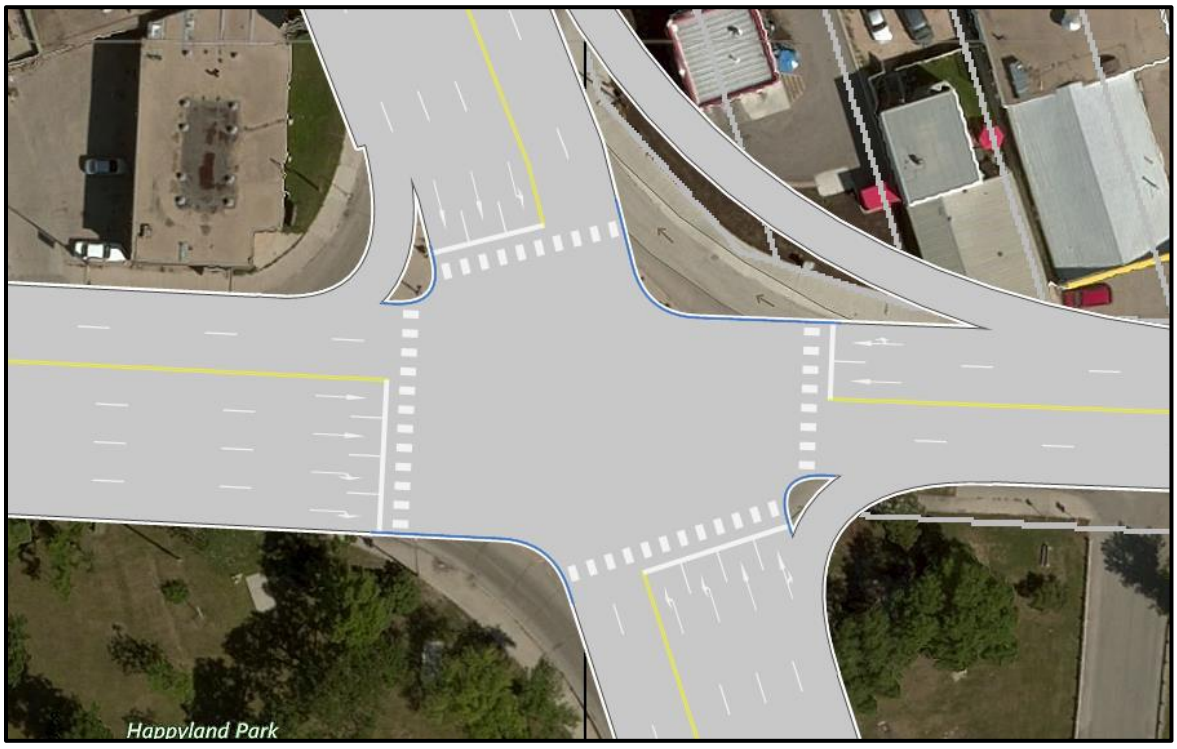


Figure 22: Marion St and Archibald St – Intersection Configuration with Mitigation Measures

Table 18 summarizes the operating conditions at the intersection with the proposed mitigation measures in place.

Table 18: Analysis of Mitigation Measures at Marion St and Archibald St

	AM Peak						PM Peak					
	2025 Background with Mitigation 1			2030 Background with Mitigation 1 & 2			2025 Background with Mitigation 1			2030 Background with Mitigation 1 & 2		
Movement	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
NBL	C	31.37	0.92	C	31.38	0.94	C	20.31	0.37	D	40.61	0.89
NBT	C	22.29	0.70	C	24.27	0.77	A	9.09	0.28	C	21.38	0.48
NBR	C	22.74		C	25.00		A	9.10		C	21.40	
SBL	D	47.37	0.75	D	47.34	0.77	D	40.46	0.74	D	45.26	0.48
SBT	D	37.57	0.78	D	36.08	0.73	C	28.36	0.87	D	35.66	0.76
SBR	D	38.54		D	35.28	0.54	C	28.50		C	22.07	0.97
EBT	C	24.42	0.68	C	25.21	0.72	C	20.90	0.84	D	44.06	0.97
EBR	A	3.60	0.16	A	3.14	0.16	B	13.10	0.64	B	12.17	0.62
WBT	C	33.88	0.94	D	37.72	0.89	C	22.31	0.80	D	41.51	0.92
WBR	D	36.15		D	41.03		C	23.02		D	44.09	
Intersection	**C**	**28.04**	**0.690**	**C**	**29.45**	**0.708**	**C**	**20.37**	**0.711**	**C**	**33.44**	**0.741**

The mitigation treatments proposed for 2025 result in the average delay at the intersection improving from approximately 75 seconds to 28 seconds in the AM Peak and 91 seconds to 20 seconds in the PM. The

additional improvements in 2030 result in the average delay being maintained at an acceptable level, 29 seconds in the AM Peak and 33 seconds in the PM.

5.1.3 Post-Development Scenarios

The traffic volumes and operating conditions at the intersection of Marion and Archibald for 2025 partial build out and 2030 full build out scenarios with the proposed mitigation measures to address 2025 and 2030 background growth are shown in the figures and tables below.

2025 Background + Partial Build Out

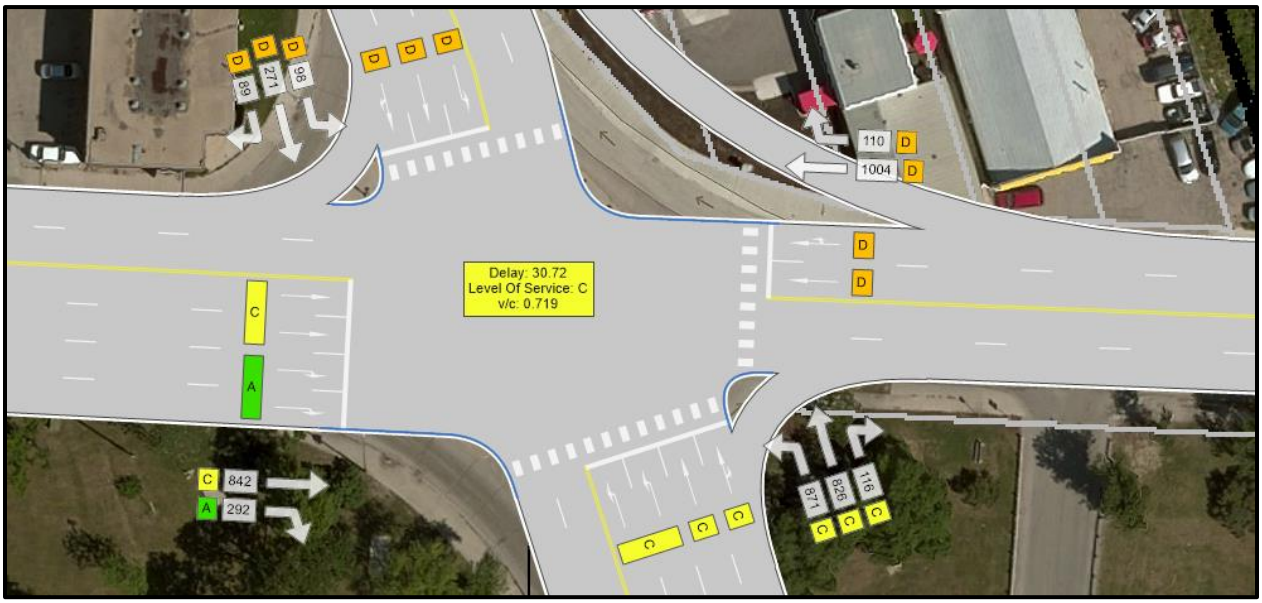


Figure 23: Marion St at Archibald St – 2025 AM – Partial Build-Out with Mitigation Measures

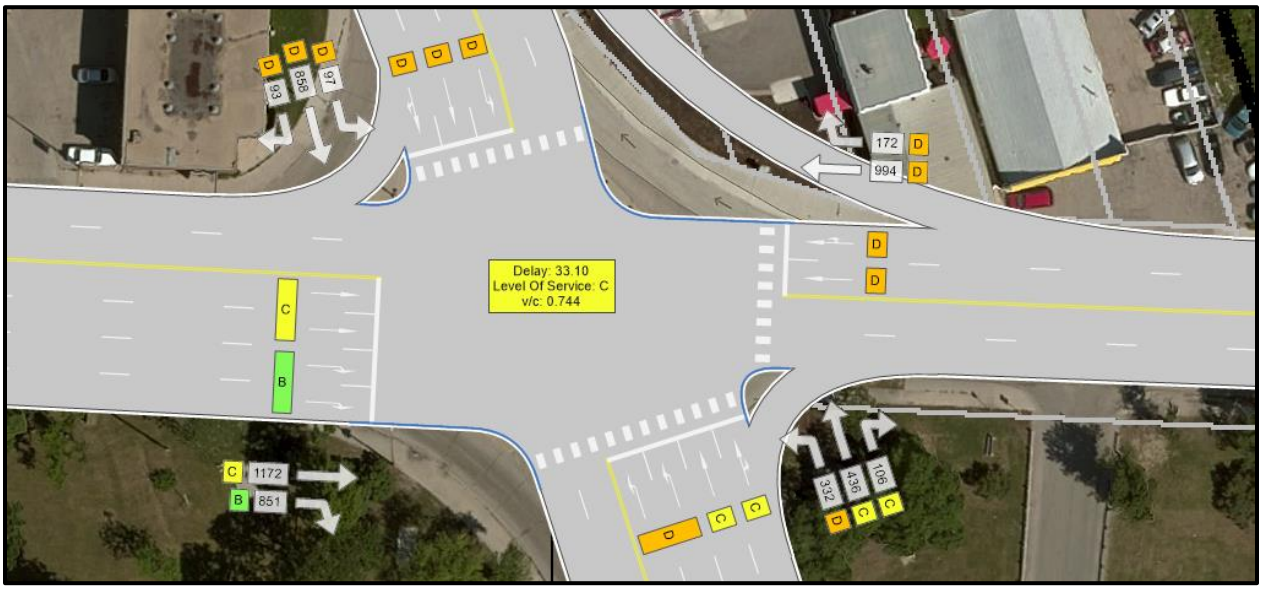


Figure 24: Marion St at Archibald St – 2025 PM – Partial Build-Out with Mitigation Measures

Table 19: 2025 Partial Build Out with Mitigation Measures Traffic Analysis at Marion St and Archibald St

Movement	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
NBL	C	34.05	0.95	D	45.03	0.93
NBT	C	26.67	0.84	C	21.74	0.49
NBR	C	28.42		C	21.77	
SBL	D	43.65	0.60	D	44.69	0.76
SBT	D	37.92	0.68	D	43.19	0.94
SBR	D	33.85		D	43.50	
EBT	C	24.20	0.73	C	34.96	0.92
EBR	A	3.52	0.16	B	11.68	0.58
WBT	D	37.32	0.96	D	38.99	0.92
WBR	D	41.18		D	42.61	
Intersection	**C**	**30.72**	**0.719**	**C**	**33.10**	**0.744**

2030 Background + Full Build Out

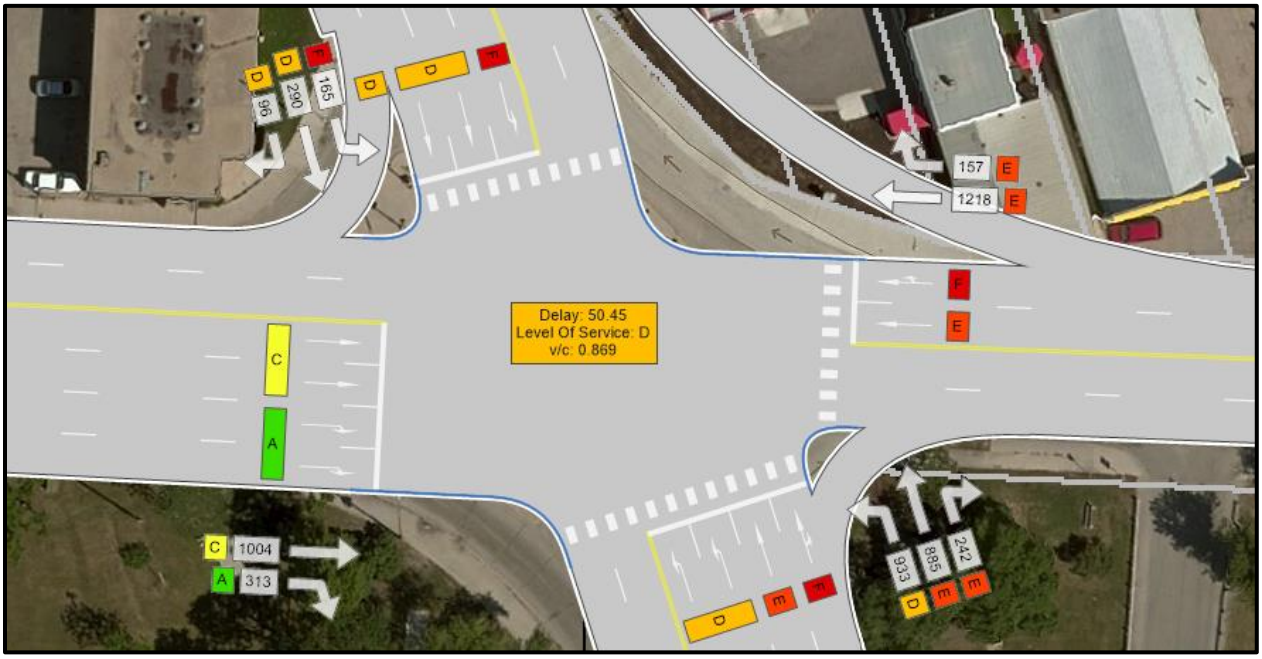


Figure 25: Marion St at Archibald St – 2030 AM – Full Build-Out with Mitigation Measures

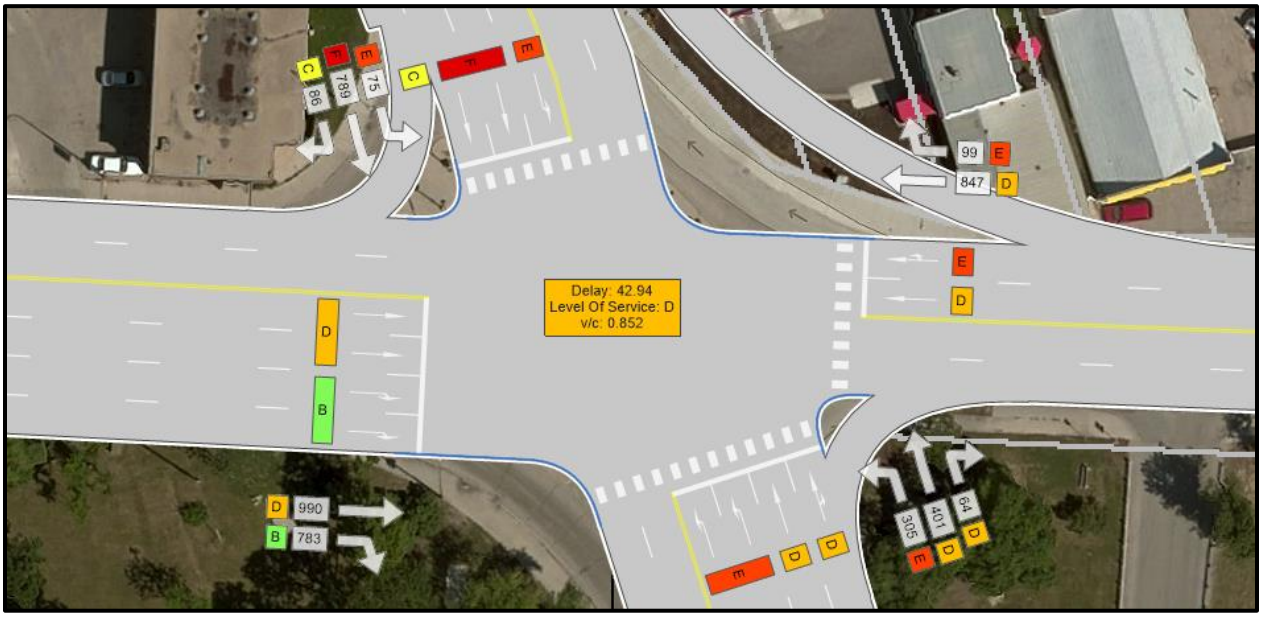


Figure 26: Marion St at Archibald St – 2030 PM – Full Build-Out with Mitigation Measures

Table 20: 2030 Full Build Out with Mitigation Measures at Marion St and Archibald St

Movement	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
NBL	D	39.27	0.95	E	59.31	0.94
NBT	E	64.71	1.04	D	36.36	0.66
NBR	E	78.35		D	36.55	
SBL	F	77.59	1.01	E	58.37	0.82
SBT	D	43.12	0.67	F	61.56	1.03
SBR	D	42.24	0.50	C	31.53	0.25
EBT	C	29.94	0.77	D	39.53	0.94
EBR	A	3.34	0.16	B	12.22	0.56
WBT	E	67.77	1.04	D	50.27	0.99
WBR	E	74.30		E	58.78	
Intersection	**D**	**50.45**	**0.869**	**D**	**42.94**	**0.852**

The analysis of the partial and full build out scenarios show that with the proposed mitigation measures in place, the intersection is still expected to operate at a level of service that is improved from what is currently experienced.

For the 2025 partial build out scenario, when development traffic is added to the improved intersection, the average intersection delay increases to 31 seconds in the AM Peak (from 28 seconds for background growth only) and to 33 seconds in the PM Peak (from 20 seconds for background growth only). For the 2030 scenario the development traffic is more significant and increases the average intersection delay to 54 seconds in the AM Peak and 42 seconds in the PM Peak, as compared to 39 seconds and 33 seconds in the AM and PM Peak 2030 background growth scenarios respectively. (The current conditions have an AM intersection delay of 59 seconds and a PM delay of 74 seconds.) It should be noted that for the 2030 full build out scenario, even with the mitigation measures in place, several movements are still critical. In particular delay becomes significant for the NB/SB movements once again. However, the priority street at this intersection is Marion, therefore this delay is considered acceptable. Thus, no further mitigation measures are recommended at this intersection to accommodate development traffic. It does show that improvements to Transit service are critical to help reduce the reliance on vehicle trips.

5.1.4 Marion St and Archibald St Summary

A summary of the intersection level results for each of the analysis scenarios is presented in Table 21 on the following page.



Table 21: Marion St and Archibald St - Summary of Analysis Scenarios

	AM Peak			PM Peak		
Scenario	LOS	Delay	v/c	LOS	Delay	v/c
2019 BG (Existing)	E	58.65	0.833	E	73.52	0.973
2025 BG	E	75.04	0.946	F	91.12	1.058
2025 BG – Mitigated	C	28.04	0.690	C	20.37	0.711
2025 Partial Build Out - Unmitigated	F	89.21	0.977	F	87.18	1.061
2025 Partial Build Out - Mitigated	C	30.72	0.719	C	33.10	0.744
2030 BG	F	93.58	1.012	F	108.37	1.133
2030 BG – Mitigated	C	29.45	0.708	C	33.44	0.741
2030 Full Build Out - Unmitigated	F	154.29	1.196	F	113.47	1.142
2030 Full Build Out - Mitigated	D	50.45	0.869	D	42.94	0.852

The table above shows that given the poor level of service currently provided at this intersection, if the recommended mitigation measures were put in place, the level of service could be improved from existing conditions even with full development traffic.

5.2 INTERSECTIONS OF MARION STREET, DAWSON ROAD AND PANET ROAD

5.2.1 Existing Conditions and Background Growth Scenarios

The traffic volumes and operating conditions at the intersection of Marion St & Panet St, and Marion St & Dawson Rd and Dawson Rd & Panet for the existing conditions (2019), 2025 background growth and 2030 background growth scenarios for both the AM and PM peak periods are shown in the figures below. Detailed operating conditions by movement have only been provided for the intersection of Marion St and Dawson Rd as this intersection accommodates the highest traffic volumes and is expected to be the most impacted by the new development.



Existing Conditions (2019)

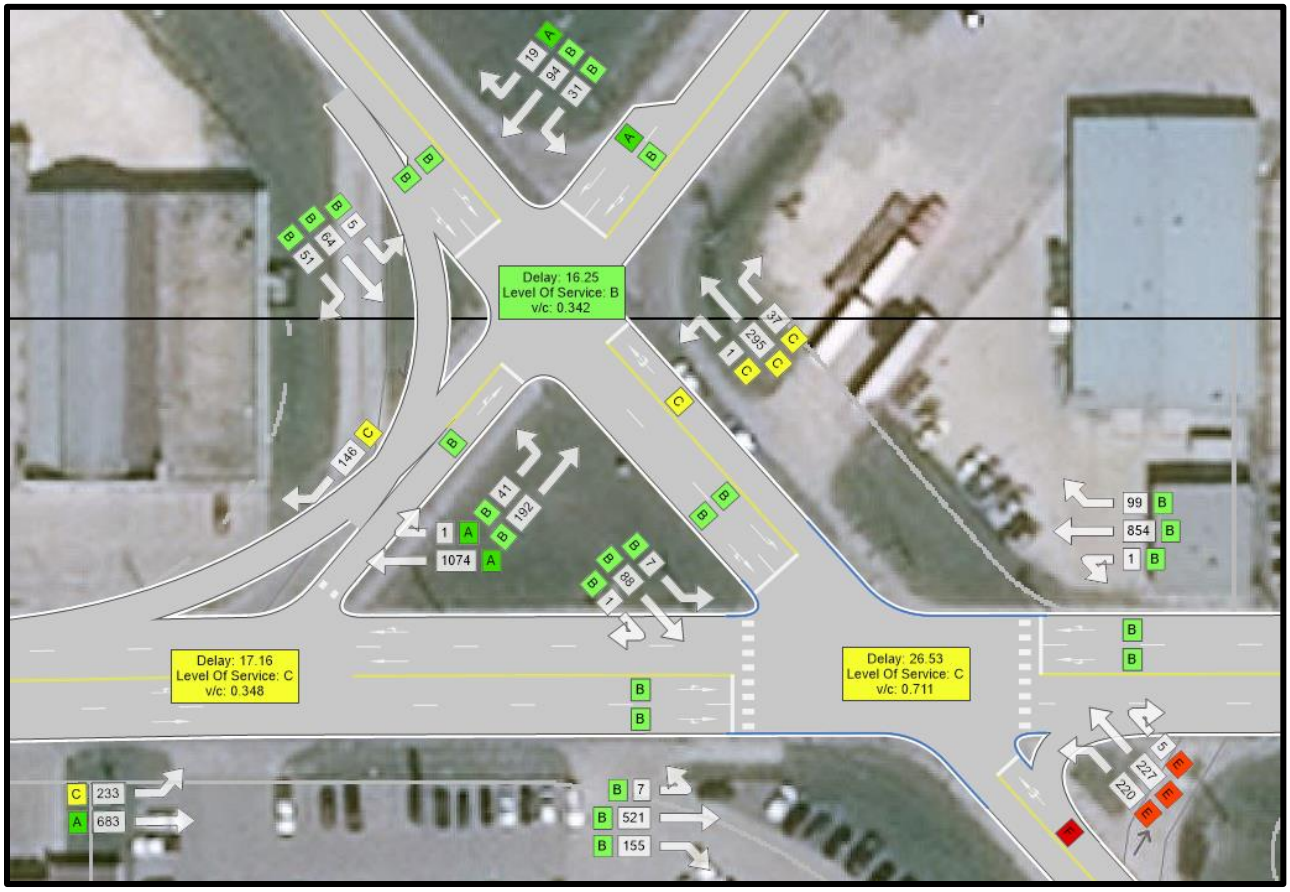


Figure 27: Marion St / Panet St / Dawson Rd – 2019 AM Background

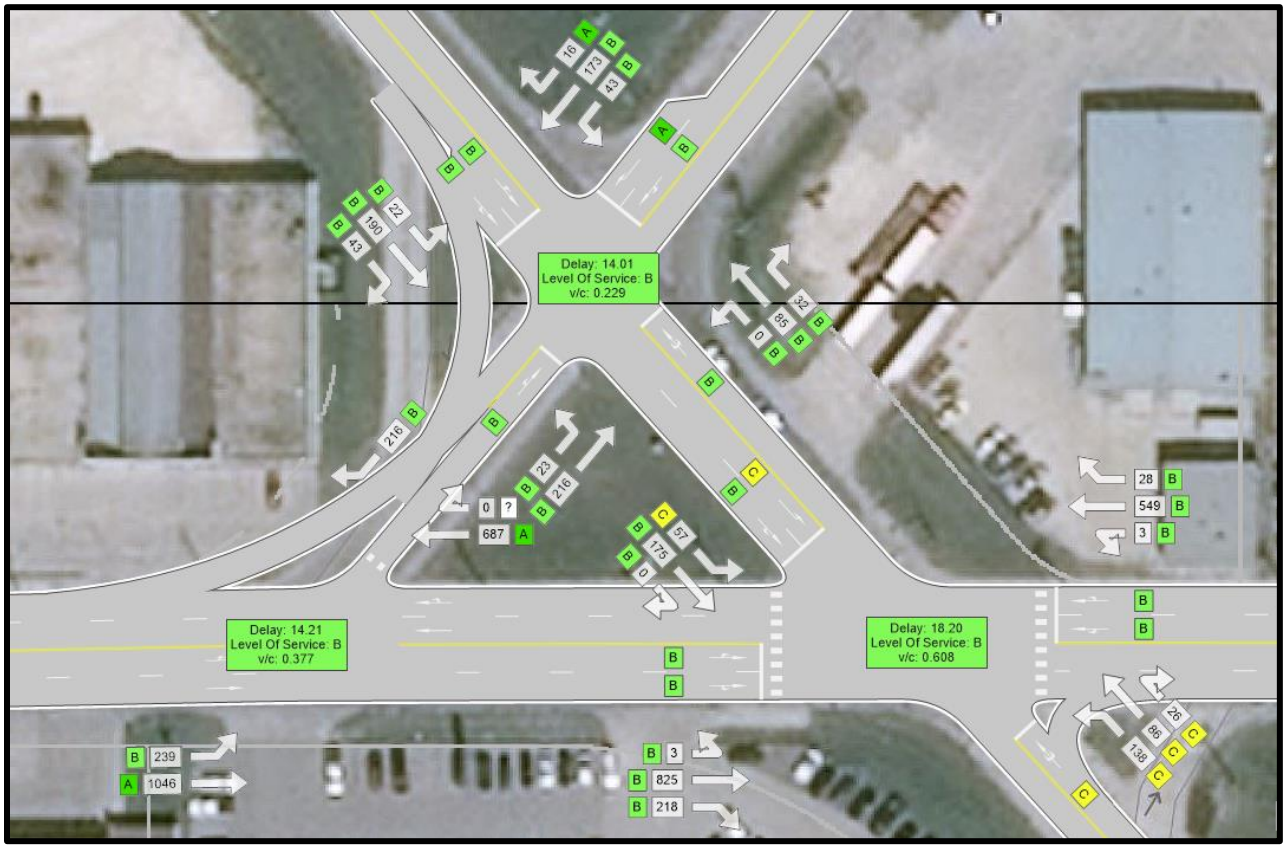


Figure 28: Marion St / Panet St / Dawson Rd – 2019 PM Background

Table 22: 2019 Existing Conditions Traffic Analysis at Marion St and Dawson Rd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
EBL	B	13.39		B	17.27	
EBT	B	13.59	14.04	B	17.78	0.69
EBR	B	14.04		B	18.89	
WBL	B	15.88		B	12.33	
WBT	B	16.29	0.62	B	12.47	0.37
WBR	B	16.89		B	12.64	
NWBL	E	69.52		C	30.73	
NWBT	E	69.52	1.01	C	30.73	0.65
NWBR	E	69.52		C	30.73	
SEBL	B	16.83	0.08	C	25.11	0.42
SEBT	B	16.80	0.18	B	18.20	0.31
SEBR	B	168.80		B	18.20	
Intersection	**C**	**26.53**	**0.711**	**B**	**18.20**	**0.608**

2025 Background Growth

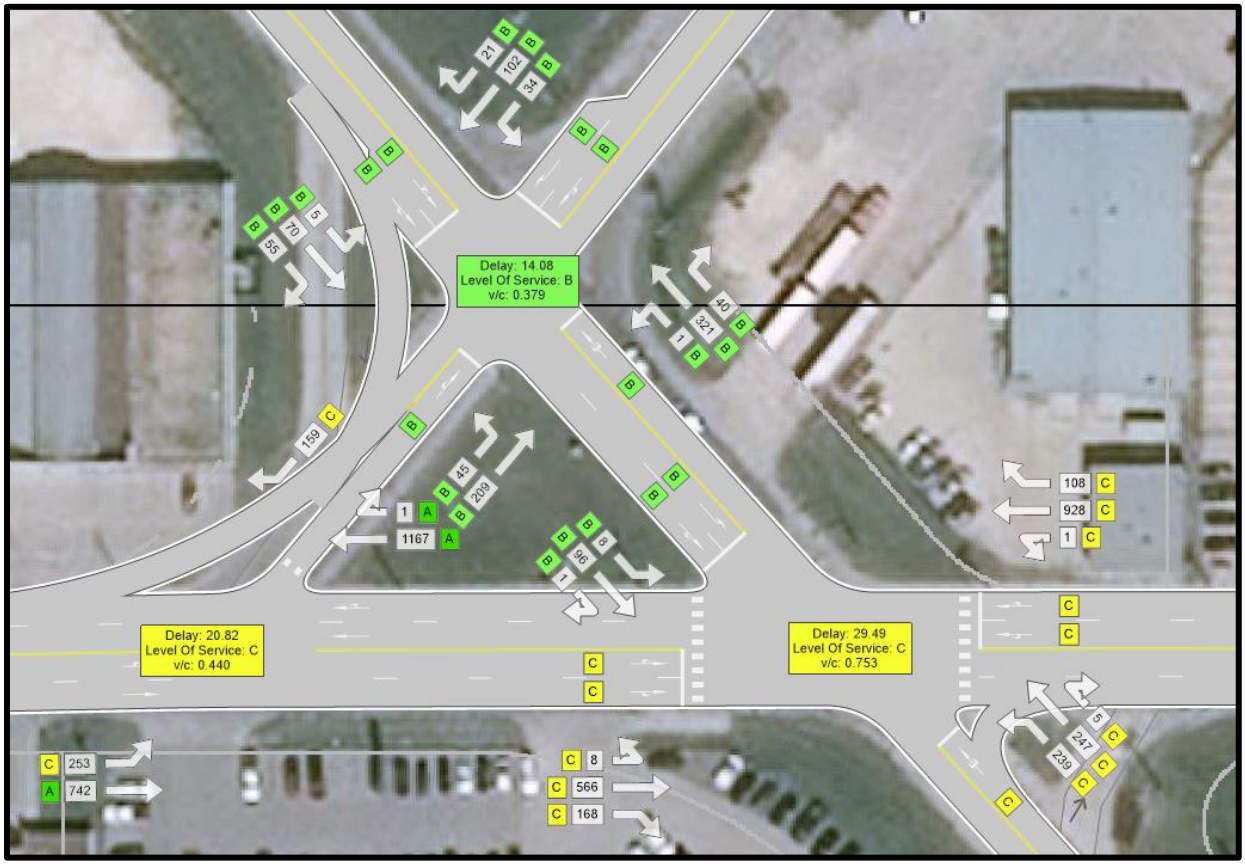


Figure 29: Marion St / Panet St / Dawson Rd – 2025 AM Background

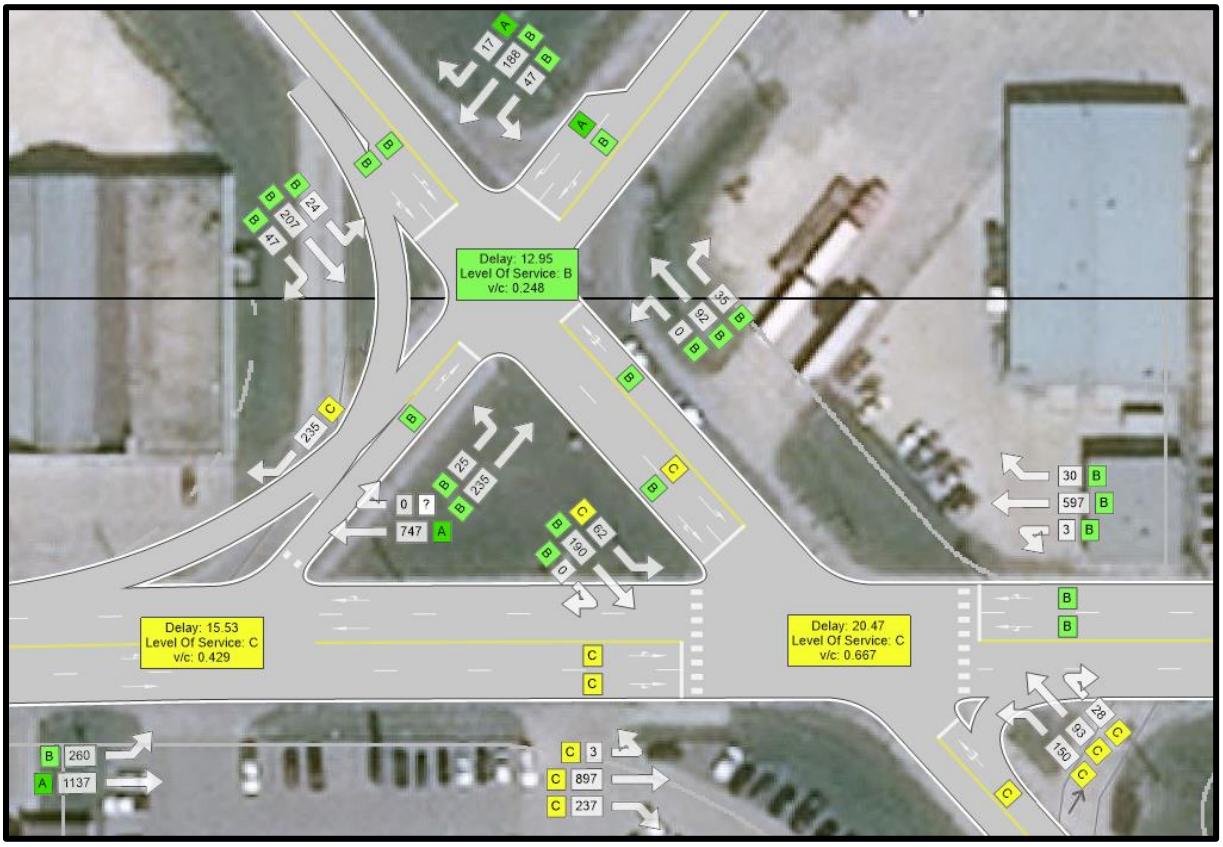


Figure 30: Marion St / Panet St / Dawson Rd – 2025 PM Background

Table 23: 2025 Background Growth Traffic Analysis at Marion St and Dawson Rd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
EBL	C	23.67		C	20.18	
EBT	C	24.57	0.69	C	21.06	0.77
EBR	C	26.08		C	22.96	
WBL	C	29.95		B	13.44	
WBT	C	31.84	0.84	B	13.62	0.42
WBR	C	34.59		B	13.84	
NWBL	C	34.38		C	32.16	
NWBT	C	34.38	0.83	C	32.16	0.69
NWBR	C	34.38		C	32.16	
SEBL	B	13.67	0.08	C	29.46	0.51
SEBT	B	13.38	0.15	B	17.68	0.32
SEBR	B	13.38		B	17.68	
Intersection	**C**	**29.49**	**0.753**	**C**	**20.47**	**0.667**

2030 Background Growth

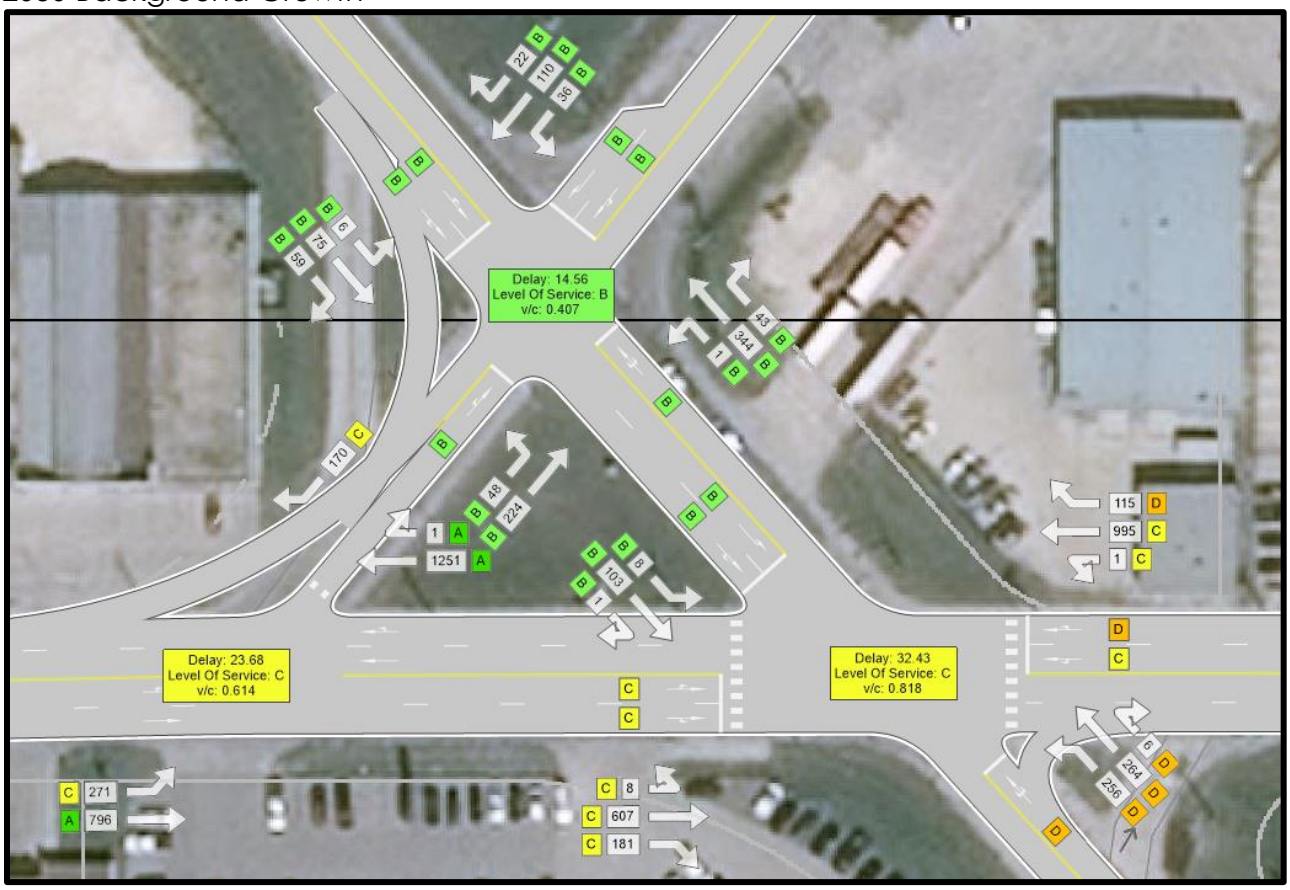


Figure 31: Marion St / Panet St / Dawson Rd – 2030 AM Background

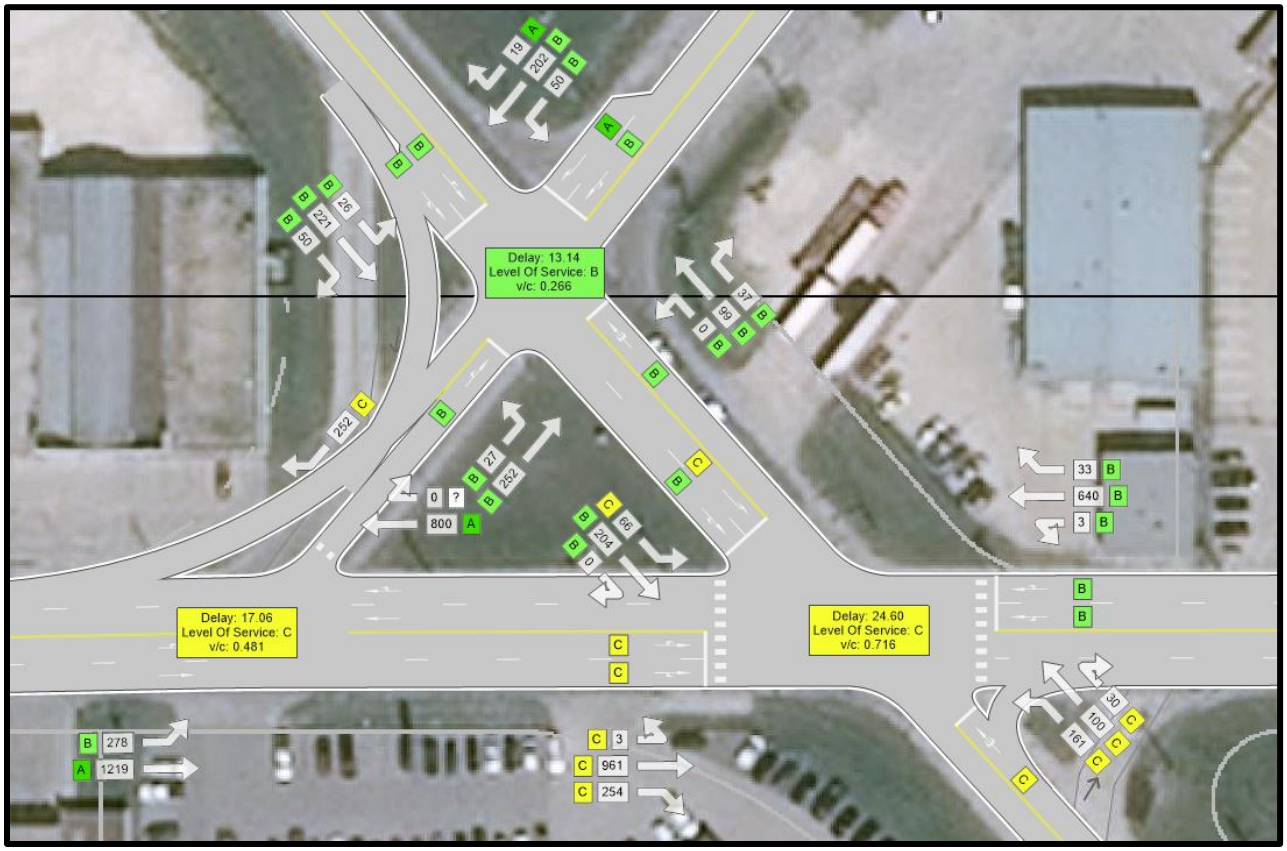


Figure 32: Marion St / Panet St / Dawson Rd – 2030 PM Background

Table 24: 2030 Background Growth Traffic Analysis at Marion St and Dawson Rd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
EBL	C	22.38		C	26.19	
EBT	C	24.24	0.79	C	28.27	0.88
EBR	C	26.94		C	32.71	
WBL	C	28.33		B	15.58	
WBT	C	32.23	0.91	B	15.92	0.49
WBR	D	37.91		B	16.30	
NWBL	D	47.60		C	30.74	
NWBT	D	47.60	0.95	C	30.74	0.70
NWBR	D	47.60		C	30.74	
SEBL	B	11.61	0.07	C	27.19	0.51
SEBT	B	11.54	0.17	B	16.29	0.32
SEBR	B	11.54		B	16.29	
Intersection	**C**	**32.43**	**0.818**	**C**	**24.60**	**0.716**

The analysis shows that all three intersections are operating without significant concern in the current and future background growth scenarios. Only the northwest bound approach at the intersection of Marion St and Dawson Rd is experiencing notable delay however this delay is addressed in the future scenarios by optimizing signal conditions. As the intersections continue to operate at acceptable levels in future scenarios, no mitigation measures are anticipated to address future background growth.

5.2.2 Post-Development Scenarios

2025 Background + Partial Build Out

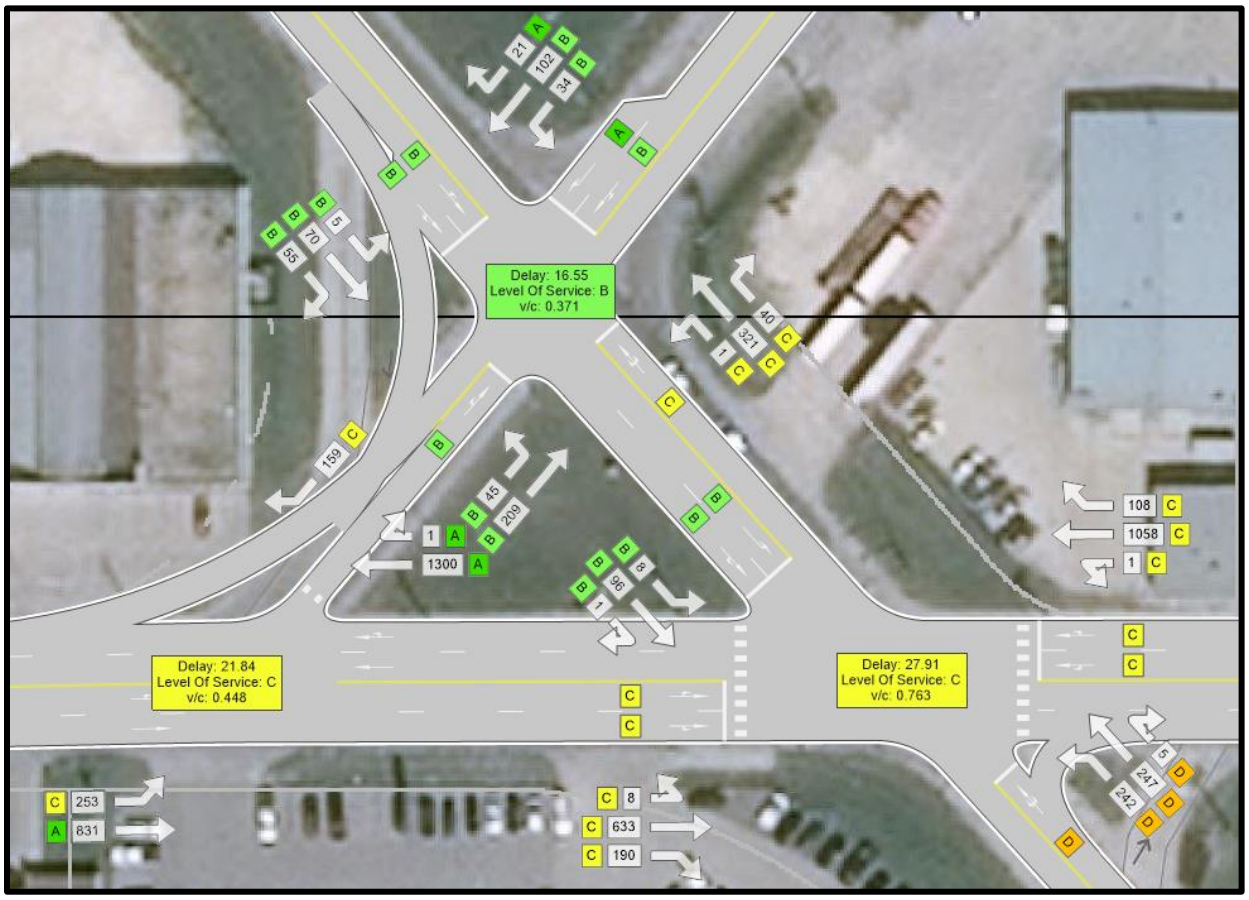


Figure 33: Marion St / Panet St / Dawson Rd – 2025 AM Partial Build Out

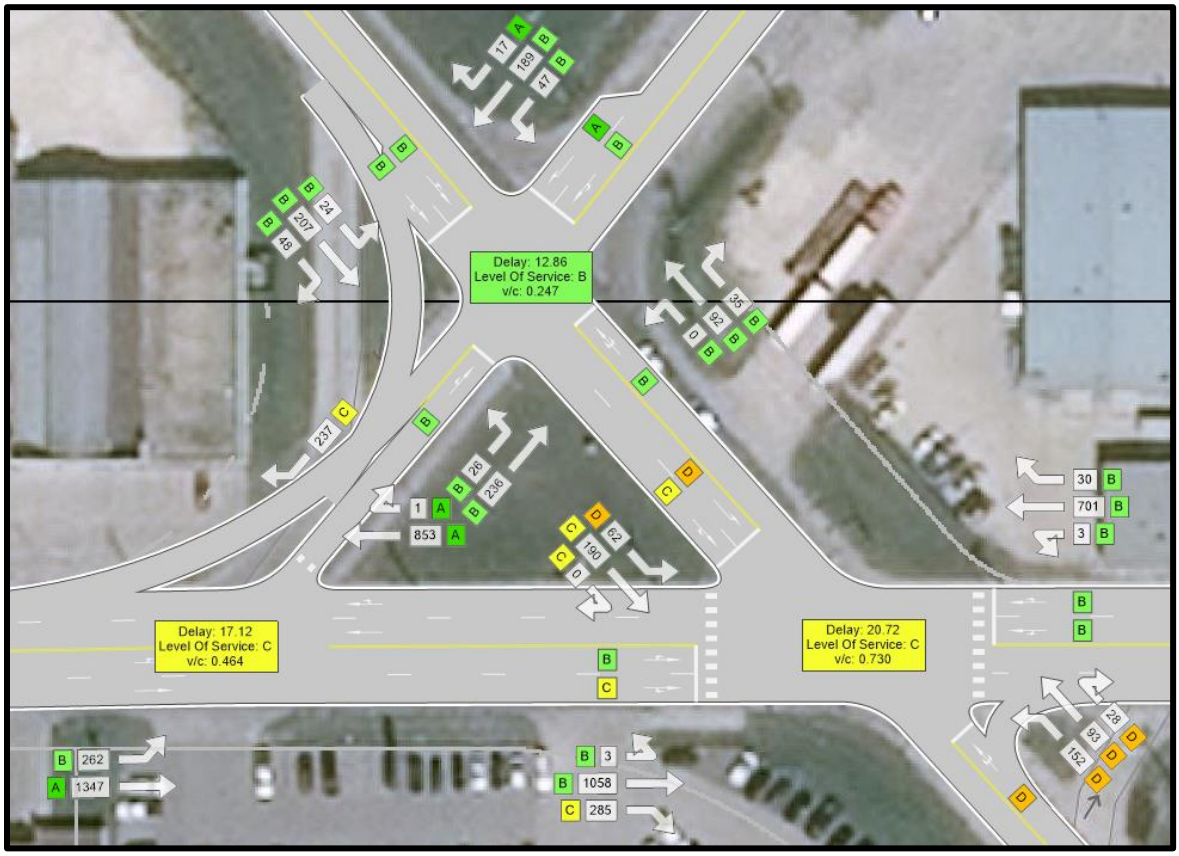


Figure 34: Marion St / Panet St / Dawson Rd – 2025 PM Partial Build Out

Table 25: 2025 Partial Build Out Traffic Analysis at Marion St and Dawson Rd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
EBL	C	20.88		B	18.60	
EBT	C	21.80	0.71	B	19.73	0.81
EBR	C	23.36		C	22.14	
WBL	C	27.49		B	11.21	
WBT	C	29.88	0.87	B	11.37	0.43
WBR	C	33.24		B	11.55	
NWBL	D	35.40		D	42.14	
NWBT	D	35.40	0.85	D	42.14	0.79
NWBR	D	35.40		D	42.14	
SEBL	B	13.88	0.09	D	46.72	0.65
SEBT	B	13.09	0.13	C	21.15	0.37
SEBR	B	13.09		C	21.15	
Intersection	**C**	**27.91**	**0.763**	**C**	**20.72**	**0.730**

2030 Background + Full Build Out

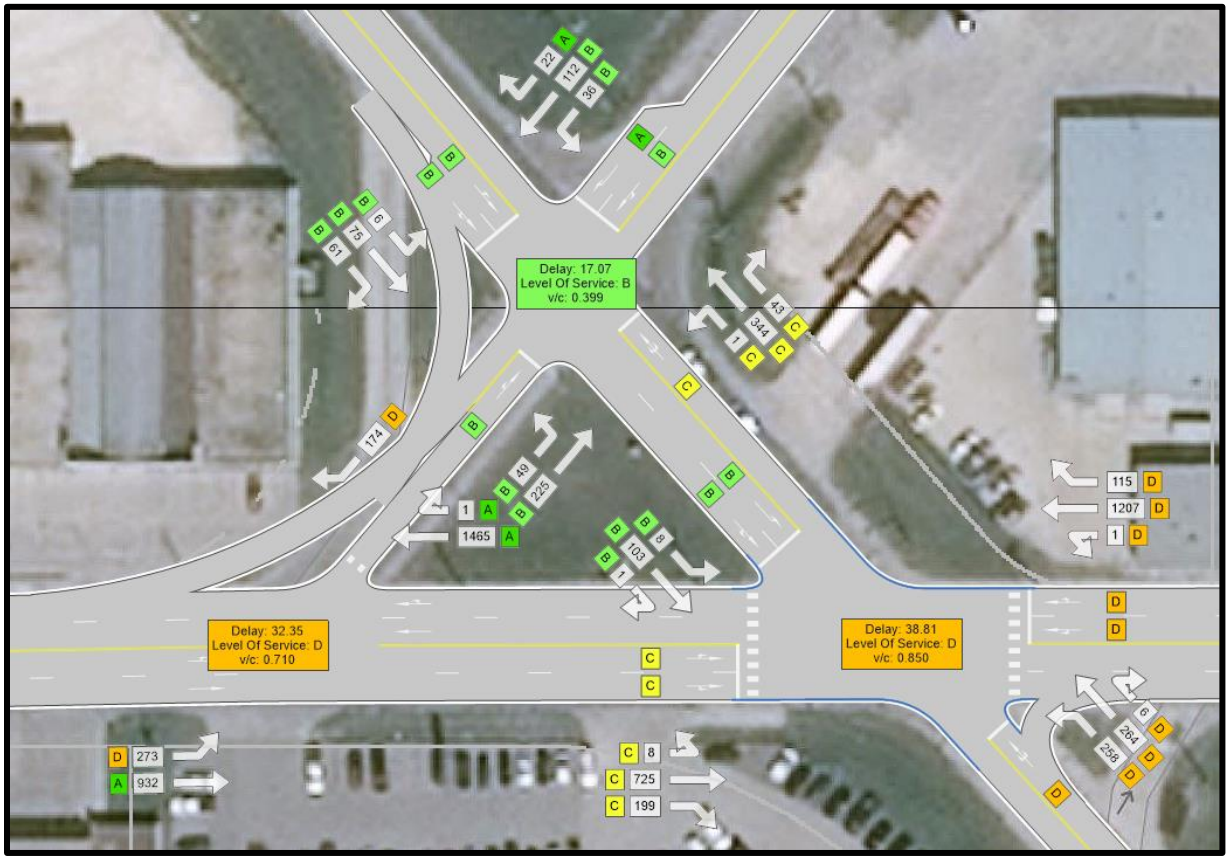


Figure 35: Marion St / Panet St / Dawson Rd – 2030 AM Full Build Out

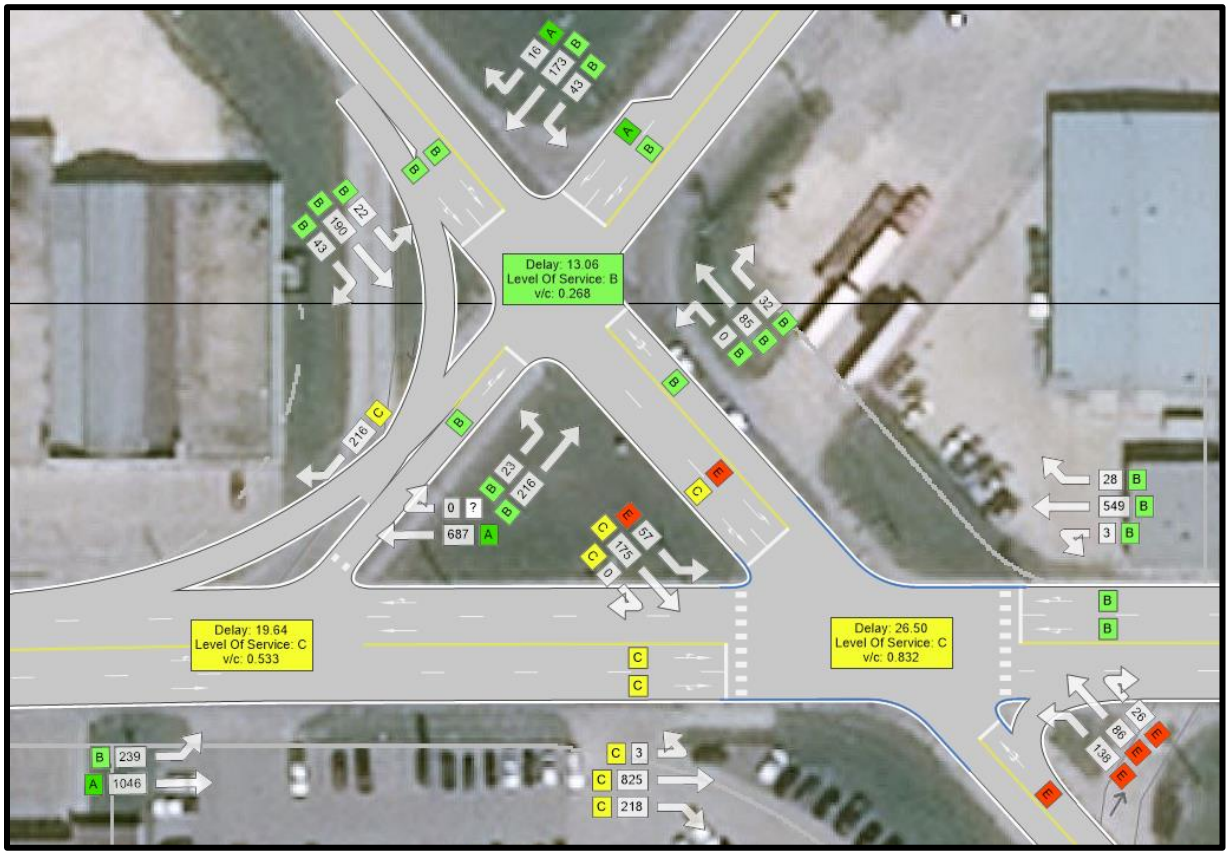


Figure 36: Marion St / Panet St / Dawson Rd – 2030 PM Partial Build Out

Table 26: 2030 Full Build Out Traffic Analysis at Marion St and Dawson Rd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
EBL	C	27.09		C	22.00	
EBT	C	29.10	0.85	C	23.84	0.88
EBR	C	31.67		C	27.69	
WBL	D	37.57		B	12.00	
WBT	D	43.88	0.99	B	12.15	0.45
WBR	D	52.60		B	12.34	
NWBL	D	45.84		E	66.12	
NWBT	D	45.84	0.93	E	66.12	0.93
NWBR	D	45.84		E	66.12	
SEBL	B	13.89	0.09	E	72.91	0.80
SEBT	B	13.18	0.15	C	24.33	0.40
SEBR	B	13.18		C	24.33	
Intersection	**D**	**38.81**	**0.850**	**C**	**26.50**	**0.832**

The analysis of the partial and full development scenarios shows that even with the future development traffic, the intersections of Marion St & Panet Road, Marion St & Dawson Rd, and Panet Rd & Dawson Rd

continue to operate without significant concern. Though there were several critical movements identified in the 2030 PM Peak Full Build Out scenario, the overall intersection is expected to operate with only moderate delay. Therefore, no mitigation measures are recommended for these intersections to accommodate the new traffic generated from the proposed development.

5.3 MARION STREET AT LAGIMODIÈRE BOULEVARD

5.3.1 Existing Conditions and Background Growth Scenarios

The traffic volumes and operating conditions at the intersection of Marion and Lagimodière for the existing conditions (2019), 2025 background growth and 2030 background growth scenarios for both the AM and PM peak periods are shown in the figures and tables below.

Existing Conditions (2019)

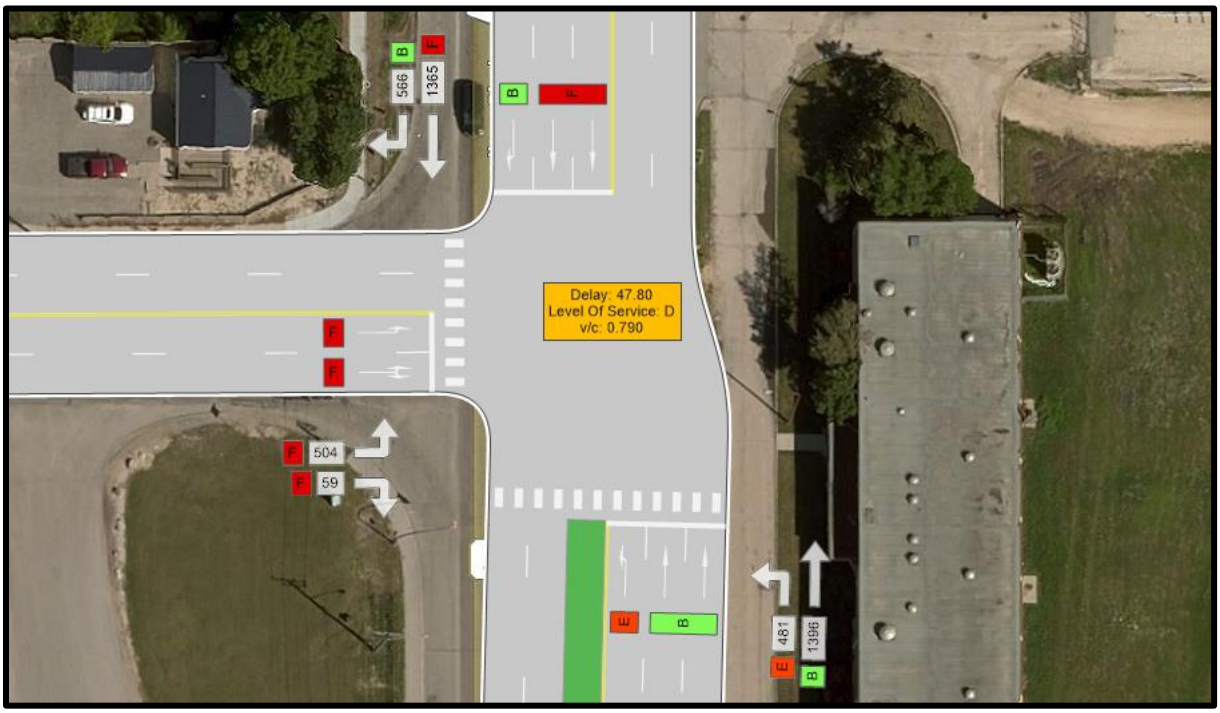


Figure 37: Marion St and Lagimodière Blvd - 2019 AM Background

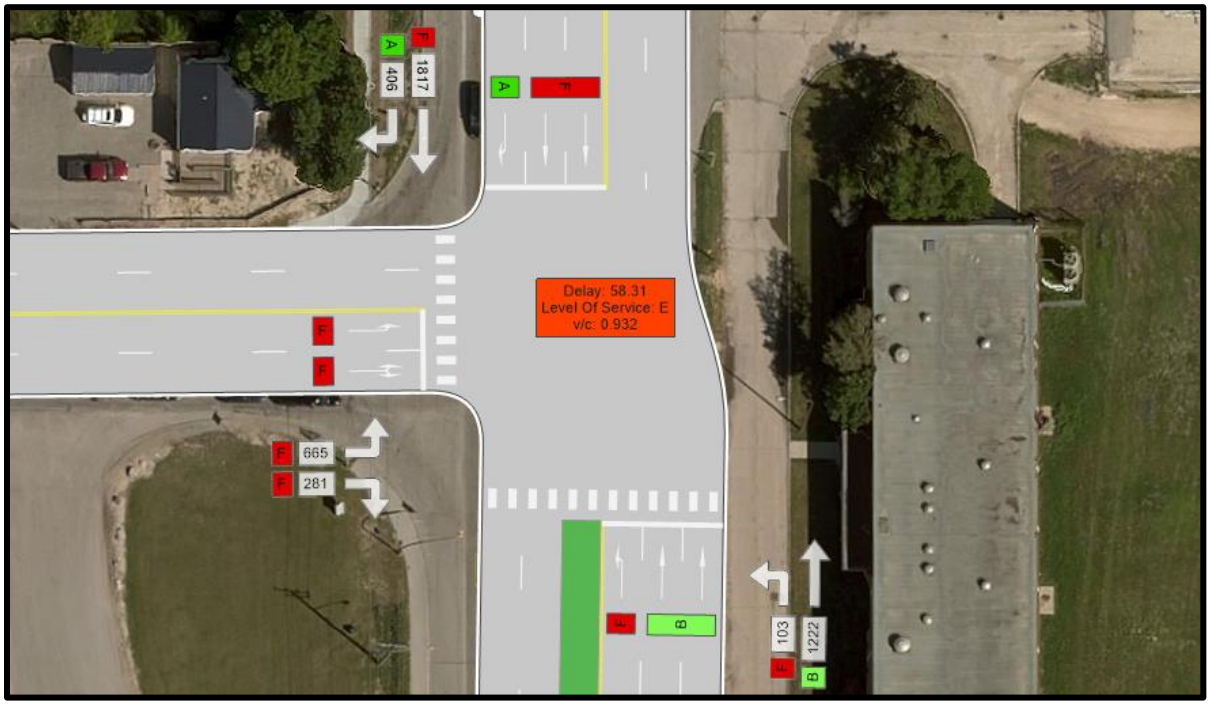


Figure 38: Marion St and Lagimodière Blvd - 2019 PM Background

Table 27: 2019 Existing Conditions Traffic Analysis at Marion St and Lagimodière Blvd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	E	56.06	0.86	F	170.79	1.19
NBT	B	10.12	0.59	B	17.33	0.61
SBT	F	71.48	1.03	F	73.75	1.06
SBR	B	16.42	0.59	A	2.47	0.32
EBL	F	106.57	1.03	F	88.43	0.99
EBR	F	110.17	1.03	F	105.01	1.06
Intersection	**D**	**47.80**	**0.790**	**E**	**58.31**	**0.932**

2025 Background Growth

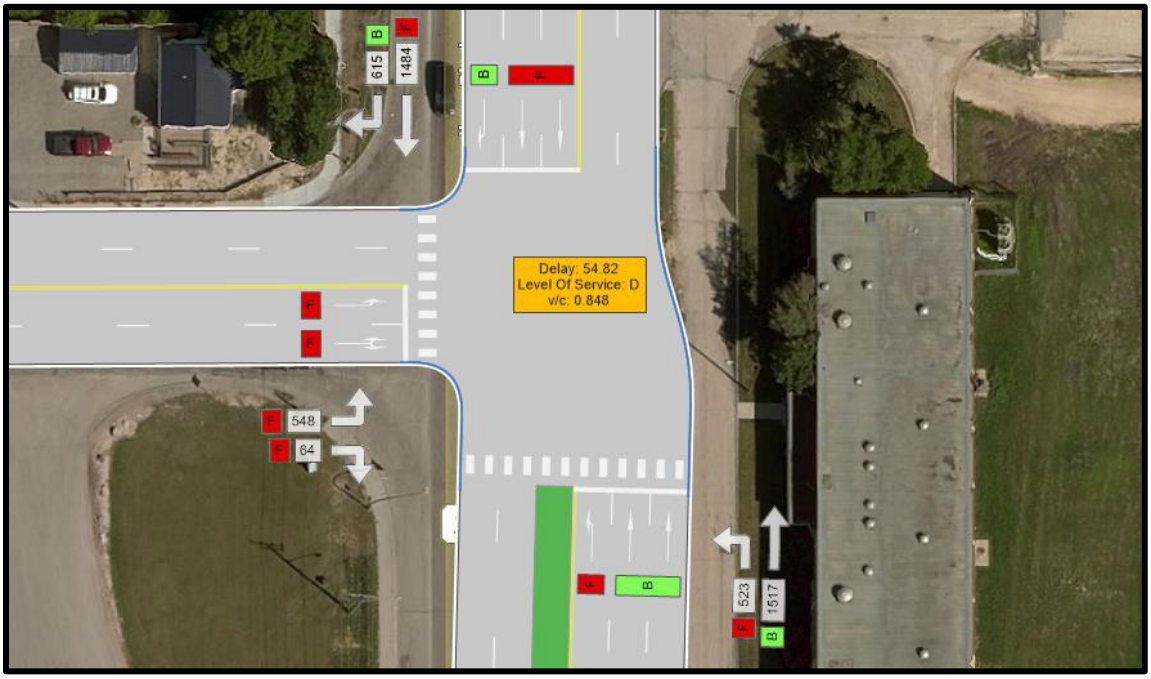


Figure 39: Marion St and Lagimodière Blvd - 2025 AM Background

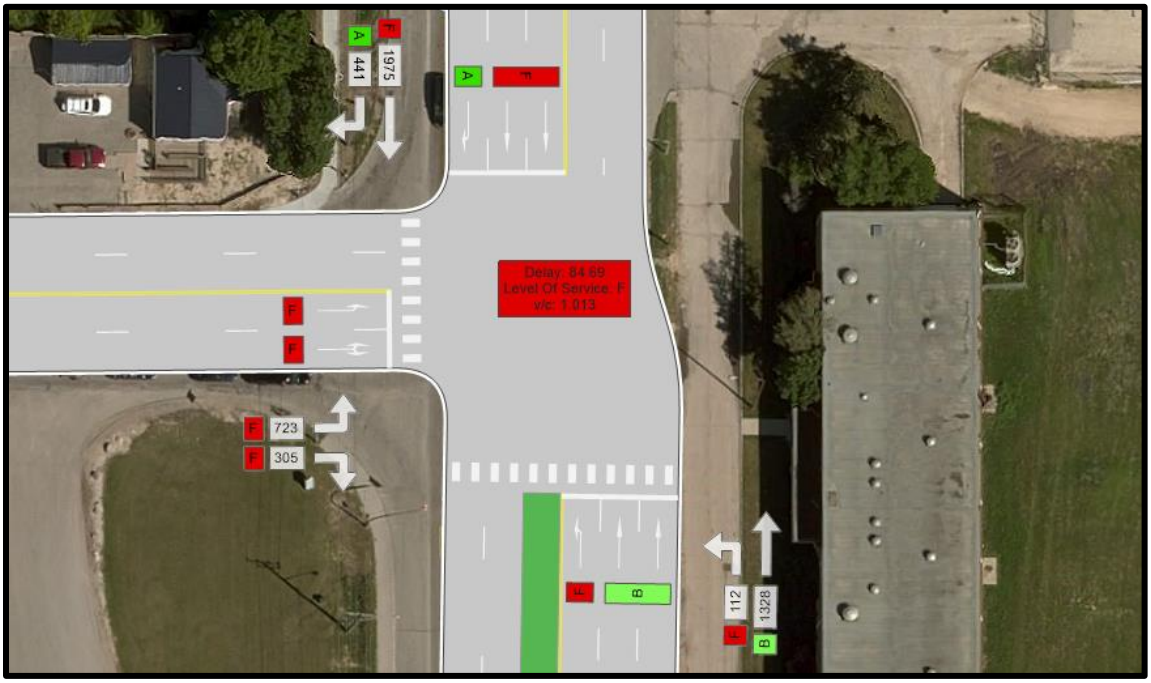


Figure 40: Marion St and Lagimodière Blvd - 2025 PM Background

Table 28: 2025 Background Growth Traffic Analysis at Marion St and Lagimodière Blvd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	118.47	1.09	F	109.21	1.01
NBT	B	12.17	0.66	B	19.88	0.66
SBT	F	69.56	1.03	F	128.42	1.19
SBR	B	13.27	0.6	A	3.17	0.36
EBL	F	110.05	1.04	F	102.73	1.05
EBR	F	114.39	1.04	F	130.76	1.12
Intersection	**D**	**54.82**	**0.848**	**F**	**84.69**	**1.013**

2030 Background Growth

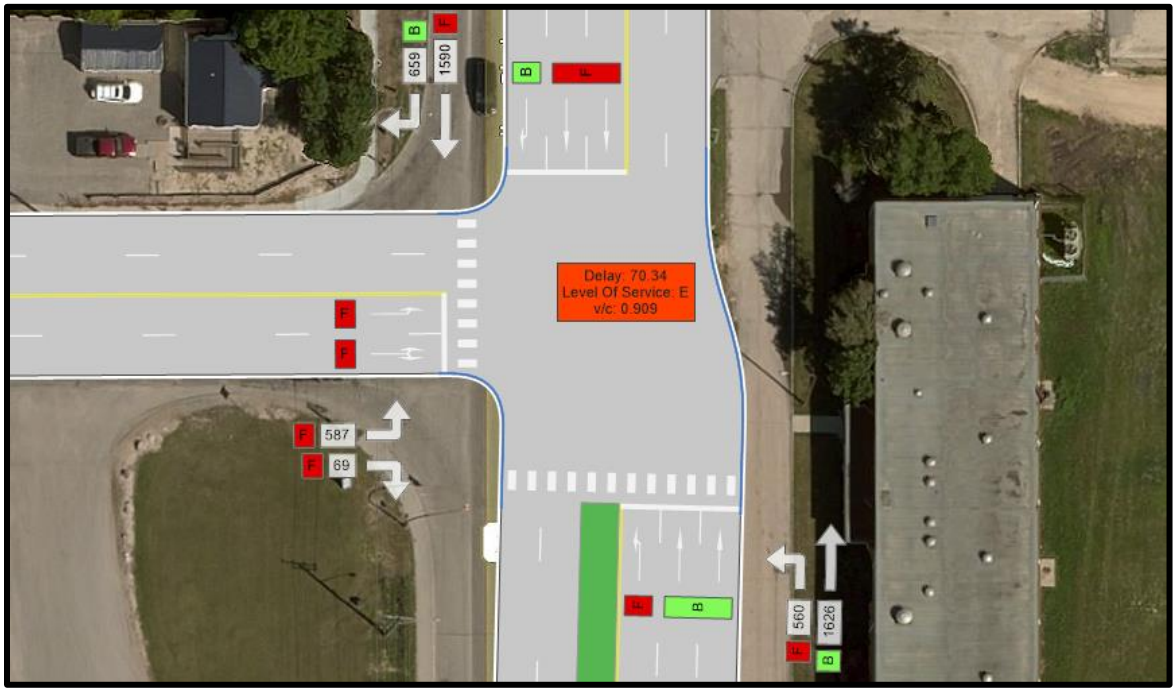


Figure 41: Marion St and Lagimodière Blvd - 2030 AM Background

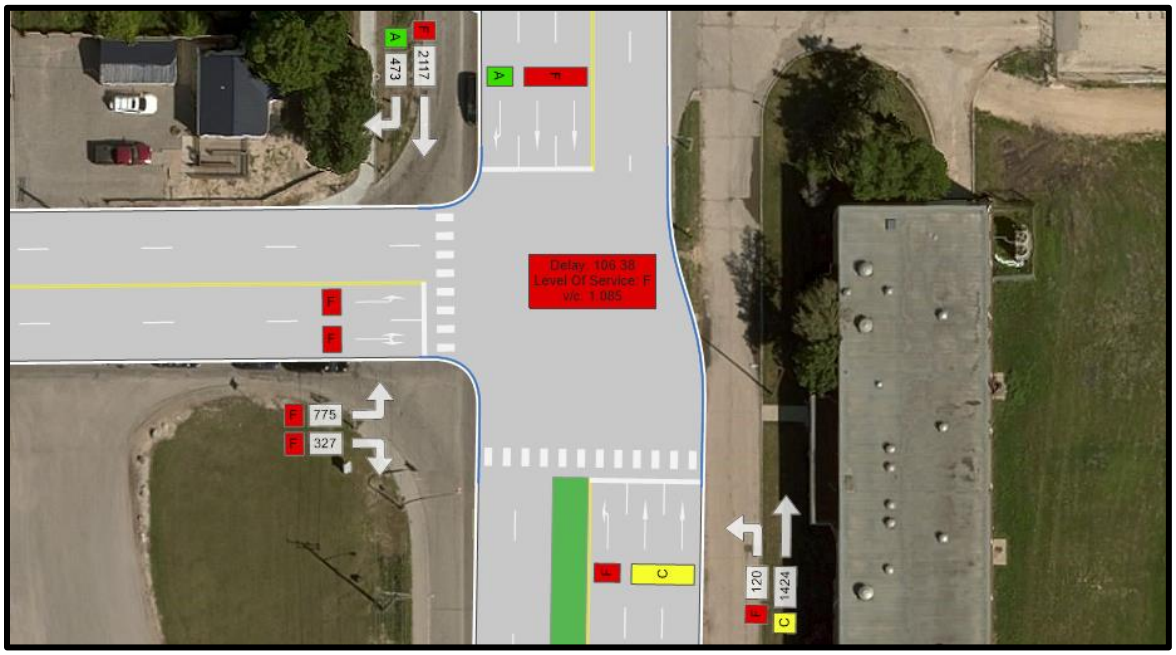


Figure 42: Marion St and Lagimodière Blvd - 2030 PM Background

Table 29: 2030 Background Growth Traffic Analysis at Marion St and Lagimodière Blvd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	150.27	1.18	F	128.55	1.07
NBT	B	13.24	0.71	C	21.23	0.71
SBT	F	95.67	1.11	F	165.45	1.28
SBR	B	14.34	0.64	A	3.42	0.38
EBL	F	135.91	1.11	F	137.94	1.12
EBR	F	141.4	1.12	F	161.02	1.20
Intersection	**E**	**70.34**	**0.909**	**F**	**106.38**	**1.085**

The analysis shows that the intersection is currently operating with significant delays in both the AM and PM peak periods. In particular the SB through movement is significantly delayed in the AM and PM peak. The EB approach also experiences significant delays during both periods. These concerns are only exacerbated with the projected traffic growth to 2025 and 2030, with the intersection expected to operate at LOS E and LOS F in the AM and PM respectively by 2030.

5.3.2 Mitigation Scenarios for Background Growth

2025 and 2030 Background Growth

To improve the operating conditions based on the background growth traffic scenario the following treatments were investigated for the Marion St and Lagimodière Blvd intersection. The improvements identified below were designed to provide an acceptable level of service for future 2025 background traffic:

- Add an exclusive EB right-turn lane with 100 m of storage and adjust the previous left/right turn curb lane to be a second exclusive left-turn lane
- Add an additional NB left-turn lane, matching the storage of 120 m to the existing NB left-turn lane
- Add an additional SB through lane on Lagimodière Boulevard that continues to Lagimodière & Maginot. As will be discussed in the next section, to provide an acceptable level at the intersection of Lagimodière and Maginot, an additional NB lane on Lagimodière would also be required and would be expected to continue to the intersection at Marion Street. Therefore, an additional NB through lane has also been included with the other proposed mitigation measures.
- Introduce overlap control for SB right-turn lane (corresponding to all EB traffic movements) and for the EB right-turn lane (corresponding to the NB left-turn movement)

The proposed intersection configuration with mitigation measures is shown in Figure 43.





Figure 43: Marion St and Lagimodière Blvd - Intersection Configuration with Mitigation Measures

It was determined that the mitigation measures required to accommodate 2025 background growth are also sufficient to address the 2030 background volumes. Table 30 summarizes the LOS, v/c ratio and delay by movement and at the intersection level for the 2025 and 2030 mitigated background growth scenarios in the AM and PM peak periods respectively.

Table 30: Analysis of Mitigation Measures at Marion St and Lagimodière Blvd

	AM Peak						PM Peak					
	2025 Background with Mitigation			2030 Background with Mitigation			2025 Background with Mitigation			2030 Background with Mitigation		
Movement	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
NBL	D	45.83	0.84	D	44.02	0.85	D	39.85	0.43	D	44.25	0.45
NBT	B	10.34	0.5	B	10.78	0.54	B	10.84	0.48	B	11.56	0.5
SBT	C	32.54	0.81	D	43.78	0.89	D	35.73	0.96	D	41.45	0.98
SBR	B	11.07	0.6	B	14.99	0.66	A	3.81	0.39	A	4.17	0.41
EBL	D	40.63	0.76	D	42.38	0.81	C	32.87	0.83	D	38.39	0.89
EBR	B	15.53	0.11	B	14.42	0.11	B	19.55	0.49	C	23.18	0.54
Intersection	**C**	**24.84**	**0.672**	**C**	**26.98**	**0.720**	**C**	**24.75**	**0.685**	**C**	**28.42**	**0.734**

These extensive improvements reduce overall intersection delay in the 2025 scenario from 55 seconds to 25 seconds in the AM peak and from 85 seconds to 25 seconds in the PM peak. In 2030, with the mitigation measures in place the average intersection delay is projected to increase but still remain at an acceptable level (27 seconds in the AM and 28 seconds in the PM). With the improvements in place, no critical movements are identified for the 2025 or 2030 background growth scenarios.

5.3.3 Post-Development Scenarios

The traffic volumes and operating conditions at the intersection of Marion and Lagimodière for 2025 partial build out and 2030 full build out scenarios with the proposed mitigation measures to address 2025 and 2030 background growth are shown in the figures and tables below.

2025 Partial Build-Out

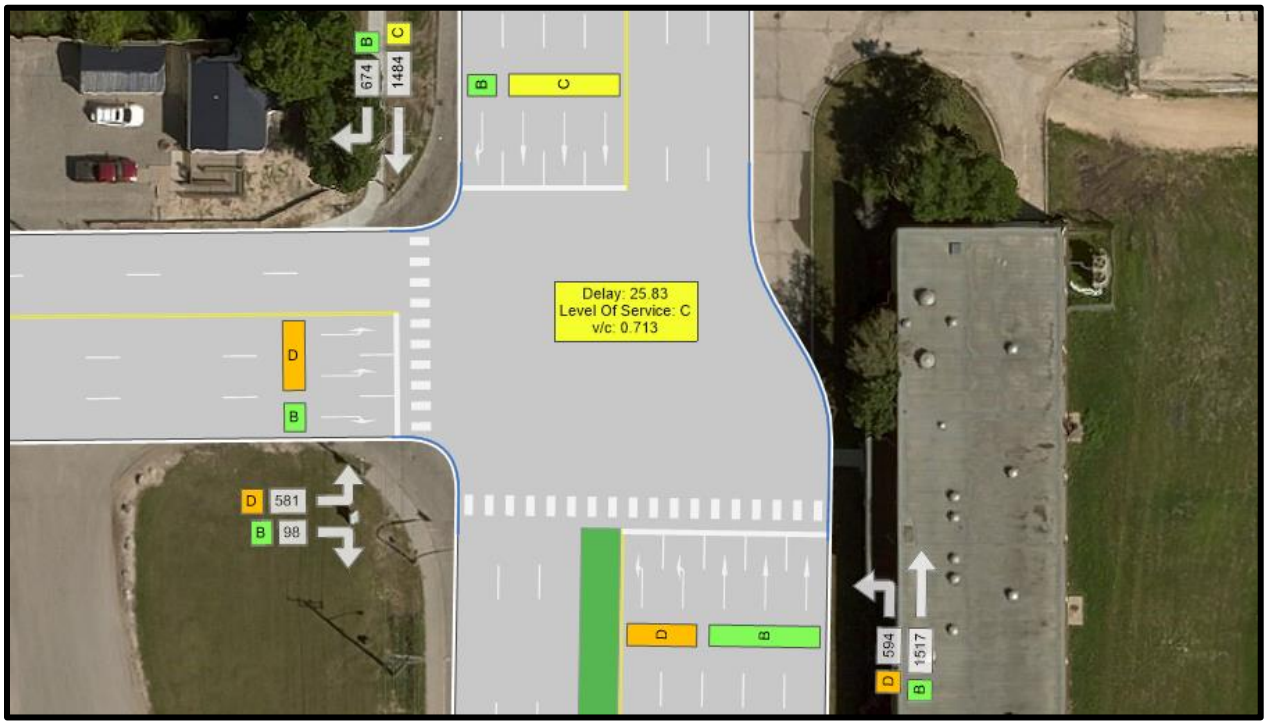


Figure 44: Marion St and Lagimodière Blvd - 2025 AM Partial Build Out with Mitigation Measures

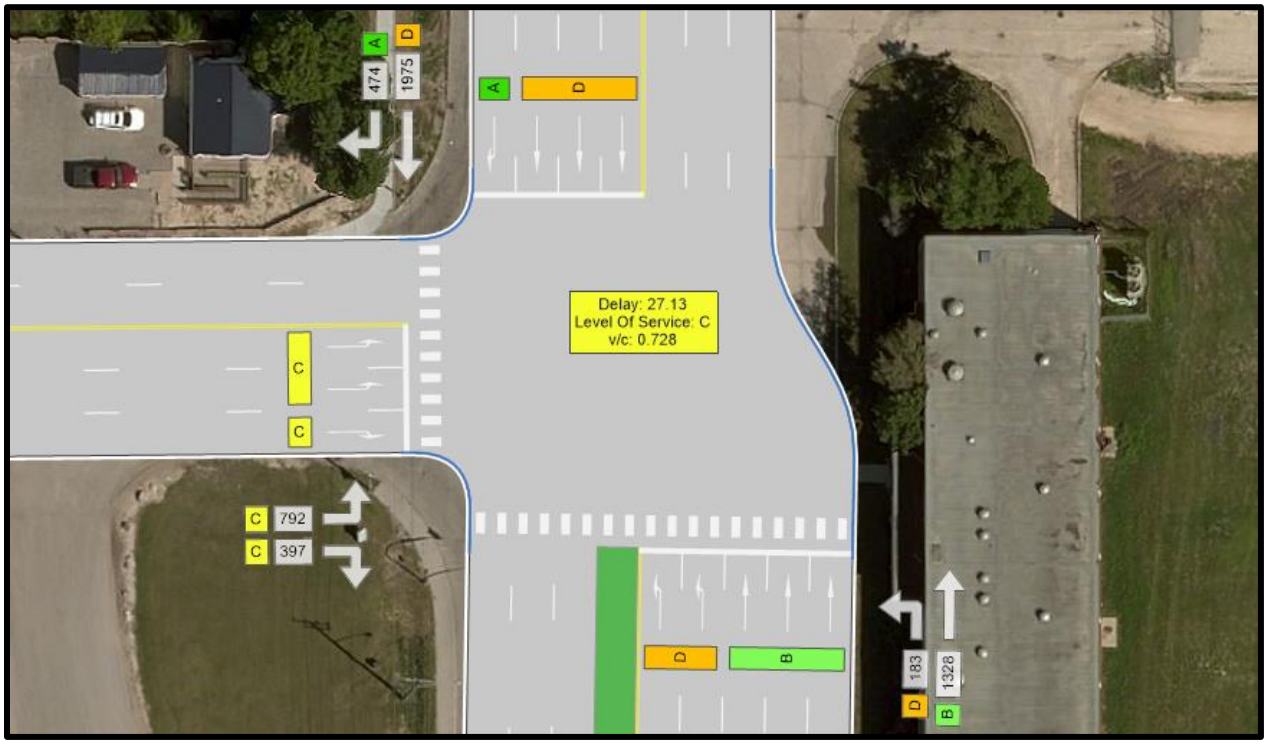


Figure 45: Marion St and Lagimodière Blvd - 2025 PM Partial Build Out with Mitigation Measures

Table 31: 2025 Partial Build Out with Mitigation Measures Traffic Analysis at Marion St and Lagimodière Blvd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	D	45.5	0.88	D	41.92	0.65
NBT	B	10.23	0.49	B	11.33	0.48
SBT	C	34.11	0.82	D	40.2	0.98
SBR	B	14.03	0.68	A	4.09	0.42
EBL	D	40.84	0.77	C	33.95	0.89
EBR	B	14.61	0.13	C	22	0.62
Intersection	**C**	**25.38**	**0.713**	**C**	**27.13**	**0.728**

2030 Full Build-Out

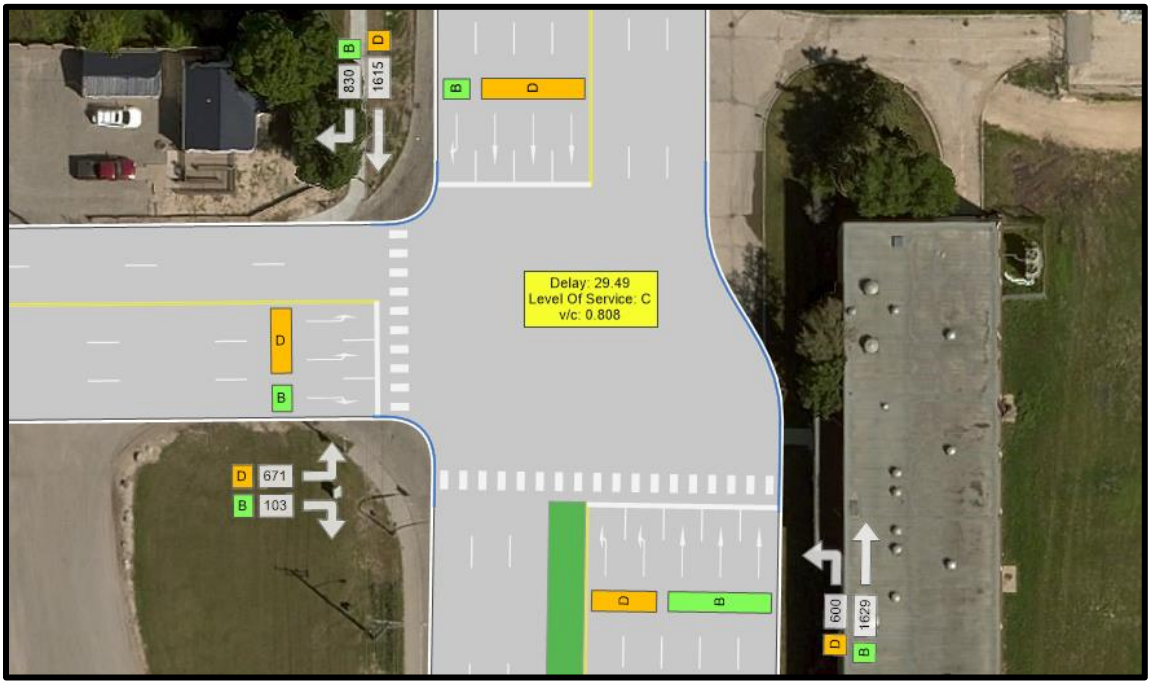


Figure 46: Marion St and Lagimodière Blvd - 2030 AM Full Build Out with Mitigation Measures

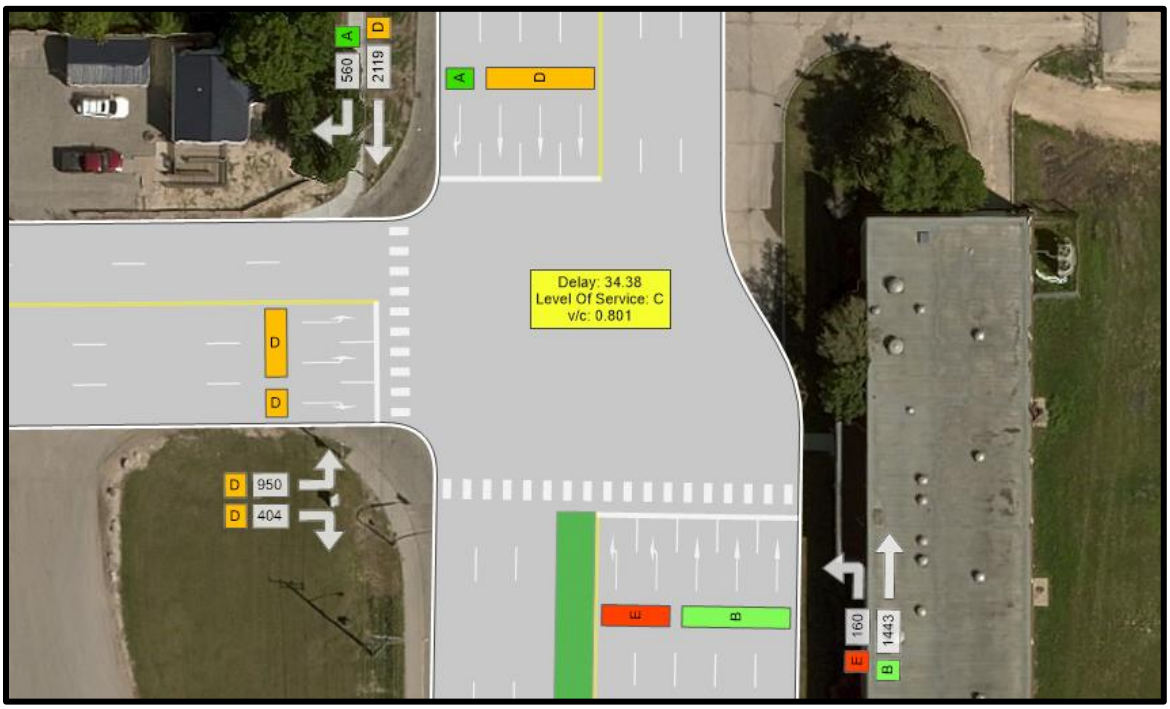


Figure 47: Marion St and Lagimodière Blvd - 2030 PM Full Build-Out with Mitigation Measures

Table 32: 2030 Full Build Out with Mitigation Measures Traffic Analysis at Marion St and Lagimodière Blvd

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	D	46.65	0.94	E	78.47	0.84
NBT	B	11.79	0.56	B	18.48	0.52
SBT	D	44.3	0.96	D	41.59	0.91
SBR	B	19.46	0.83	A	3.44	0.45
EBL	D	36.51	0.81	D	52.08	0.92
EBR	B	12.47	0.14	D	37.11	0.65
Intersection	**C**	**29.49**	**0.808**	**C**	**34.38**	**0.801**

The analysis of the partial and full build out scenarios show that with the proposed mitigation measures in place, the intersection is still expected to continue to operate at an acceptable level of service with the added development traffic. For the 2025 partial build out scenario, when development traffic is added to the improved intersection, the average intersection delay increases to 26 seconds in the AM Peak (from 25 seconds for background growth only) and to 27 seconds in the PM Peak (from 25 seconds for background growth only). With the more significant development traffic for the 2030 scenario, the improved intersection is expected to experience notable delays in the PM Peak for the NBL movement. However the level of service for this movements is still projected to be better than existing conditions. Overall, the traffic conditions at the improved intersection for the 2030 scenario are projected to be acceptable, with an average delay of 30 seconds in the AM peak and 34 seconds in the PM peak. Thus no further mitigation measures are recommended at this intersection to accommodate development traffic.

5.3.4 Marion St and Lagimodière Blvd Summary

A summary of the intersection level results for each of the analysis scenarios is presented in Table 33 below.

Table 33: Marion St and Lagimodière Blvd - Summary of Analysis Scenarios

	AM Peak			PM Peak		
Scenario	LOS	Delay	v/c	LOS	Delay	v/c
2019 BG (Existing)	D	47.80	0.790	E	58.31	0.932
2025 BG	D	54.82	0.848	F	84.69	1.013
2025 BG – Mitigated	C	24.84	0.672	C	24.75	0.685
2025 Partial Build Out - Unmitigated	E	71.14	0.913	F	91.16	1.054
2025 Partial Build Out - Mitigated	C	25.83	0.713	C	27.13	0.728
2030 BG	E	70.34	0.909	F	106.38	1.085
2030 BG – Mitigated	C	26.98	0.720	C	28.42	0.734
2030 Full Build Out - Unmitigated	F	89.63	0.988	F	140.21	1.212
2030 Full Build Out - Mitigated	C	29.49	0.808	C	34.38	0.801

As shown in the table above, if the extensive mitigation measures are implemented, the level of service at this intersection is expected to improve from existing conditions even with full development traffic.

5.4 LAGIMODIÈRE BOULEVARD AT MAGINOT STREET

5.4.1 Existing Conditions and Background Growth Scenarios

The traffic volumes and operating conditions at the intersection of Lagimodière Blvd and Maginot St for the existing conditions (2019), 2025 background growth and 2030 background growth scenarios for both the AM and PM peak periods are shown in the figures and tables below.



2019 Existing Conditions:

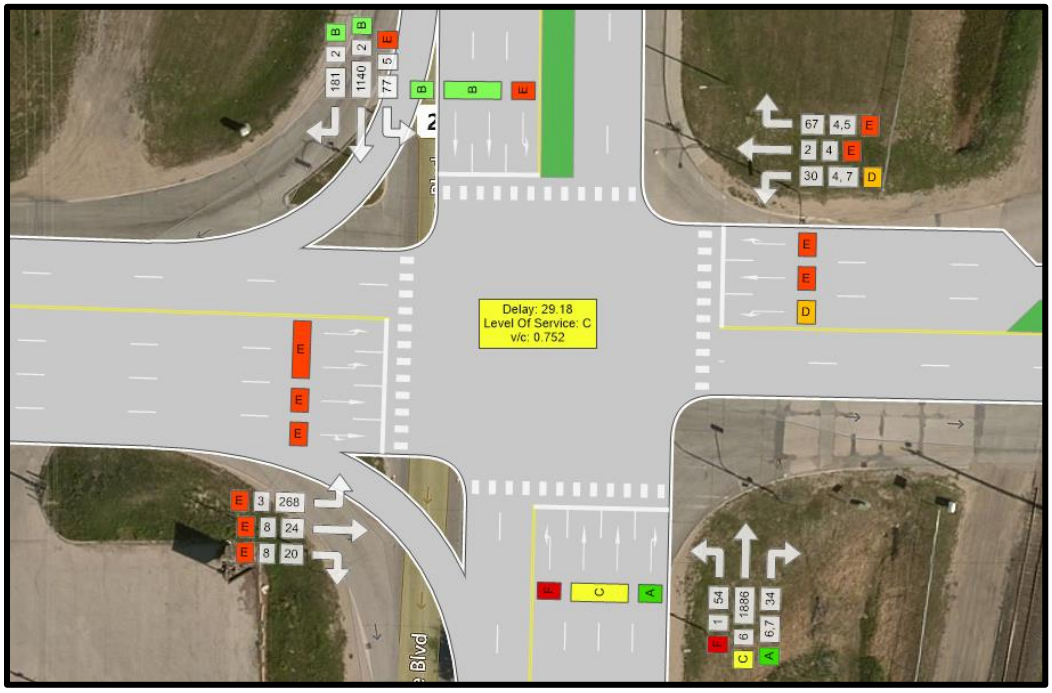


Figure 48: Lagimodière Blvd at Maginot St - 2019 AM Background

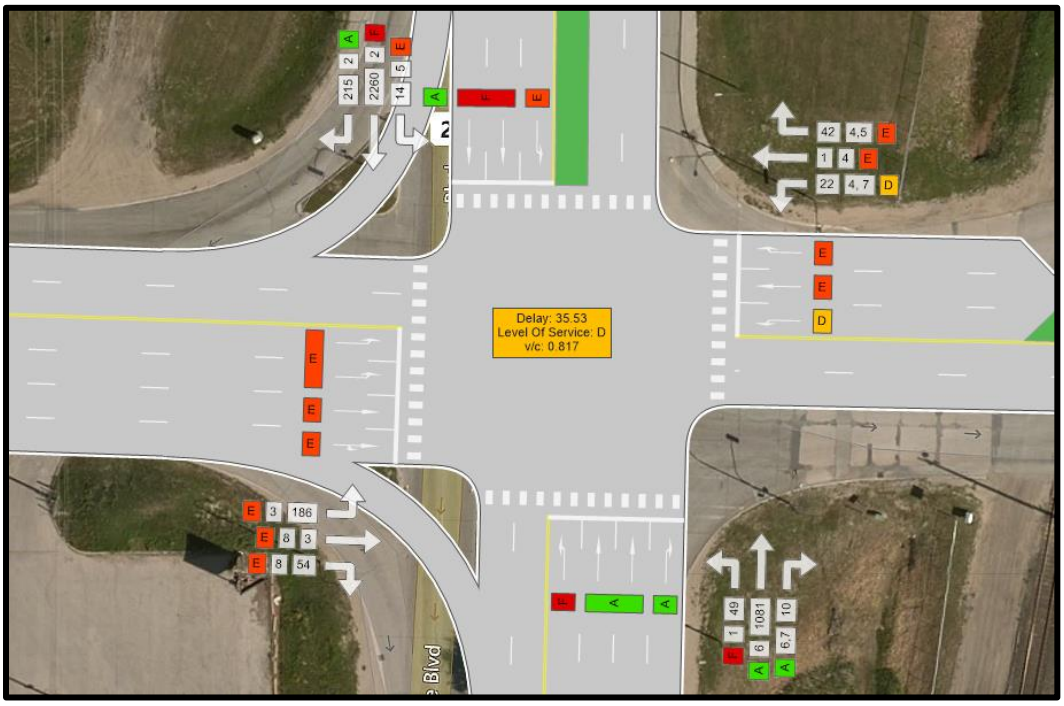


Figure 49: Lagimodière Blvd at Maginot St - 2019 PM Background

Table 34: 2019 Existing Conditions Traffic Analysis at Lagimodière Blvd and Maginot St

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	85.78	0.82	F	87.88	0.82
NBT	C	29.04	0.91	A	9.96	0.47
NBR	A	6.4	0.03	A	3.85	0.01
SBL	E	77.2	0.79	E	76.86	0.45
SBT	B	14.81	0.56	F	44.94	1.02
SBR	B	10.62	0.2	A	8.98	0.22
EBL	E	67.94	0.85	E	69.24	0.8
EBT	E	56.53	0.12	E	58.8	0.02
EBR	E	56.65	0.13	E	63.1	0.44
WBL	D	48.22	0.1	D	51.56	0.09
WBT	E	65.55	0.03	E	65.99	0.02
WBR	E	55.68	0.34	E	60.98	0.34
Intersection	**C**	**29.18**	**0.752**	**D**	**35.53**	**0.817**



2025 Background Growth

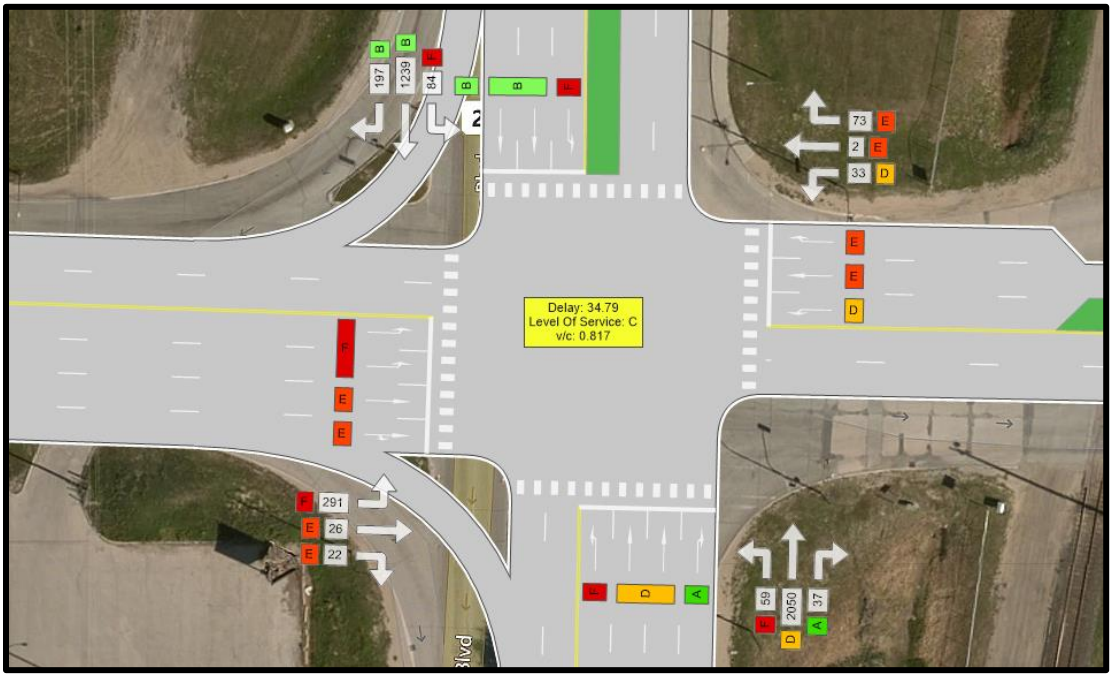


Figure 50: Lagimodière Blvd at Maginot St - 2025 AM Background

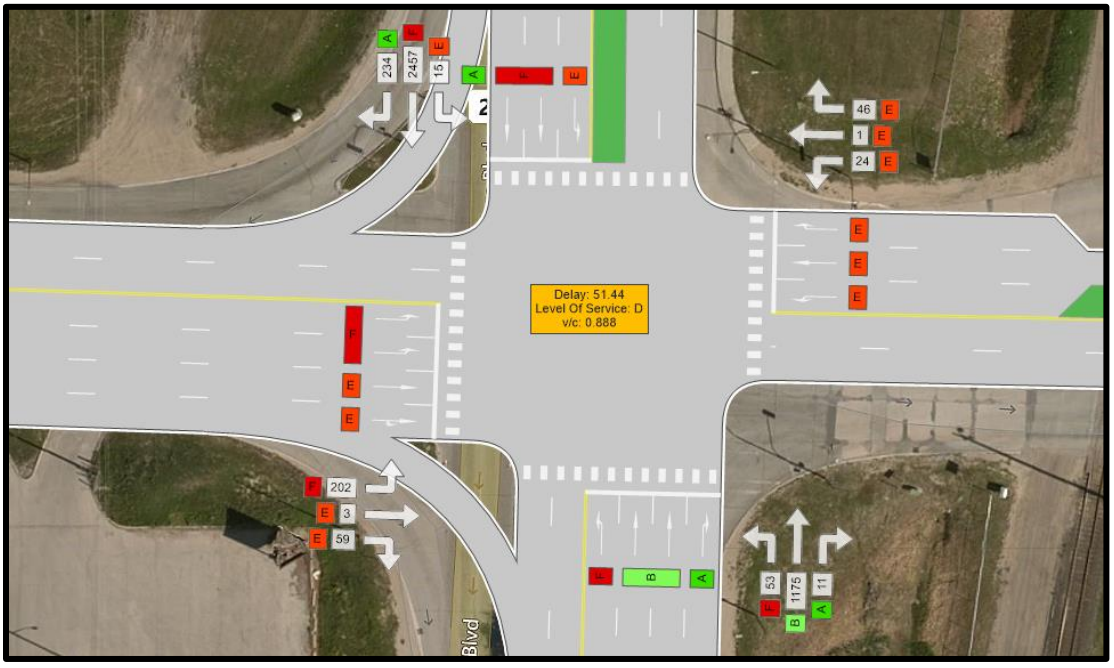


Figure 51: Lagimodière Blvd at Maginot St - 2025 PM Background

Table 35: 2025 Background Growth Traffic Analysis at Lagimodière Blvd and Maginot St

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	85.93	0.79	F	87.67	0.79
NBT	D	37.19	0.97	B	10.29	0.51
NBR	A	6.37	0.04	A	3.79	0.01
SBL	F	85.8	0.84	E	79.73	0.42
SBT	B	15.9	0.6	F	71.21	1.09
SBR	B	10.95	0.22	A	9.23	0.24
EBL	F	80.02	0.94	F	80.76	0.9
EBT	E	61.12	0.14	E	63.51	0.02
EBR	E	61.25	0.15	E	68.89	0.49
WBL	D	52.61	0.12	E	56.21	0.11
WBT	E	70.52	0.03	E	70.79	0.02
WBR	E	60.58	0.38	E	65.8	0.38
Intersection	**C**	**34.79**	**0.825**	**D**	**51.44**	**0.888**

2030 Background Growth:

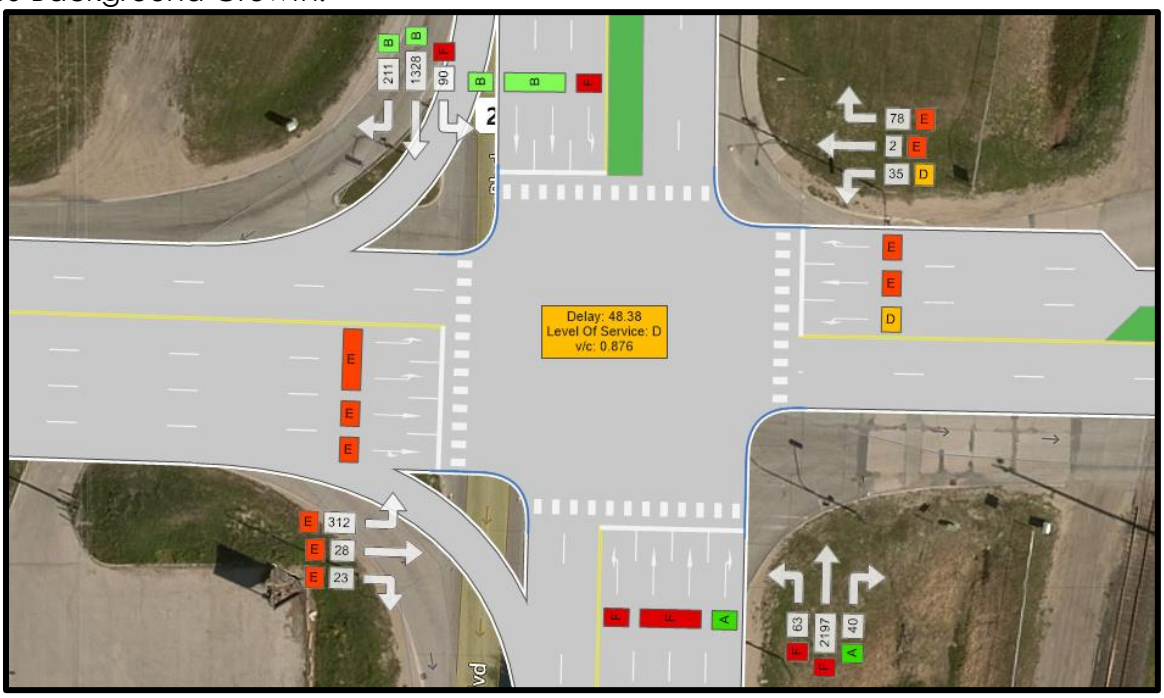


Figure 52: Lagimodière Blvd at Maginot St – 2030 PM Background

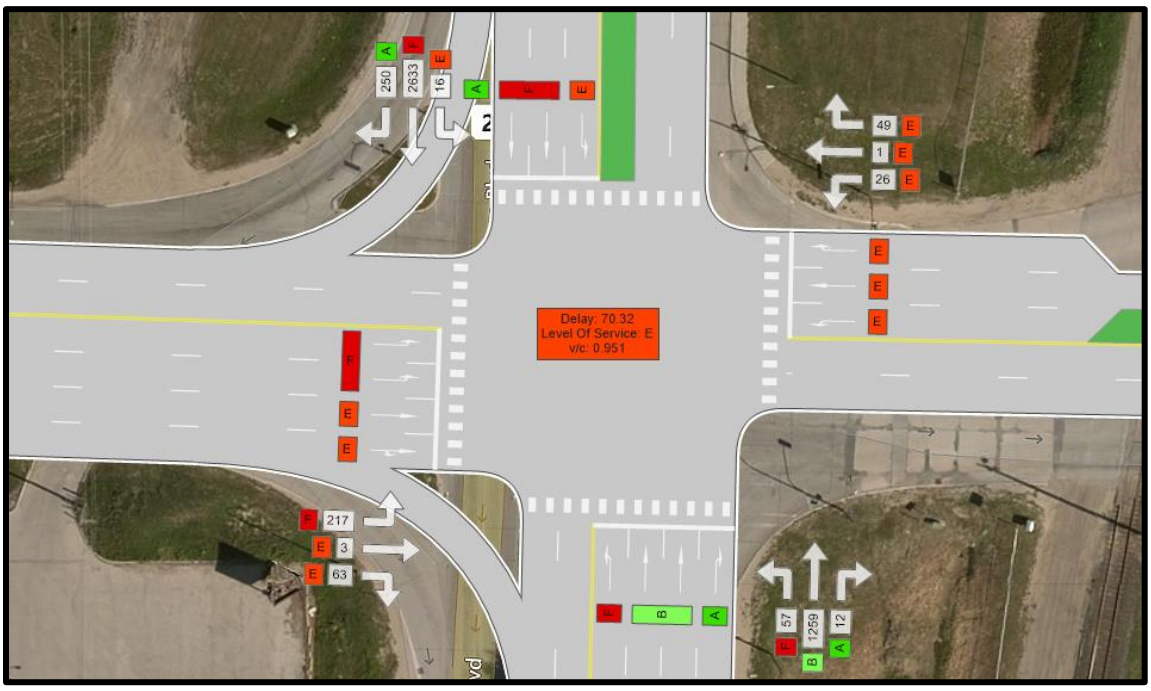


Figure 53: Lagimodière Blvd at Maginot St – 2030 PM Background

Table 36: 2030 Background Growth Traffic Analysis at Lagimodière Blvd and Maginot St

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	F	85.17	0.8	F	98.11	0.88
NBT	F	63.46	1.06	B	11.01	0.54
NBR	A	6.95	0.04	A	3.85	0.01
SBL	F	82.45	0.83	E	78.69	0.41
SBT	B	17.83	0.65	F	102.77	1.17
SBR	B	11.75	0.23	A	9.34	0.25
EBL	E	79.6	0.95	F	89.73	0.97
EBT	E	60.29	0.14	E	63.54	0.02
EBR	E	60.42	0.15	E	69.49	0.53
WBL	D	51.8	0.12	E	56.18	0.12
WBT	E	70.48	0.03	E	70.65	0.02
WBR	E	59.94	0.39	E	65.57	0.39
Intersection	**D**	**43.38**	**0.876**	**E**	**70.32**	**0.951**

The analysis shows that the intersection is currently operating at an acceptable level of service. Though almost all the side street movements are critical, this is considered reasonable for an intersection with many movements to accommodate and a much higher volume of traffic to serve on the major street. In 2025, the intersection is still expected to operate at LOS D overall in the PM peak, however the very high volume SB through movement is projected to experience significant delay (LOS F), which indicates that intersection is nearing capacity. Mitigation measures are considered necessary at that time or soon after to provide acceptable service. This issue becomes worse when traffic is projected to 2030, with the intersection expected to operate at LOS E in the PM.

5.4.2 Mitigation Scenarios

2025 and 2030 Background Scenarios

Maginot Street is currently fully developed with two through lanes and dual eastbound left turn lanes already in place. The measures to reduce the delays at this intersection to acceptable levels at this time are limited to addition of thru lane capacity on Lagimodière Blvd. As per the traffic analysis shown in the previous section, mitigation measures are considered necessary to accommodate 2025 background growth. Therefore, the effect of mitigation measures will be analyzed for the 2025 and 2030 scenarios. The treatments that have been investigated to improve the level of service for future background traffic include:

- Addition of a NB thru lane on Lagimodière Blvd
- Addition of a SB thru lane on Lagimodière Blvd

Table 37 summarizes the LOS, v/c ratio and delay by movement and at the intersection level for the 2025 and 2030 mitigated background growth scenarios in the AM and PM peak periods respectively.



Table 37: Analysis of Mitigation Measures at Lagimodière Blvd and Maginot St

	AM Peak						PM Peak					
	2025 Background with Mitigation			2030 Background with Mitigation			2025 Background with Mitigation			2030 Background with Mitigation		
Movement	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
NBL	E	62.49	0.79	E	65.67	0.79	E	74.01	0.8	F	81.65	0.79
NBT	C	20.39	0.79	C	22.94	0.83	A	9.03	0.38	A	9.26	0.39
NBR	A	6.64	0.04	A	7.1	0.04	A	3.96	0.01	A	4.04	0.01
SBL	E	57.24	0.79	E	61.62	0.8	E	67.82	0.47	E	74.52	0.43
SBT	B	13.86	0.49	B	14.85	0.51	B	18.5	0.82	C	20.52	0.84
SBR	B	11.92	0.25	B	12.56	0.26	A	9.79	0.25	B	10.07	0.26
EBL	E	57.66	0.94	E	59	0.93	E	64.94	0.88	E	75.21	0.9
EBT	D	40.17	0.13	D	43.5	0.13	D	50.35	0.02	E	58.56	0.02
EBR	D	40.27	0.14	D	43.6	0.14	D	54.82	0.47	E	63.68	0.49
WBL	C	32.33	0.09	D	35.52	0.1	D	43.26	0.09	D	51.31	0.11
WBT	D	45.74	0.02	D	50.59	0.02	E	56.09	0.02	E	65.79	0.02
WBR	D	36.9	0.3	D	41.2	0.33	D	51.11	0.33	E	60.74	0.37
Intersection	**C**	**22.51**	**0.628**	**C**	**24.48**	**0.674**	**B**	**19.46**	**0.662**	**C**	**21.57**	**0.709**

For the 2025 background growth scenario the additional thru lanes decrease intersection delay from 35 seconds to 23 seconds in the AM peak period and from 51 seconds to 19 seconds in the PM Peak period. With the mitigation measures in place the average intersection delay is projected to increase but still remain at an acceptable level in 2030 with an average delay of 25 seconds in the AM and 22 seconds in the PM. The side streets and left turning movements continue to experience significant delays even with the mitigation measures however this is not considered unusual for a large intersection with multiple protected movements such as this one.

5.4.3 Post-Development Scenarios

The traffic volumes and operating conditions at the intersection of Lagimodière and Maginot for 2025 partial build out and 2030 full build out scenarios with the proposed mitigation measures to address 2025 and 2030 background growth are shown in the figures and tables below.



2025 Partial Build-Out

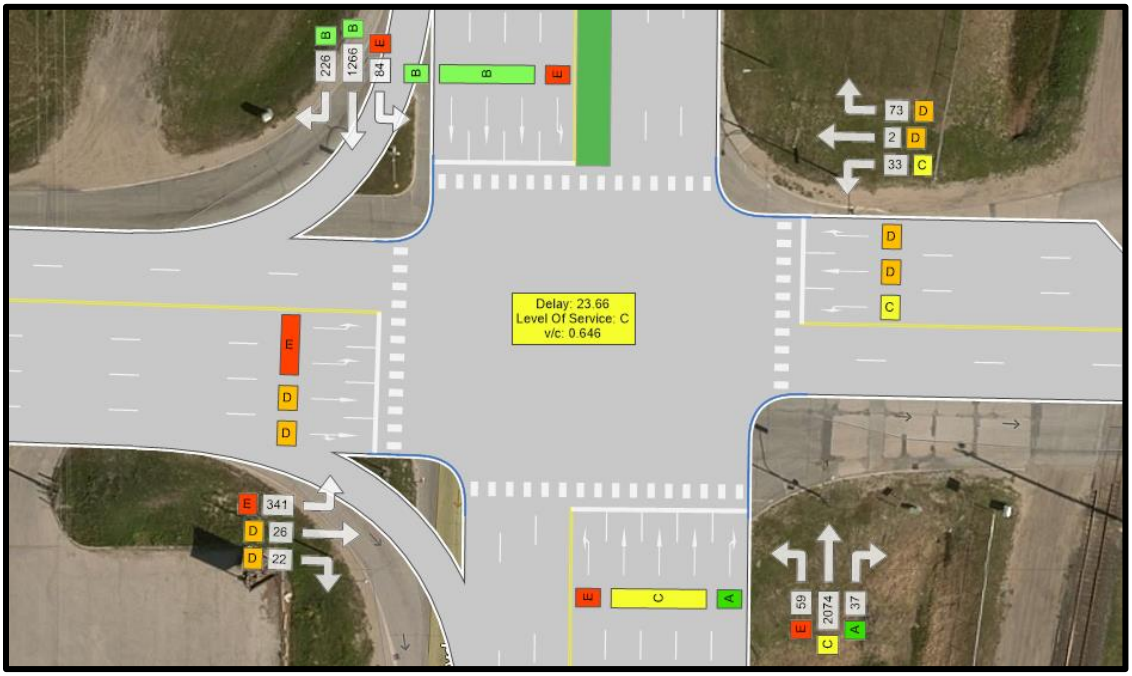


Figure 54: Lagimodière Blvd at Maginot St – 2025 AM Partial Build Out with Mitigation Measures

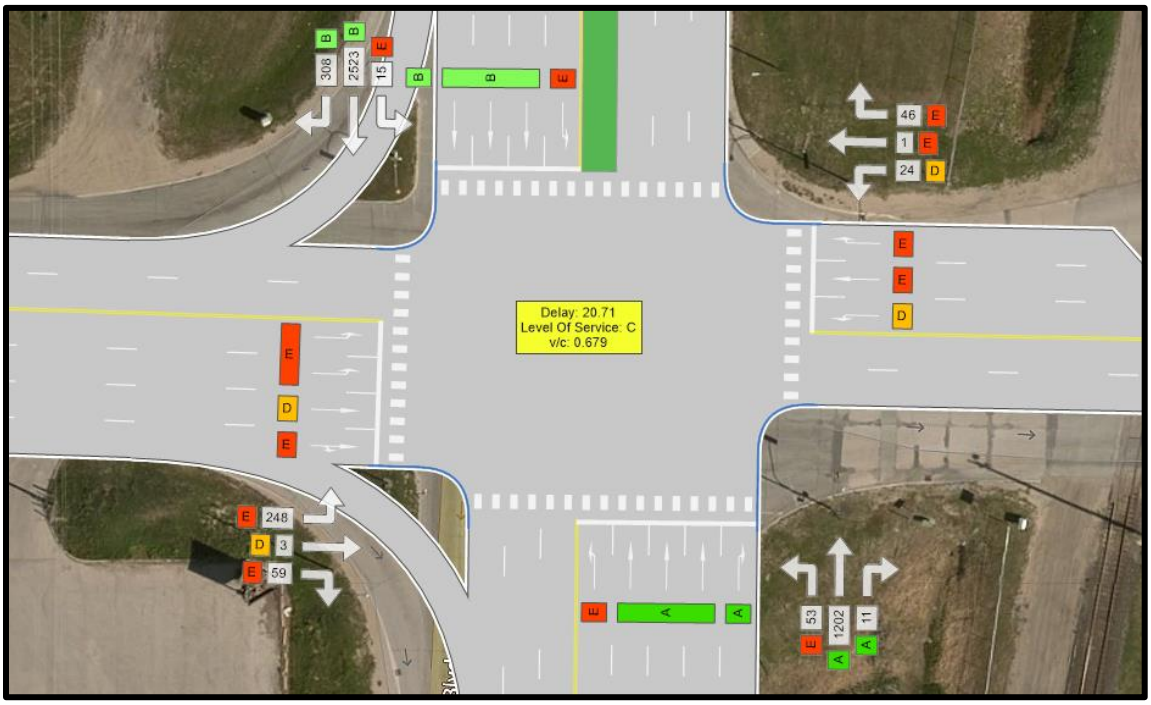


Figure 55: Lagimodière Blvd at Maginot St – 2025 PM Partial Build Out with Mitigation Measures

Table 38: 2025 Partial Build Out with Mitigation Measures at Lagimodière Blvd and Maginot St

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	E	63.58	0.74	E	74.52	0.74
NBT	C	21.63	0.79	A	9.38	0.38
NBR	A	7.26	0.04	A	4.17	0.01
SBL	E	63.1	0.8	E	72.06	0.46
SBT	B	14.26	0.47	B	19.23	0.82
SBR	B	12.57	0.27	B	10.65	0.32
EBL	E	55.77	0.91	E	70.9	0.92
EBT	D	42.48	0.11	D	53.52	0.02
EBR	D	42.56	0.12	E	57.59	0.43
WBL	C	34.73	0.09	D	46.42	0.09
WBT	D	50.67	0.03	E	60.98	0.02
WBR	D	41.51	0.31	E	55.73	0.32
Intersection	**C**	**23.66**	**0.646**	**C**	**20.71**	**0.679**



2030 Full Build-Out

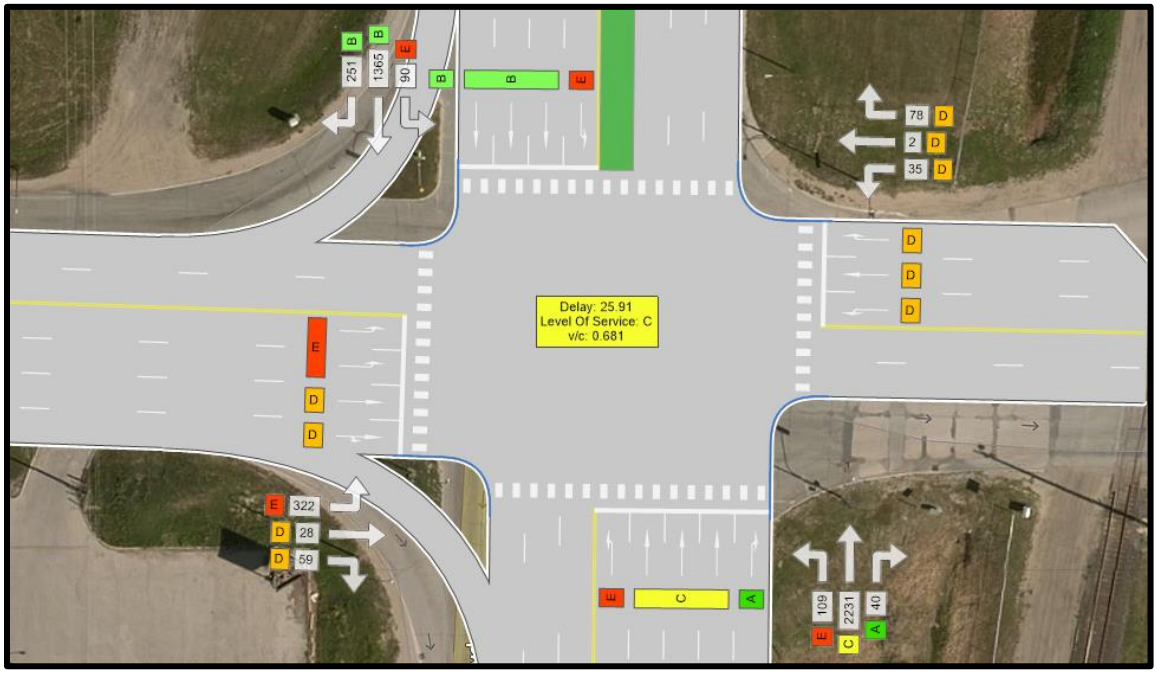


Figure 56: Lagimodière Blvd at Maginot St – 2030 AM Full Build Out with Mitigation Measures

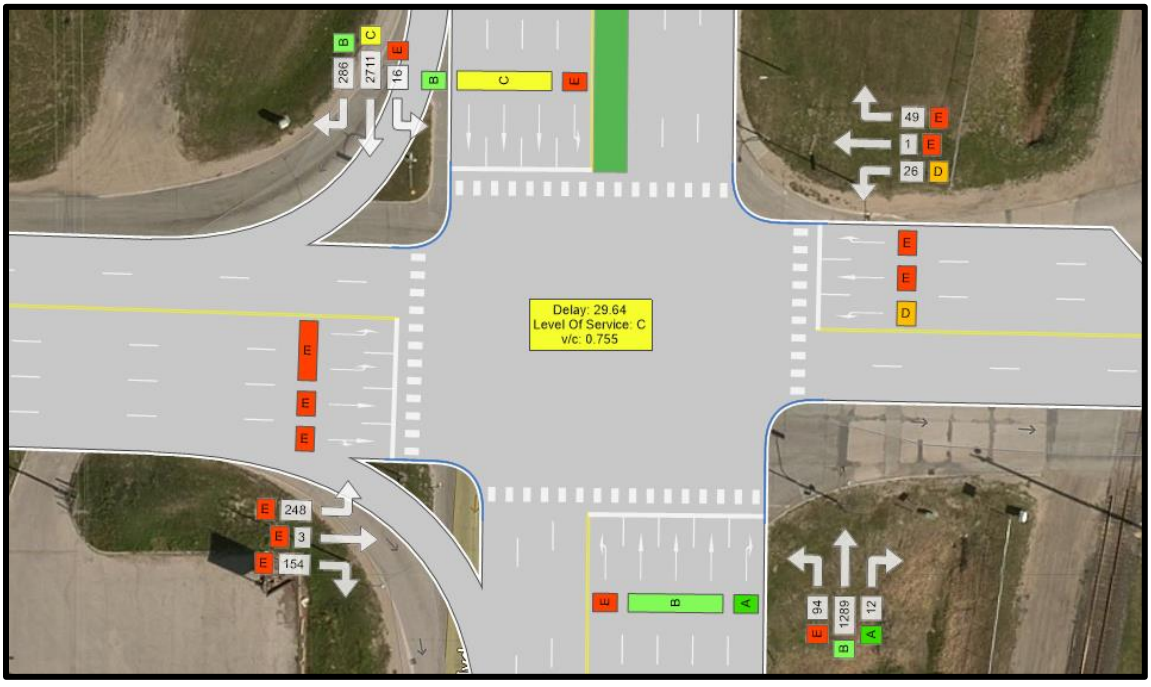


Figure 57: Lagimodière Blvd at Maginot St – 2030 PM full Build Out with Mitigation Measures

Table 39: 2030 Full Build Out with Mitigation Measures at Lagimodière Blvd and Maginot St

	AM Peak			PM Peak		
Movement	LOS	Delay	v/c	LOS	Delay	v/c
NBL	E	58.62	0.79	E	79.66	0.8
NBT	C	24.09	0.85	B	11.11	0.41
NBR	A	7.27	0.04	A	5.11	0.01
SBL	E	58.67	0.76	E	79.49	0.43
SBT	B	16.69	0.53	C	30.19	0.92
SBR	B	14.59	0.31	B	13.68	0.31
EBL	E	58.66	0.93	E	77.54	0.9
EBT	D	43.52	0.13	E	58.58	0.01
EBR	D	45.36	0.33	E	79.31	0.9
WBL	D	35.62	0.11	D	52.39	0.15
WBT	D	50.6	0.03	E	67.27	0.01
WBR	D	40.7	0.31	E	61.51	0.29
Intersection	**C**	**25.91**	**0.681**	**C**	**29.64**	**0.755**

The analysis of the partial and full build out scenarios shows that with the proposed mitigation measures in place, the intersection is still expected to continue to operate at an acceptable level of service with the added development traffic. For the 2025 partial build out scenario, when development traffic is added to the improved intersection, the average intersection delay remains at 24 seconds in the AM Peak (from 23 seconds for background growth only) and only increases to 21 seconds in the PM Peak (from 20 seconds for background growth only). For the 2030 scenario, the average intersection delay is projected to be 26 seconds in the AM Peak and 30 seconds in the PM Peak. It should be noted that for all scenarios (including the existing conditions), the level of service for Maginot St (EB/WB movements) is quite poor. This is a result of a long traffic cycle length required by the high traffic demand on Lagimodière Blvd and the priority given to this traffic (in terms of green time) as compared to traffic along Maginot St. However, with the given intersection configuration, this issue will persist with or without development traffic.

5.4.4 Lagimodière Blvd and Maginot St Summary

A summary of the intersection level results for each of the analysis scenarios is presented in Table 40 below.



Table 40: Lagimodière Blvd and Maginot St - Summary of Analysis Scenarios

	AM Peak			PM Peak		
Scenario	LOS	Delay	v/c	LOS	Delay	v/c
2019 BG (Existing)	C	29.18	0.752	D	35.53	0.817
2025 BG	C	34.79	0.817	D	51.44	0.888
2025 BG – Mitigated	C	22.51	0.628	B	19.46	0.662
2025 Partial Build Out - Unmitigated	D	39.75	0.837	E	60.60	0.911
2025 Partial Build Out - Mitigated	C	23.66	0.646	C	20.71	0.679
2030 BG	D	48.38	0.876	E	70.32	0.951
2030 BG – Mitigated	C	24.48	0.674	C	21.57	0.709
2030 Full Build Out - Unmitigated	D	54.97	0.887	F	101.19	1.004
2030 Full Build Out - Mitigated	C	25.91	0.681	C	29.64	0.755

5.5 MARION ST AND NICOLAS AVE

The intersection of Marion St and Nicolas Ave is located approximately 150 m east of the intersection of Marion St and Archibald St and is currently the only access point (entrance and exit) to several businesses located along Nicolas Ave. It is a T-intersection with stop control on the Nicolas Ave approach as shown in Figure 58.



Figure 58: Intersection of Marion St and Nicolas Ave

The level of service for each of the analysis scenarios in the AM and PM Peak periods are summarized in Table 41 and Table 42 below.

Table 41: AM Peak Period Traffic Analysis at Marion St and Nicolas Ave

	SBL	SBR	EBL	EBT	WBT	WBR	Intersection
2019 Existing							
Volume	6	7	31	956	1060	22	
LOS	F	C	B	A	A	A	**F**
Delay	105.43	21.78	11.19	0.00	0.00	0.00	**105.43**
2025 Background Growth							
Volume	7	8	34	1039	1152	24	
LOS	F	E	B	A	A	A	**F**
Delay	174.07	44.42	12.09	0.00	0.00	0.00	**174.07**
2025 Background Growth + Partial Build Out							
Volume	8	7	34	1162	1254	24	
LOS	F	F	B	A	A	A	**F**
Delay	267.63	79.97	12.88	0.00	0.00	0.00	**267.63**
2030 Background Growth							
Volume	7	8	36	1114	1235	26	
LOS	F	F	B	A	A	A	**F**
Delay	242.94	69.87	12.77	0.00	0.00	0.00	**242.94**
2030 Background Growth + Full Build Out							
Volume	9	7	36	1527	1501	27	
LOS	F	F	C	A	A	A	**F**
Delay	469.92	1020.56	15.59	0.00	0.00	0.00	**1020.56**



Table 42: PM Peak Period Traffic Analysis at Marion St and Nicolas Ave

	SBL	SBR	EBL	EBT	WBT	WBR	Intersection
2019 Existing							
Volume	14	21	7	1219	596	9	
LOS	F	C	B	A	A	A	**F**
Delay	61.07	19.10	11.69	0.00	0.00	0.00	**61.07**
2025 Background Growth							
Volume	15	23	8	1325	1050	5	
LOS	F	C	B	A	A	A	**F**
Delay	79.67	24.93	12.31	0.00	0.00	0.00	**79.67**
2025 Background Growth + Partial Build Out							
Volume	23	16	8	1472	1187	6	
LOS	F	F	B	A	A	A	**F**
Delay	66.21	166.03	14.08	0.00	0.00	0.00	**166.03**
2030 Background Growth							
Volume	16	24	8	1420	1125	6	
LOS	F	E	B	A	A	F	F
Delay	132.99	49.02	13.47	0.00	0.00	0.00	**132.99**
2030 Background Growth + Full Build Out							
Volume	24	18	8	1505	1830	8	
LOS	F	F	B	A	A	A	**F**
Delay	1255.82	1794.03	14.36	0.00	0.00	0.00	**1794.03**

Overall the intersection is operating without significant concern except for the SBL movement which is currently operating at LOS F in the AM and PM Peak periods. Delays for this movement are further increased with projected traffic growth. By 2030 the SBR movement is also expected to be critical. The additional traffic along Marion St generated by the proposed development further increases the delay. However, given the very low volumes served by this access point, and the current operating conditions, significant mitigation measures are not considered warranted. Consideration should be given to limit this intersection to a right in – right out operation, but with the impact of the train traffic, this may not be desirable either. Consideration could also be given to providing alternative access locations.



6.0 PROPOSED NEW INTERSECTIONS

6.1 MARION ST AT LOUS RIEL WAY/DUPUY AVE

The primary access point to the development is proposed to be located at the existing intersection of Marion St and Louis Riel Way/Dupuy Ave. This existing intersection has three legs and is stop-controlled at Dupuy Ave. The intersection provides access to several light industrial businesses along Dupuy Ave. Figure 59 shows the existing intersection configuration, while Table 41 and Table 42 provide the operating conditions at the intersection for the existing and background growth scenarios.

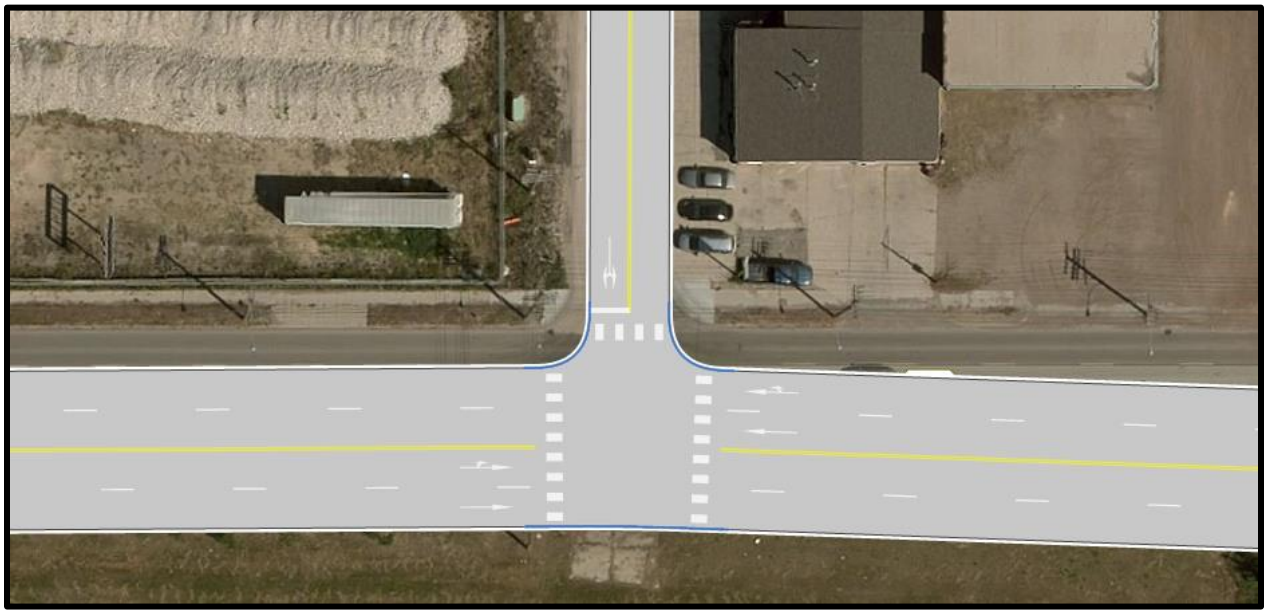


Figure 59: Marion St & Dupuy Ave Existing Intersection Configuration

Table 43: AM Peak Period Traffic Analysis at Marion St and Louis Riel Way/Dupuy Ave

	SBL	SBR	EBL	EBT	WBT	WBR	Intersection
2019 Existing							
Volume	11	11	15	915	1088	16	
LOS	E	F	B	A	A	A	**F**
Delay	95.93	33.51	12.88	0.00	0.00	0.00	**0.81**
2025 Background Growth							
Volume	12	12	16	995	1183	17	
LOS	F	F	B	A	A	A	**F**
Delay	155.60	60.33	14.14	0.00	0.00	0.00	**1.25**
2030 Background Growth							
Volume	13	13	17	1066	1268	19	
LOS	F	F	C	A	A	A	**F**
Delay	227.28	101.53	15.12	0.00	0.00	0.00	**1.87**

Table 44: PM Peak Period Traffic Analysis at Marion St and Louis Riel Way/Dupuy Ave

	SBL	SBR	EBL	EBT	WBT	WBR	Intersection
2019 Existing							
Volume	12	9	5	1275	1011	9	
LOS	F	F	C	A	A	A	**F**
Delay	187.03	72.28	15.67	0.00	0.00	0.00	**1.27**
2025 Background Growth							
Volume	13	10	5	1386	1099	10	
LOS	F	F	C	A	A	A	**F**
Delay	198.81	77.90	15.89	0.00	0.00	0.00	**1.36**
2030 Background Growth							
Volume	14	10	6	1485	1178	10	
LOS	F	F	C	A	A	A	**F**
Delay	310.03	148.04	17.10	0.00	0.00	0.00	**2.18**

The traffic analysis shows that the entire southbound approach is currently experiencing excessive delays and when traffic is projected to 2025 and 2030 these delays are only increased. However, as the volume of southbound traffic is quite low, these delays would likely continue to be considered acceptable.

For the future development scenarios, a south leg would be added to the intersection to provide access and egress to/from the new development. As this is the primary access point for the development, the intersection will be required to accommodate a high traffic volume entering and exiting the northbound approach in the AM and PM peak. A signalized intersection with the following configuration was analyzed for the development scenarios:

- Dual NB left-turn to handle PM peak traffic leaving the multi-use site and travelling west on Marion St
- An EB pocket right turn lane with 150 m of storage

The proposed intersection configuration is shown in Figure 22.



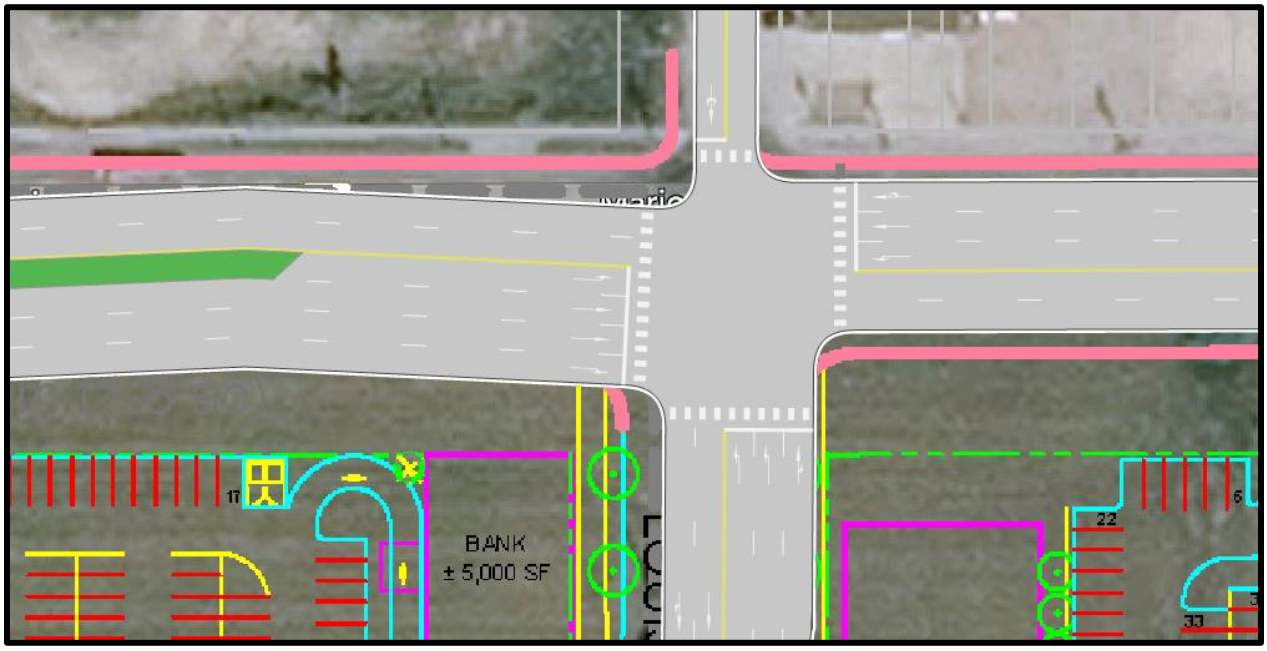


Figure 60: Marion St and Louis Riel Way/Dupuy Ave Proposed Signalized Intersection Configuration

The operating conditions at the intersection for the 2025 partial build out and 2030 full build out scenarios are shown in Table 45.

Table 45: Marion St and Louis Riel Way/Dupuy Ave Signalized Intersection Traffic Analysis

	AM Peak						PM Peak					
	2025 Partial Build Out			2030 Full Build Out			2025 Partial Build Out			2030 Full Build Out		
Movement	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
NBL	E	75.4	0.77	D	53.48	0.84	D	53.8	0.68	E	62.91	0.97
NBT	E	58.8	0.40	D	38.18	0.26	D	45.06	0.55	D	46.29	0.53
NBR	E	58.8		D	38.18		D	45.06		D	46.29	
SBL	E	78.26		E	62.14		E	61.19		E	72.91	
SBT	E	78.26	0.54	E	62.14	0.53	E	61.19	0.48	E	72.91	0.55
SBR	E	78.26		E	62.14		E	61.19		E	72.91	
EBL	A	5.92	0.06	A	9.1	0.06	A	5.69	0.03	B	10.43	0.03
EBT	A	8.99	0.47	B	14.14	0.55	B	14.29	0.68	C	26.42	0.86
EBR	A	6.23	0.12	B	13.75	0.46	A	8.21	0.15	B	16.85	0.51
WBL	A	5.41	0.17	A	8.66	0.23	B	13.24	0.33	C	34.10	0.50
WBT	A	9.68	0.54	B	15.08	0.61	A	9.84	0.48	B	16.87	0.61
WBR	A	9.69		B	15.1	0.62	A	9.84		B	16.87	
Intersection	**B**	**13.32**	**0.516**	**B**	**18.58**	**0.599**	**B**	**15.79**	**0.704**	**C**	**28.19**	**0.793**

The analysis shows that the proposed intersection configuration is expected to operate acceptably on an overall level without significant concern for all scenarios. However in all scenarios, all the movements at the northbound approach (traffic exiting the development) are expected to be critical or close to critical and thus would experience significant delay. As an alternative and to provide better service to the traffic exiting the development, especially any transit service leaving the development, the operational effects of converting this intersection to a roundabout were analyzed.

The traffic analysis for the proposed roundabout configuration was performed using the intersection design aid software *SIDRA INTERSECTION 8.* Figure 59 shows the proposed roundabout configuration.

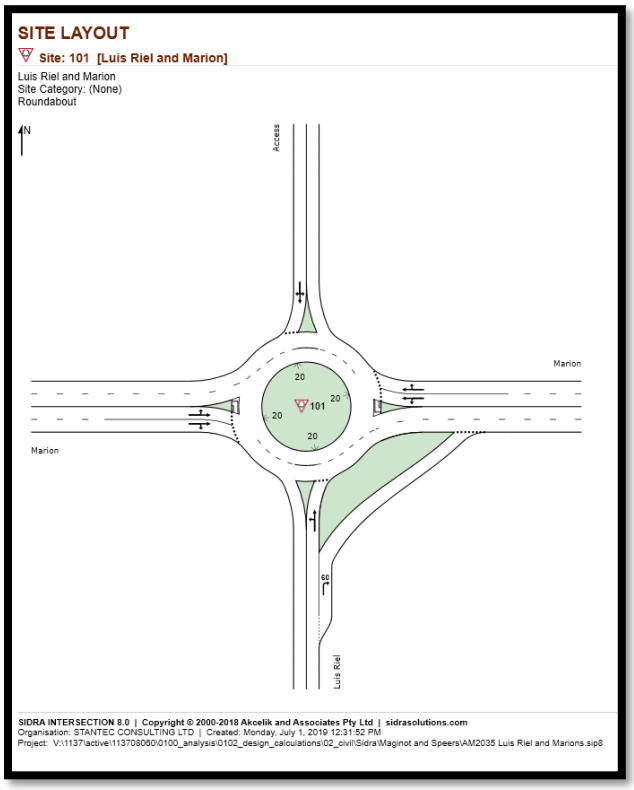


Figure 59 Roundabout Schematic Marion and Luis Riel

The analysis results for the 2025 and 2030 development scenarios for the proposed roundabout configuration are shown in Table 46 below. SIDRA traffic analysis reports are provided in Appendix E.

Table 46: Marion St and Louis Riel Way/Dupuy Ave Roundabout Traffic Analysis

	AM Peak						PM Peak					
	2025 Partial Build Out			2030 Full Build Out			2025 Partial Build Out			2030 Full Build Out		
Movement	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
NBL	B	10.2		B	11.0		B	11.8		B	16.4	
NBT	A	5.1	0.102	A	5.9	0.256	A	6.2	0.224	B	10.5	0.561
NBR	A	5.5		A	6.4		A	6.5		B	10.9	
SBL	B	11.6		B	12.9		B	11.7		B	12.8	
SBT	A	6.6	0.051	A	7.9	0.068	A	6.7	0.052	A	7.8	0.070
SBR	A	6.6		A	7.9		A	6.7		A	7.8	
EBL	A	7.9		A	8.3		A	8.5		A	8.9	
EBT	A	3.4	0.434	A	3.7	0.588	A	3.9	0.625	A	4.3	0.777
EBR	A	3.6		A	3.9		A	4.0		A	4.3	
WBL	A	8.2		B	11.1		A	8.5		B	13.0	
WBT	A	3.6	0.506	A	6.0	0.661	A	3.9	0.533	A	7.7	0.677
WBR	A	3.9		A	6.2		A	4.2		A	7.7	
Intersection	**A**	**4.0**	**0.506**	**A**	**5.6**	**0.661**	**A**	**4.6**	**0.625**	**A**	**7.2**	**0.777**

As demonstrated by the analysis results, the roundabout configuration provides a superior operation for all movements in all scenarios. For the 2030 PM full build out scenario the intersection is expected to still have significant unused capacity, operating at LOS A and with an average delay of 7.2 seconds. This is a notable improvement from the signalized intersection performance for the same scenario which was projected to operate at LOS C and with an average intersection delay of 28 seconds. Therefore, it is recommended that a roundabout be used for this intersection and that the City assist in its development by pursuing the utility relocations and property acquisition required.

As the roundabout would consist of two approach lanes in three of the four legs, enhanced pedestrian treatment, consisting of marked and potentially corridor treatments should be considered.

6.2 SECONDARY ACCESS ON MARION ST

A secondary access intersection along Marion St is proposed approximately 275 m east of the primary access point at the intersection of Marion St & Louis Riel Way. It has been assumed that this access intersection will also be complete in the 2025 partial build out scenario. Figure shows the proposed configuration of the new intersection. Key features of the intersection configuration include:

- Stop controlled at NB approach
- Two lane approach for both EB and WB Marion St with share thru/right turn and thru/left turn curb lane for the EB and WB approaches respectively
- 30 m single right turn storage lane for NB development road
- One right turn only lane and one left turn only lane at NB intersection approach



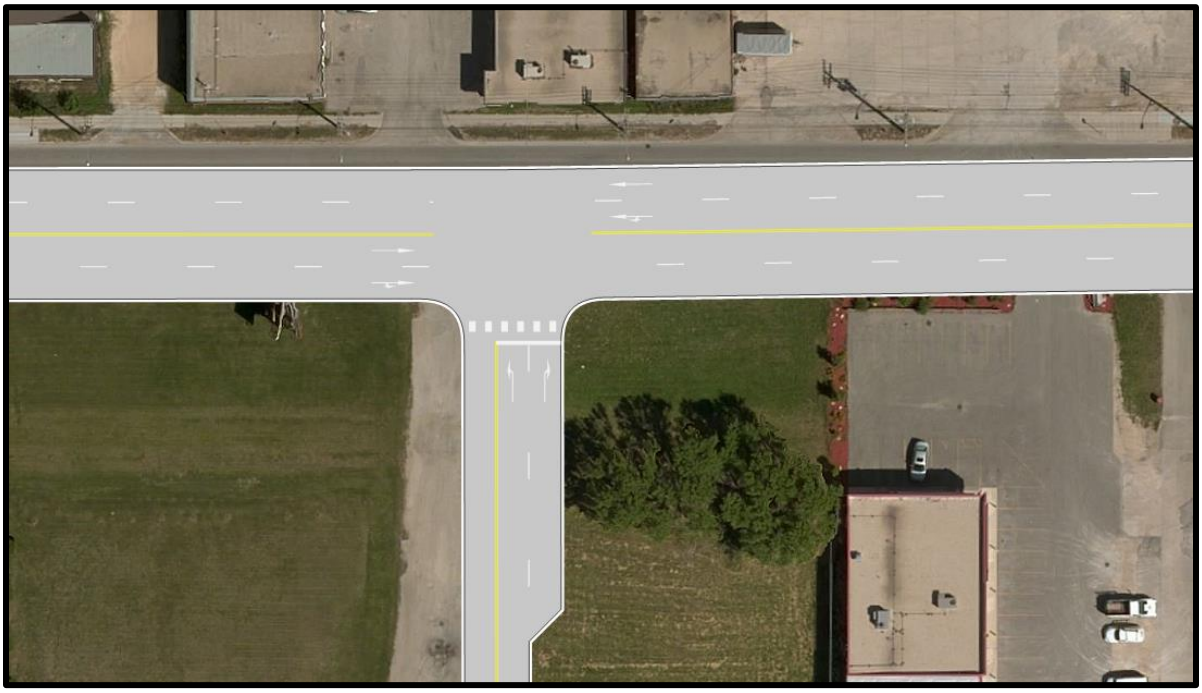


Figure 60: Secondary Access Along Marion St – Proposed Intersection Configuration

The traffic volumes operating conditions at the new intersection for the 2025 Partial Build-Out and 2030 Full Build Out scenarios for the AM and PM peak period are summarized in Table 47 and Table 48 below.

Table 47: AM Peak Period Traffic Analysis of Secondary Access on Marion St

	AM Peak							
	2025 Partial Build Out				2030 Full Build Out			
Movement	Volume	LOS	Delay	v/c	Volume	LOS	Delay	v/c
NBL	2	F	108.43	0.05	8	F	410.58	0.58
NBR	24	B	13.38	0.06	59	B	14.98	0.15
EB	1072	A	0.00	0.00	1158	A	0.00	0.00
EBR	1	A	0.00	0.00	1	A	0.00	0.00
WBL	60	B	11.79	0.111	118	B	13.67	0.24
WB	1452	A	0.00	0.00	1573	A	0.00	0.00
Intersection		**F**	**108.43**	**0.054**		**F**	**410.58**	**0.585**

Table 48: AM Peak Period Traffic Analysis of Secondary Access on Marion St

	PM Peak							
	2025 Partial Build Out				2030 Full Build Out			
Movement	Volume	LOS	Delay	v/c	Volume	LOS	Delay	v/c
NBL	3	F	779.52	0.10	8	F	401.68	0.58
NBR	69	C	34.53	0.24	118	D	28.62	0.46
EB	1541	A	0.00	0.00	1673	A	0.00	0.00
EBR	1	A	0.00	0.00	1	A	0.00	0.00
WBL	15	B	18.07	0.04	49	C	17.84	0.16
WB	1138	A	0.00	0.00	1205	A	0.00	0.00
Intersection		**F**	**141.89**	**0.103**		**F**	**401.68**	**0.575**

The traffic analysis shows that in the AM peak periods, only the NBL movement experiences significant delay and operates at an LOS F. However, in the PM peak period, the entire NB approach (traffic exiting the development) is expected to operate with significant delay for the 2025 and 2030 scenarios. The level of service for this approach could be improved with signalization, however this would reduce the level of service provided to the much busier EB and WB movements. As this is the secondary access point to the development, the lower level of service for exiting vehicles is considered acceptable. More focus has been placed on improving service for those drivers entering/exiting at the intersection of Marion St and Louis Riel Way. Consideration may be given to restricting movement to right in right out only.

6.3 MAGINOT ST AND SPEERS RD

The 2030 full-build out scenario includes a connection from the development to the intersection of Maginot St and Speers Rd, and thus access to Lagimodière Blvd via Maginot street. For the 2025 partial build out scenario it is assumed that this connection will not be complete, therefore access to the development will not be available via this intersection.

The current configuration at this intersection is four way stop control, with a single lane approach at the North, South and East legs and a two-lane approach at the West leg. The existing intersection configuration is shown in Figure 61 below.



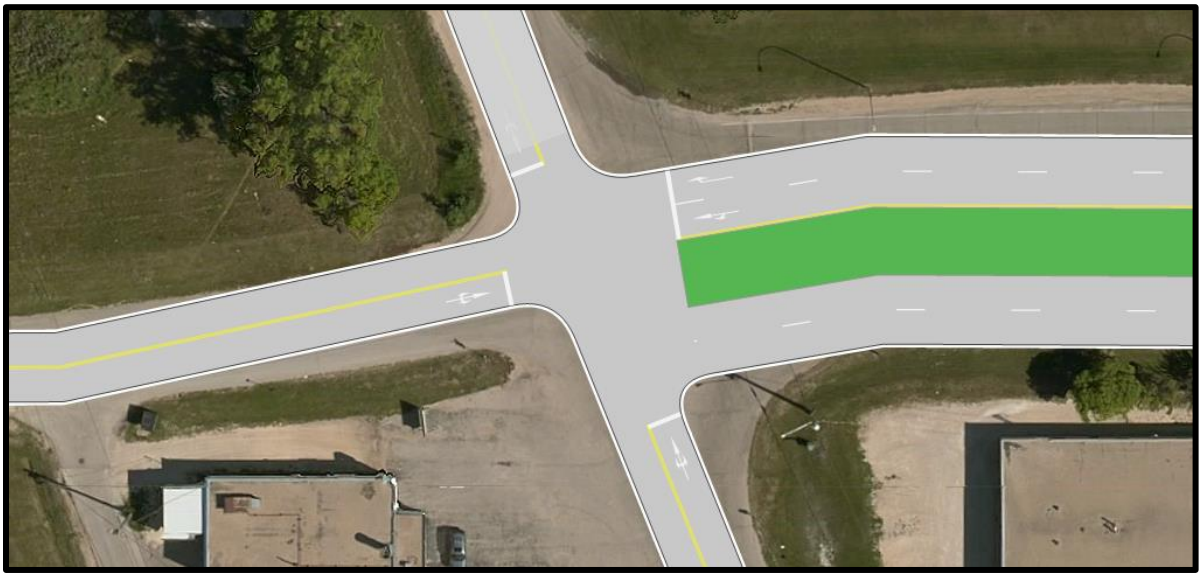


Figure 61: Maginot St and Speers Rd Existing Intersection Configuration

The operating conditions for the 2025 and 2030 development scenarios with the existing intersection configuration is provided in Table 49.

Table 49: Maginot St and Speers Rd All-Way Stop Traffic Analysis

	AM Peak				PM Peak			
	2025 Partial Build Out		2030 Full Build Out		2025 Partial Build Out		2030 Full Build Out	
Approach	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Northbound	A	9.81	B	14.68	A	9.49	B	14.66
Southbound	A	9.14	B	12.36	A	9.73	D	27.82
Eastbound	B	10.38	C	15.45	B	10.12	C	17.21
Westbound	B	10.22	B	12.42	B	15.09	C	22.73
Intersection	**B**	**10.07**	**B**	**13.77**	**B**	**12.06**	**C**	**22.00**

The traffic analysis shows that for the 2025 partial build out scenario the existing intersection configuration operates without significant concern. For the 2030 full build out scenario the intersection continues to operate at an acceptable level of service, however the southbound and westbound approaches are expected to experience some delay.

A roundabout analysis was also performed for this intersection for the development scenarios. The proposed roundabout configuration is shown in Figure 62

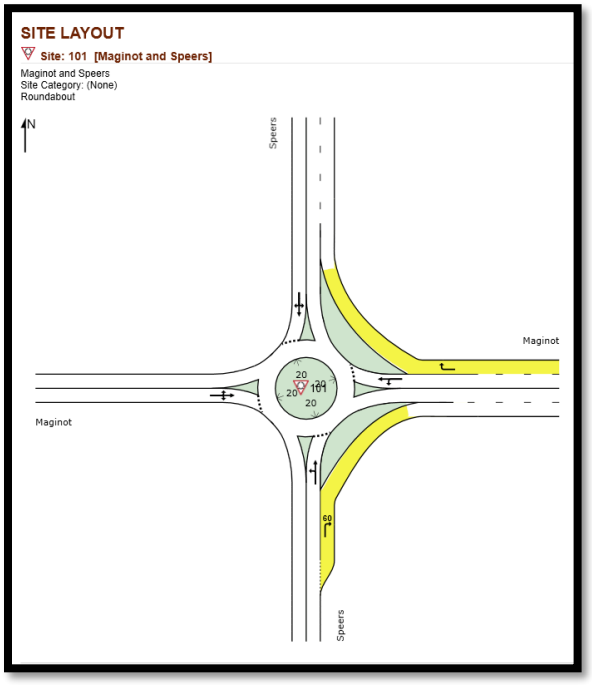


Figure 62 Roundabout Schematic Speers and Maginot

The analysis results for the 2025 and 2030 development scenarios for the proposed roundabout configuration are shown in Table 50 below.

Table 50: Maginot St and Speers Rd Roundabout Traffic Analysis

	AM Peak						PM Peak					
	2025 Partial Build Out			2030 Full Build Out			2025 Partial Build Out			2030 Full Build Out		
Approach	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
Northbound	A	2.7	0.107	A	3.1	0.102	A	2.8	0.069	A	3.4	0.071
Southbound	A	7.0	0.047	A	6.2	0.146	A	7.5	0.092	A	7.1	0.392
Eastbound	A	4.0	0.161	A	5.8	0.237	A	3.9	0.152	A	6.5	0.242
Westbound	A	4.2	0.130	A	4.2	0.149	A	5.3	0.215	A	4.7	0.234
Intersection	**A**	**3.9**	**0.161**	**A**	**4.6**	**0.237**	**A**	**4.4**	**0.215**	**A**	**5.6**	**0.392**

The roundabout analysis results show that a roundabout would provide LOS A to all movements for all scenarios, which is an improvement from all-way stop control. In the 2030 full build out scenario the intersection would have a significant amount of unused capacity and therefore would be capable of accommodating future traffic growth.

7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

7.1 SUMMARY

The development of the MRS D site has been identified in OurWinnipeg (2011) as an important piece in addressing the densification and redevelopment of lands in close proximity to the downtown core. The potential for capturing a significant portion of trips to the transit network and other active modes is one of the positive driving forces behind the development. The opportunity to create a mixed-use development where there is a great opportunity for a live, work, learn, play community to be established is great.

The location of this site requires additional examination of the limited access potential due to the presence of the rail lines, the concerns expressed regarding access of emergency vehicles, also due to the presence of rail lines, and the current and projected vehicular capacity available along the external road network. Access, capacity and also emergency services response have been addressed in this report.

The access issues are handled by the proposed development site plan, with two connections to Marion St, one primary and one secondary, and a connection to Speers Rd, with ultimate connection to the Lagimodière Blvd and Maginot Ave intersection.

The study identified that the current traffic demand cannot be satisfied adequately with the current intersection geometry and traffic control. The addition of traffic from external developments already approved by the City (background growth) exacerbate the poor operating conditions over the study time frame. This situation is well understood by the city as there were numerous studies conducted in recent years attempting to find solutions to these issues. None have been accepted by Council.

The Transit Master Plan currently under way has identified possibilities which may increase modal split in the range of up to 30% for some areas. This could significantly reduce the pressure on existing infrastructure. However, this study provides possible options for improving the current and non-development operating conditions based on strategic additional infrastructure at key intersections and modifications to the signal timing based on the current mode share. **As noted, these are suggested solutions only and should not to be considered the responsibility of the developer to initiate or provide significant contribution to. These however may be considered by the City as part of their upcoming review of traffic operations along Marion St.**

The study determined that the access to Marion St, via Louis Riel Blvd, will perform acceptably at full build out with a conventional intersection design, but will perform much better when a roundabout is considered. The roundabout will impact adjacent property and utilities, however, and will require participation by the City to resolve those challenges. The secondary access was determined to perform poorly using a stop-control. Consideration of limiting this access to right in right out is an option that is better supported by a roundabout at the Louis Riel intersection. A roundabout at this location has significant impact to adjacent property and was dropped from consideration.

Traffic volumes generated by the development were reduced by including a 10% transit mode share. The impact of increasing this mode share by providing a transit service that will be more attractive to the potential users was determined. Transit use from adjacent neighborhoods can be increased by other



service improvements, including a park and ride facility within or adjacent to the development site. These service improvements are being investigated through the Transit Master Plan that is currently underway. The impact of an improved mode share will have a positive effect on the intersection operating conditions and needs to be examined further to determine if it will be enough to defer capacity improvements to the external roads.

7.2 CONCLUSIONS

The development of the MRS D lands will generate new traffic and assigns it to an existing transportation network that has current (predevelopment) capacity constraints that result in congestion and long delays. The situation is exacerbated by train activity at several different crossings.

The current capacity constraints caused by anticipated increases to background growth can be mitigated by the suggested improvements in this report, and those improvements to the background traffic, which are not related to this development, are adequate to also accommodate the projected development traffic.

Improvements to the existing street network at the development access points are anticipated to allow the adjacent streets to retain reasonable operating conditions. The use of a roundabout at the Maginot and Speers intersection is superior to the current stop control condition and is being pursued by the proponent. Replacing the current proposed standard intersection treatment at Marion and Louis Riel with a roundabout greatly improves the operating conditions but requires assistance from the City related to property acquisition and utility relocation.

It is anticipated that the transit operations improvements being considered in the Transit Master Plan will have a positive impact to transit mode share, reducing the traffic demand in the study area, however the infrastructure improvements noted in this study to accommodate background traffic are still relevant.

7.3 RECOMMENDATIONS

The traffic generated by the proposed development can be accommodated by the transportation network, if the proposed or alternative mitigation to address current congestion issues are initiated and/or the anticipated transit system improvements are successful in shifting the way people move in Winnipeg.

The operation of Marion St and Louis Riel intersection is greatly improved if a roundabout intersection treatment is used to accommodate current and estimated future background traffic.

Improvements to the Marion, Lagimodière and Archibald corridors are being identified by the City as part of an upcoming study. Therefore, it is recommended that the City be allowed to use the findings within this report as a starting point to address background traffic growth along these corridors. It should be noted that addressing improvements to accommodate background growth will adequately address the demand created by this development.

The demand created by this development as a percentage of total demand at key intersections was presented in Section 3.3 and also shown below. These percentages may be used as a basis for discussion for potential contributions towards infrastructure upgrades.



Intersection	2025 Partial Build Out		2030 Full Build Out	
	AM	PM	AM	PM
Marion St at Archibald St	5%	6%	13%	13%
Marion St at Dupuy Ave	14%	17%	27%	28%
Marion St at Lagimodière Blvd	4%	5%	7%	7%
Lagimodière Blvd at Maginot St	3%	5%	4%	6%
Maginot St at Speers Rd	11%	16%	34%	43%



APPENDIX A

Transportation Engineering Background Information

Appendix A TRANSPORTATION ENGINEERING BACKGROUND INFORMATION

This appendix contains background information on transportation engineering concepts and performance measures

A.1 PERFORMANCE MEASURES

A.1.1 Highway Capacity Manual

The intersection capacity and level of service analysis was based in part on methodology from the *Highway Capacity Manual* (HCM). Several performance measures from the HCM methodology are detailed below:

- **Level of Service (LOS)** – Based on the average vehicle delay during a 15-minute analysis period. Levels of Service range from A (minimal delay) to F (unacceptable delay) and may be measured on an intersection, approach, or movement basis.

- **Degree of Saturation** – The ratio of demand flow rate (v) to maximum capacity (c). Where the v/c ratio is 1.0 or greater, the intersection is operating at full capacity and experiencing major congestion.

- **Vehicle Delay** – The average time that vehicles are delayed on an intersection, approach, or movement basis. Measured in seconds of delay per vehicle or total hours of delay during the peak hour being analyzed.

For design and planning purposes, LOS D or better under peak hour conditions is considered acceptable. Table A.1 and Table A.2 describe the characteristics of each LOS for signalized and unsignalized stop-controlled intersections, respectively, as listed in the HCM.

Table B.1: Signalized Intersections - HCM Level of Service Characteristics

HCM Level of Service	Average Signal Delay per Vehicle (sec/veh)	Characteristics
A	≤ 10	Free flow, low volumes and high speeds, most drivers can select own speed
B	> 10 and ≤ 20	Stable flow, speed restricted slightly by traffic
C	> 20 and ≤ 35	Stable flow, speed controlled by traffic
D	> 35 and ≤ 55	Approaching unstable flow, low speed
E	> 55 and ≤ 80	Unstable flow and speeds, volumes at/near capacity
F	> 80	Forced flow, low speed, volume above capacity

Table B.2: Stop Controlled Intersections - HCM Level of Service Characteristics

HCM Level of Service	Total Delay (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

APPENDIX B

2019 Traffic Volumes

APPENDIX C

Mode Share Reduction Traffic Volume Analysis

APPENDIX D

PTV Vistro Reports

APPENDIX E

SIDRA Traffic Analysis Reports

MRS D
Drainage Brief



Stantec

Prepared for:
McGowan Russell

Prepared by:
Stantec Consulting Ltd.



File: 116809710

May 3, 2019

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1.0 Introduction

This drainage brief has been prepared for submission to the City of Winnipeg for review and subsequent approval on behalf of the developer. The brief covers the design criteria and parameters for the land drainage system.

The proposed development encompasses approximately 71.46 Hectares and is bounded:

- on the north by Marion Street;
- on the east by CNR (Sprague), Dawson Road & Speers Road Right of Ways;
- on the south by CNR Paddington Yard; and
- on the west by CRP (Emerson) Right of Way.

The development will be constructed in multiple phases based on demand.

2.0 Land Drainage

2.1 BACKGROUND

The MRS D Land is a multi-use development in the Mission Combined Area and is comprised of approximately 71.46 ha.

The proposed development will contain two (2) naturalized retention ponds that will store and attenuate runoff from the development. The total normal water level area of the two retention ponds will be 2.24 ha (1.03 ha + 1.21 ha). The proposed development and retention pond catchments are illustrated in Figure 1.0. The total catchment area for the proposed retention ponds will be 71.46 ha.

The proposed ponds will drain through an interconnecting pipe to a weir manhole located near the west end of the development. The weir will be set at an elevation of 228.60 which will control the normal water level of the ponds. An interconnecting pipe will be installed from the weir manhole to the existing land drainage sewer on St. Catherine Street at Archibald Street. The existing land drainage sewers on St. Catherine Street flow west and discharge directly into the Seine River.

The weir manhole and interconnecting pipes from the MRS D have been designed to control the discharge to the existing land drainage sewer system.

Approximately 89 m of existing 300 mm land drainage sewer on St. Catherine Street (from Archibald Street west) will be replaced with a 375 mm land drainage sewer. This upsized land drainage sewer will be lowered to an elevation of 227.80 which allows the proposed retention ponds to drain by gravity from the weir manhole to the existing land drainage sewers on St. Catherine Street.

2.2 EXISTING ST. CATHERINE STREET SYSTEM

A course model was generated for the existing catchments that drain to the St. Catherine Street land drainage sewers. The St. Catherine Street land drainage sewers flow westerly and discharge directly into the Seine River. The City of Winnipeg provided tailwater conditions for the St. Catherine Street outfall (to the Seine River). The tailwater elevations are shown below;

- Spring 1:50 Year Condition (FM#935) = 228.19 – To be used in conjunction with a 1:5 Year Spring Storm

- Summer 1:10 Year Condition (FM#940) = 226.13 – To be used in conjunction with a 1:5 Year Summer Storm

2.2.1 Catchment Areas – St. Catherine Street

Five (5) existing catchment areas were created, one for each manhole on St. Catherine Street. These five (5) catchments were created by reviewing the land drainage sewers, the high & low points located on St. Catherine Street and surrounding areas. The five (5) catchments are depicted on Figure 1.0.

2.2.2 Modelling Information

The runoff parameters used for the existing catchments are presented in Table 1.0 below.

Table 1.0 – Existing Runoff Parameters

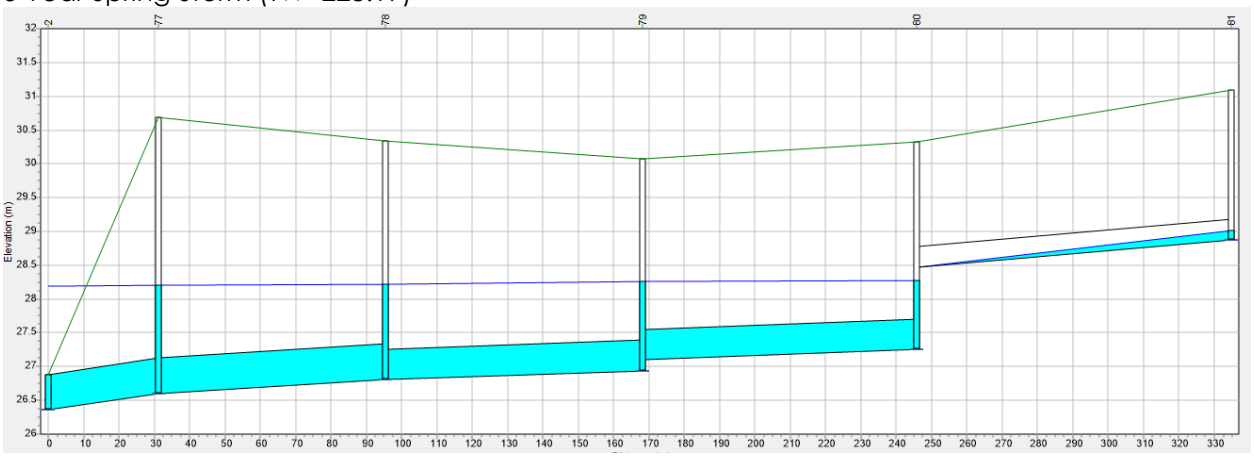
Sub Catchment	Slope (m/m)	% Impervious	Depression Storage	
			Imperv (mm)	Pervious (mm)
St. Catherine Street	0.50%	50	3	6
St. Catherine Street & Archibald Street	0.50%	56	3	6

The existing pipe lengths and sizes were gathered using LBIS and record drawings that were provided by the City of Winnipeg.

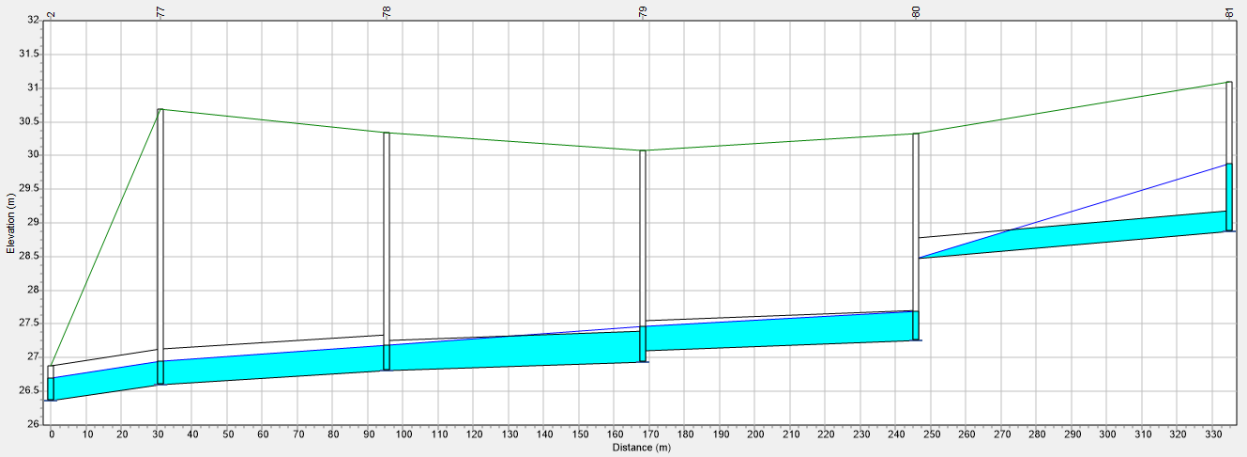
2.2.3 Existing Hydraulic Profiles

Below are the existing hydraulic profiles of the St. Catherine Street land drainage sewer for the 5 year spring storm (TW = 228.19), 5 year summer storm (TW=226.13) and 2010 design storm (TW=226.13) for the existing land drainage sewer conditions (w/o MRS D Land).

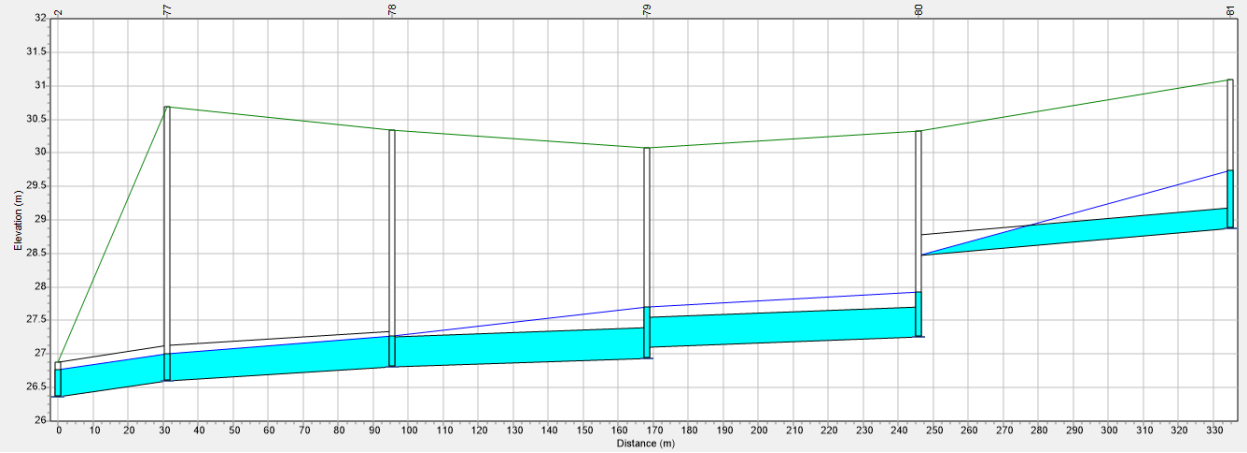
5 Year Spring Storm (TW=228.19)



5 Year Summer Storm (TW=226.13)



2010 Design Storm (TW=226.13)



2.3 MODEL

2.3.1 Design Criteria

The following design criteria and assumptions were followed during the modeling analysis of the proposed drainage system.

2.3.1.1 Rainfall

The drainage system was analyzed using design storm hyetographs discretized into 5 minute time steps. The intensity equations are presented in Table 2.0.

Table 2.0 – Rainfall Intensity

Storm	Type	Intensity (mm/hr)
5 yr Spring Return Period MacLaren 1974	Chicago Distribution	$i_5 = \frac{329}{(t+2.7)^{0.80}}$
5 yr Summer Return Period MacLaren 1974	Chicago Distribution	$i_{25} = \frac{1199}{(t+8)^{0.828}}$
Historic Bernie Wolfe 2010	Observed Event	Variable

2.3.1.2 Runoff

Runoff for this analysis was generated by hydrograph method which utilized a Horton infiltration model, and SWMM routing method. The total area of each subcatchment was divided into a pervious and an impervious runoff surface. The runoff parameters for the sub catchments are shown in Table 3.0 below.

Table 3.0 – Runoff Parameters

Sub Catchment	Slope (m/m)	% Impervious	Depression Storage	
			Imperv (mm)	Pervious (mm)
MRS D Land	0.65%	80	3	6

- Horton infiltration Parameters for Pervious Surfaces
    - fo = 75 mm/hr
    - fc = 3 mm/hr
    - a = 4.14 hr^{-1}

2.3.1.3 Retention Pond

The specific City of Winnipeg criteria guidelines applicable to the Retention Lake are as follows:

- Pond to be of naturalized design.
- 1.20 m lake rise for a 25 year storm (maximum).
- Freeboard Elevation 0.60 m above High Water Level (HWL).

- 7:1 side slopes above normal water level and extending 3.0 m horizontally into the water, and 4:1 side slopes below water.
- 2.5 m minimum water depth.
- Maximum pond drawdown times:
  - 48 hours for the 5 year storm
  - 120 hours for the 100 year storm

The stage storage parameters for each retention pond used to model the subdivision area shown in Table 4.0 below.

Table 4.0 – Retention Pond Normal Water Level Areas

Retention Pond	Level	Elevation (m)	Area (m^2)	Volume (m^3)
Retention Pond #1	Bottom	226.10	5,934	0
	NWL	228.60	10,273	20,259
	Top 7:1	230.60	17,403	47,935
Retention Pond #2	Bottom	226.10	7,715	0
	NWL	228.60	12,145	24,825
	Top 7:1	230.60	18,800	55,770

2.3.1.4 Allowable Discharge

There hasn't been a peak allowable discharge rate set for the proposed development to discharge to the St. Catherine Street LDS. Therefore, the peak discharge rate to the St. Catherine Street LDS will be restricted so that it does not negatively affect the existing land drainage sewer system on St. Catherine Street.

2.3.1.5 Change to the Existing St. Catherine Street System

Below outlines the change to the existing St. Catherine Street system that will improve the hydraulics within the St. Catherine Street LDS.

- Upsize the existing 300 LDS (high end) to a 375 LDS and lower the pipe inverts by roughly 0.60 m +/-.

2.3.2 Modelling Results

Detailed plots of the MRS D Lands Retention Pond Levels are shown in Figure 2.0 and 3.0. The MRS D Lands discharge to the existing land drainage sewer on St. Catherine Street is shown in Figure 4.0.

The High Water Levels and Active Storage Volume for proposed retention ponds, for the 5 year spring, 5 year summer and 2010 design storm are shown in Table 5.0 and 6.0 below.

Table 5.0 – High Water Levels and Active Storage Volume: Retention Pond #1

Storm	**High Water Level** Elevation (m)	**Rise** (m)	**Active Storage Volume** (m^3) (NWL to HWL)
5 Year Spring	228.854	0.254	2,722
5 Year Summer	229.557	0.957	11,457
2010 Design Storm	230.567	1.967	27,039

Table 6.0 – High Water Levels and Active Storage Volume: Retention Pond #2

Storm	**High Water Level** Elevation (m)	**Rise** (m)	**Active Storage Volume** (m^3) (NWL to HWL)
5 Year Spring	228.855	0.255	3,212
5 Year Summer	229.561	0.961	13,319
2010 Design Storm	230.572	1.972	30,899

The proposed development discharge to the existing land drainage sewer on St. Catherine Street is shown in Table 7.0 Below.

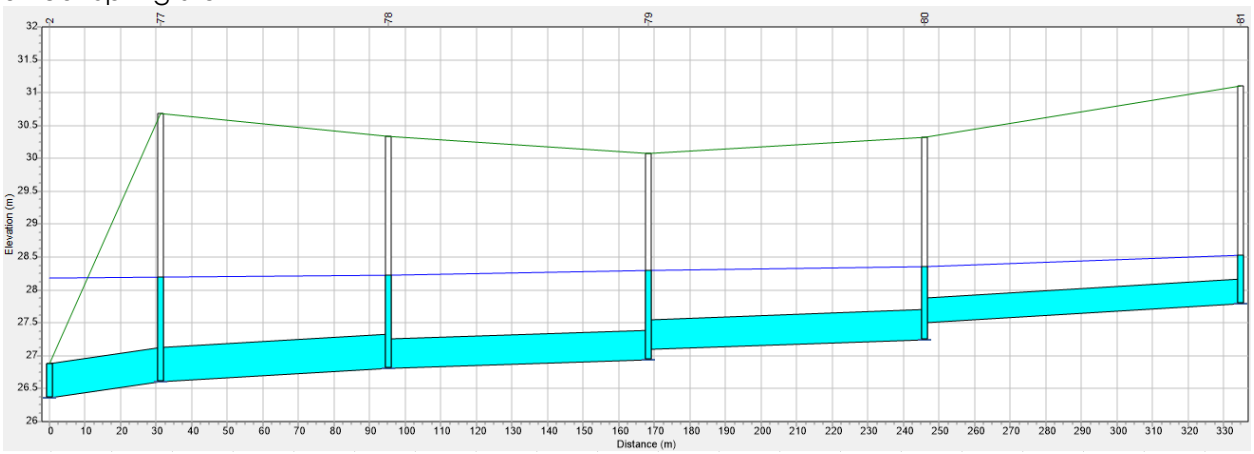
Table 7.0 – Proposed Development Discharges to the Existing Land Drainage Sewer

Storm	**Max Discharge** (m^3/s)
5 Year Spring	0.083
5 Year Summer	0.157
2010 Design Storm	0.198

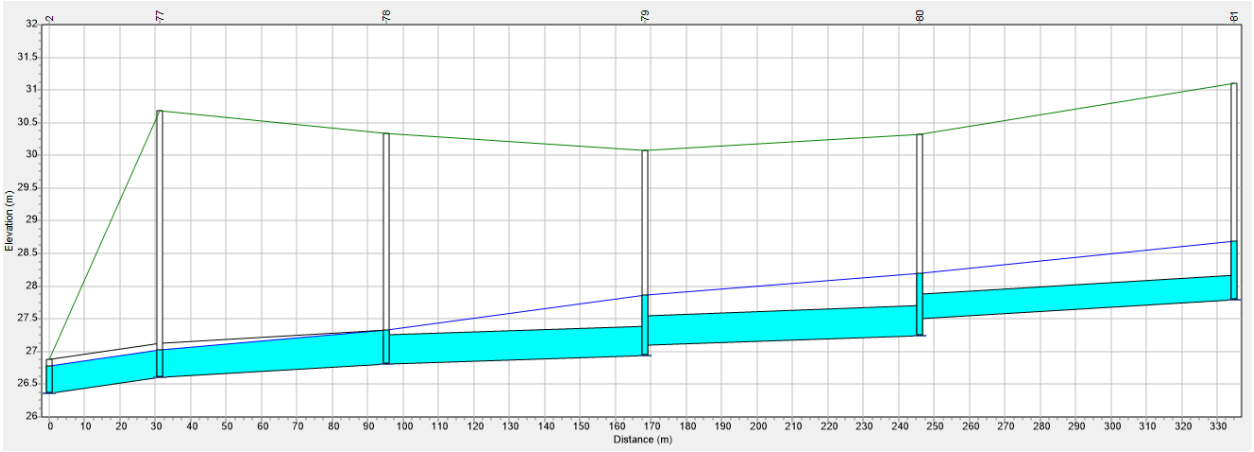
The peak discharge to the existing St. Catherine Street LDS system has been restricted to 0.198 m^3/s, and there appears to be no negative impact on the existing system.

Below are the post-development hydraulic grade profiles of the existing St. Catherine Street land drainage sewer from the existing outfall at the Seine River to Archibald Street for the 5 year Spring, 5 year Summer and 2010 Design Storms.

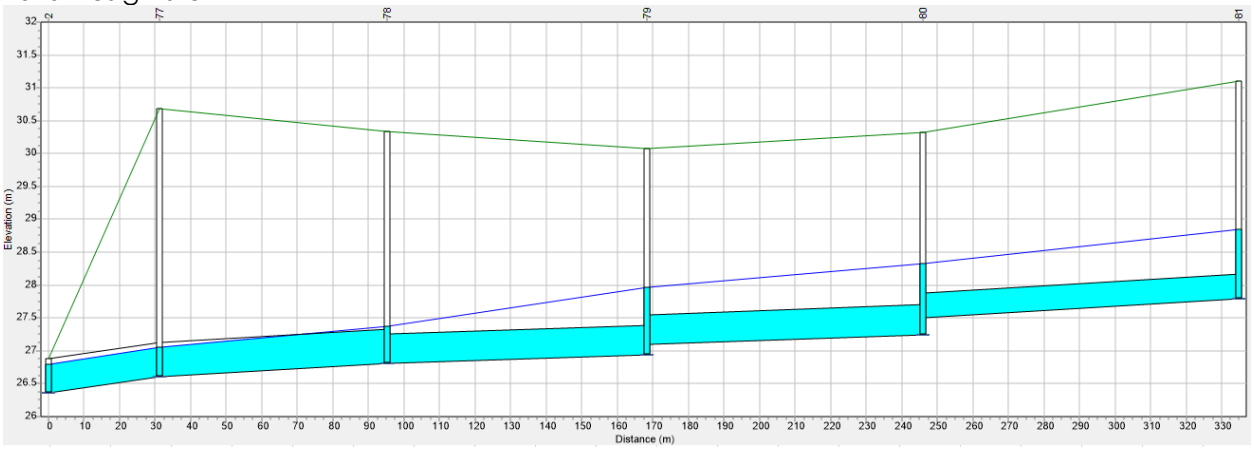
5 Year Spring Storm



5 Year Summer Storm



2010 Design Storm



The post-development hydraulic profiles shown above for the 5 year spring, 5 year summer and 2010 design storms compared to the pre-development hydraulic profiles shown in Section 2.2.3 show that the addition of the proposed development has no negative impact on the St. Catherine Street land drainage sewer as the hydraulic grade line does not reach the rim/street elevation.

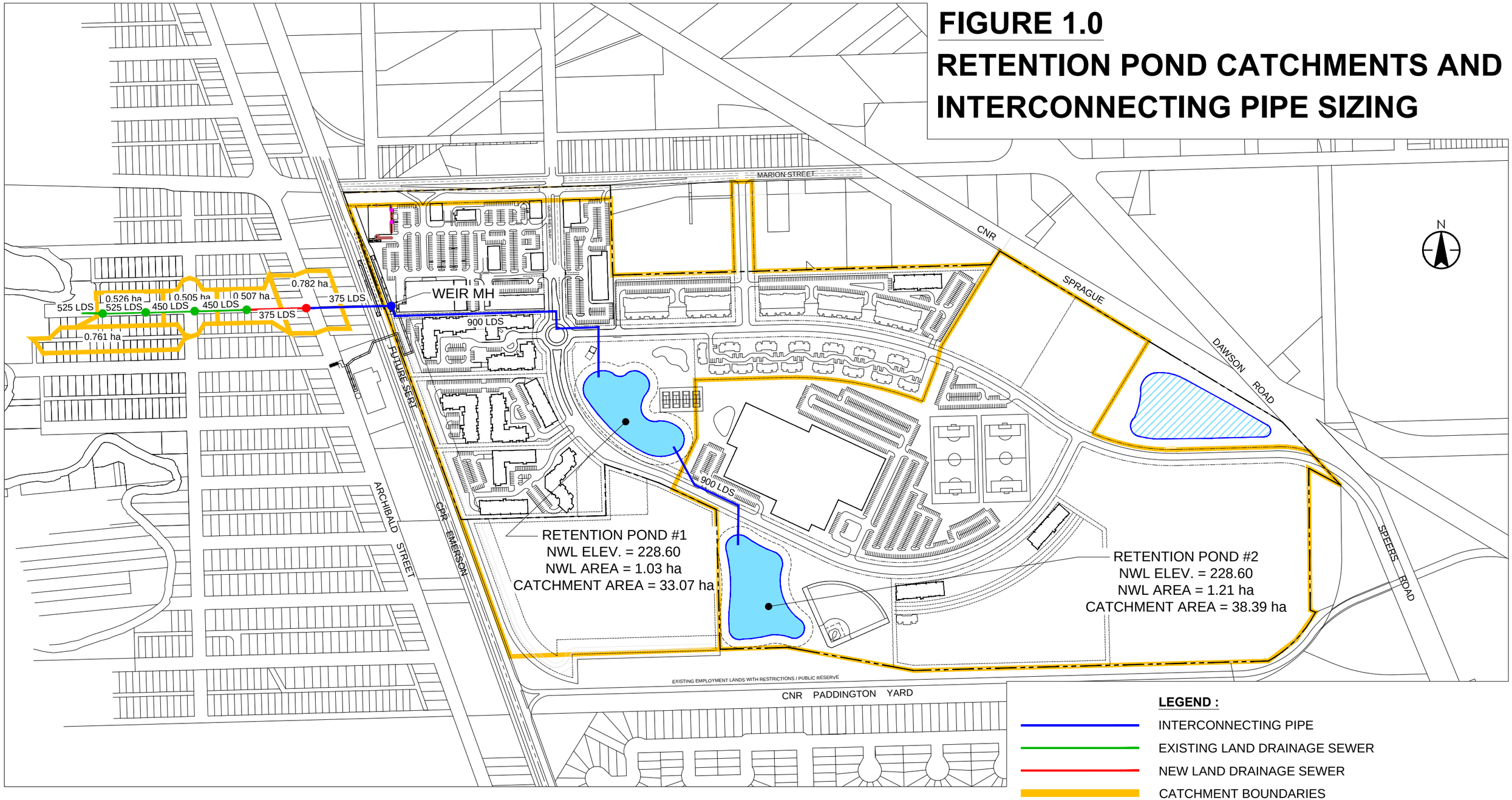
2.3.3 Conclusion

As can been seen in Table 5.0 & 6.0, the maximum rise in the proposed retention ponds is seen during the 2010 Design Storm. The maximum calculated High Water Level (HWL) is 230.572. The freeboard elevation within development will be set at 231.172 (0.60m above HWL).

Due to existing St. Catherine system and discharge rates, drawdown times exceed the design criteria of 48 hours for a 5 year storm. At 48 hours during a 5 year summer storm the proposed development retention ponds will be 0.19 m above Normal Water Level. The extended drawdown time may result in some grass die back if inappropriate species are planted around the pond.

The peak discharge of 0.198 m^3/s from the proposed development to the existing land drainage sewer on St. Catherine Street appears to have no negative impact on the existing system.

FIGURE 1.0
RETENTION POND CATCHMENTS AND INTERCONNECTING PIPE SIZING



LEGEND :

- INTERCONNECTING PIPE
- EXISTING LAND DRAINAGE SEWER
- NEW LAND DRAINAGE SEWER
- CATCHMENT BOUNDARIES
- WEIR MANHOLE
- EXISTING MANHOLE
- NEW MANHOLE
- PROPOSED PONDS
- FUTURE CITY POND

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Figure 2.0 - Retention Pond #1 High Water Levels

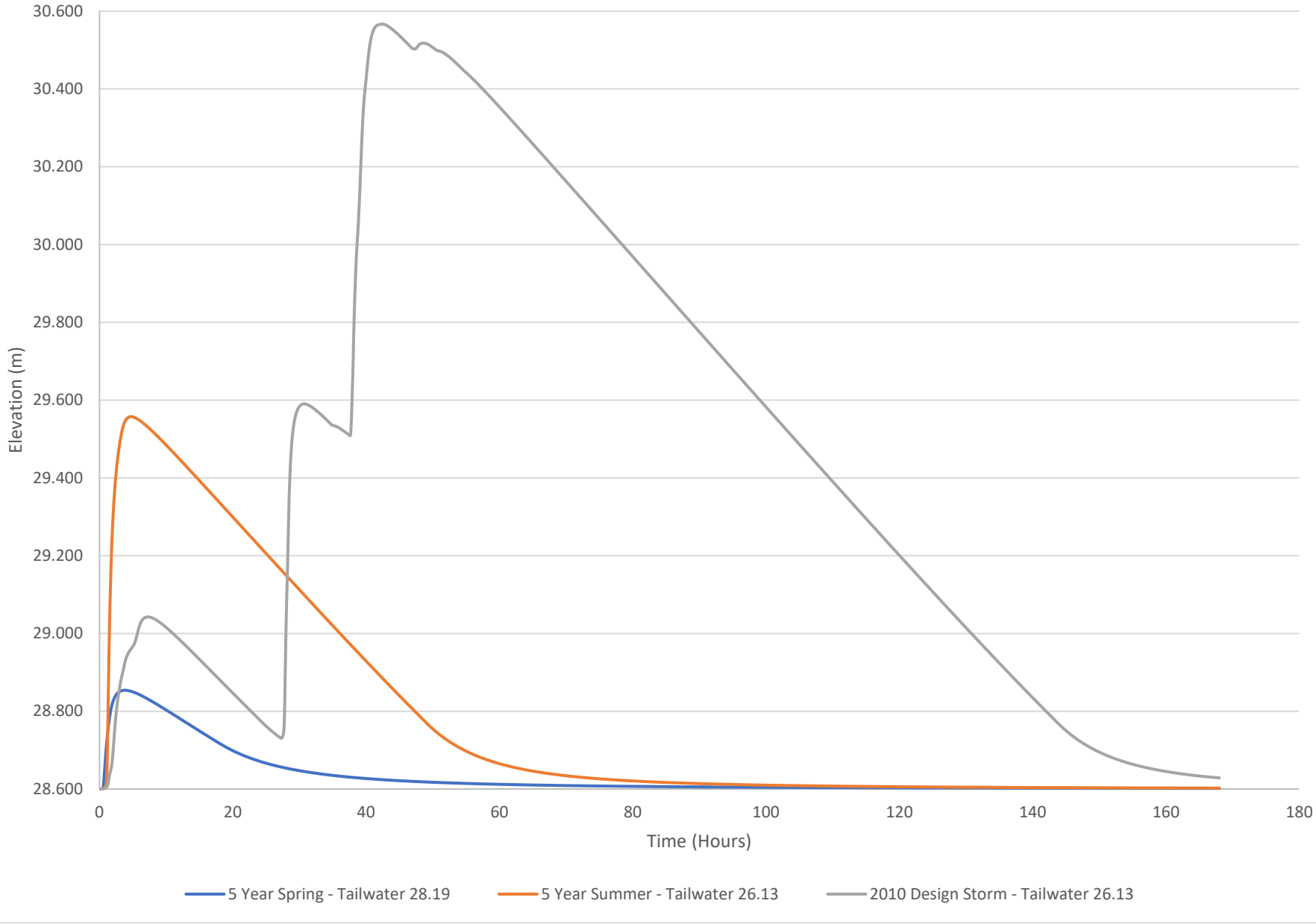


Figure 3.0 - Retention Pond #2 High Water Levels

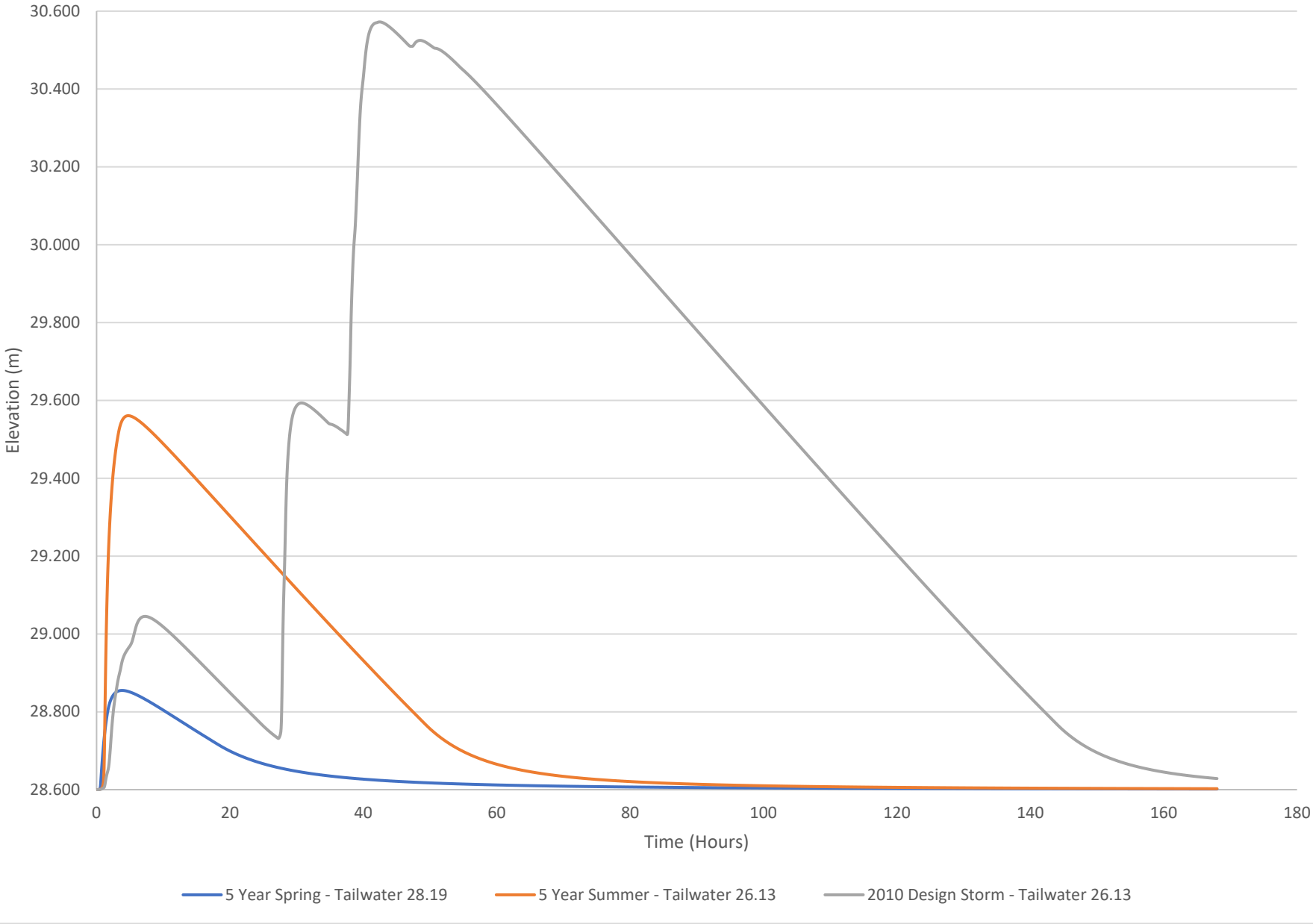
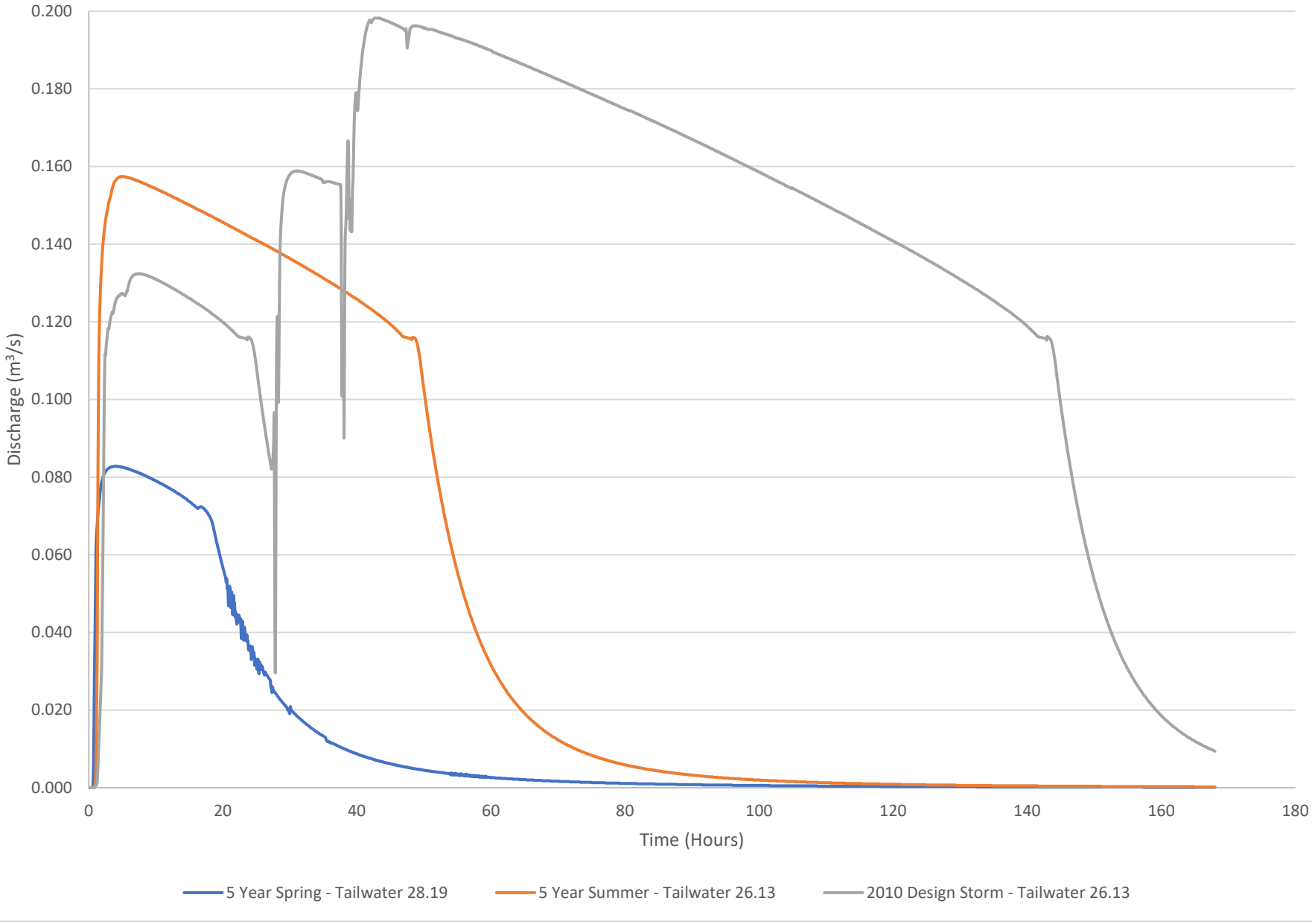


Figure 4.0 - Discharge to Existing St. Catherine Street LDS System



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Memo

To:	Susan Russell MRG	From:	Jordan Kellas Stantec
File:	116809710	Date:	January 14, 2019

Reference: Canada Packers Land – Preliminary Servicing Analysis

The following discussion is based on the most recent concept plan for the proposed development site that was prepared by McGowan Russell Ltd.

Watermain

The existing 300 mm watermains on Marion Street and Dawson/Speers Road are the proposed water supply pipes for this development. Figure 1.0 shows the conceptual alignment and sizes of the proposed pipes that will be required to service the development.

To permit the potential first phase only without the Phase 2 water loop it is likely that a second temporary water supply pipe will be required off Marion Street. This will help provide the Phase 1 fire protection requirements and provide redundancy in the event of a watermain break.

Wastewater Sewers

There are existing combined sewers on Marion Street and Dawson/Speers Road. Figure 2.0 shows the proposed development connections to these two combined sewers. The City intends on providing sewer relief to the existing combined sewers in the area as part of the Mission Combined Sewer Relief project. Ultimately, the land drainage that currently utilizes the combined sewers will be removed and directed to new land drainage sewers. Once this is completed there will be adequate capacity for the ultimate flows from this new development.

For Phase 1 (as described below in the LDS section) the combined peak sanitary and land drainage flows can be controlled to be below the 0.20 cms permitted to be discharged to the combined sewer system.

Land Drainage

To manage the land drainage requirements for the new development, a separate outlet pipe system will be installed by the developer to the Seine River. There are currently 2 installation options presented for the developer's new outlet pipe:

Option 1 – Full buildout of the outlet pipe system to the Seine River (Figure 3.0)

This option would present no discharge concerns as all development flow is directed to the river

Option 2 – New land drainage pipe temporarily connects to combined sewer at west edge of MRS D, within widened Marion R.O.W. (Figure 4.0)

The City has confirmed that the allowable peak discharge to the combined sewer system is 0.20 cms, including both sanitary and land drainage flows. Stantec has confirmed that the peak sanitary flow from Phase 1 would be 0.02 cms. To ensure total discharge is below 0.20 cms, the allowable peak discharge from the temporary LDS connection must be 0.18 cms. We have confirmed through SWMM modeling that with the use of an orifice the peak land drainage discharge can be controlled to below 0.18 cms. Once the developer's outlet pipe system is ultimately installed to the Seine River, the orifice control can be removed.

Reference: **Canada Packers Land – Preliminary Servicing Analysis**

STANTEC CONSULTING LTD.

Jordan Kellas, EIT
Phone: 204-928-8828
jordan.kellas@stantec.com

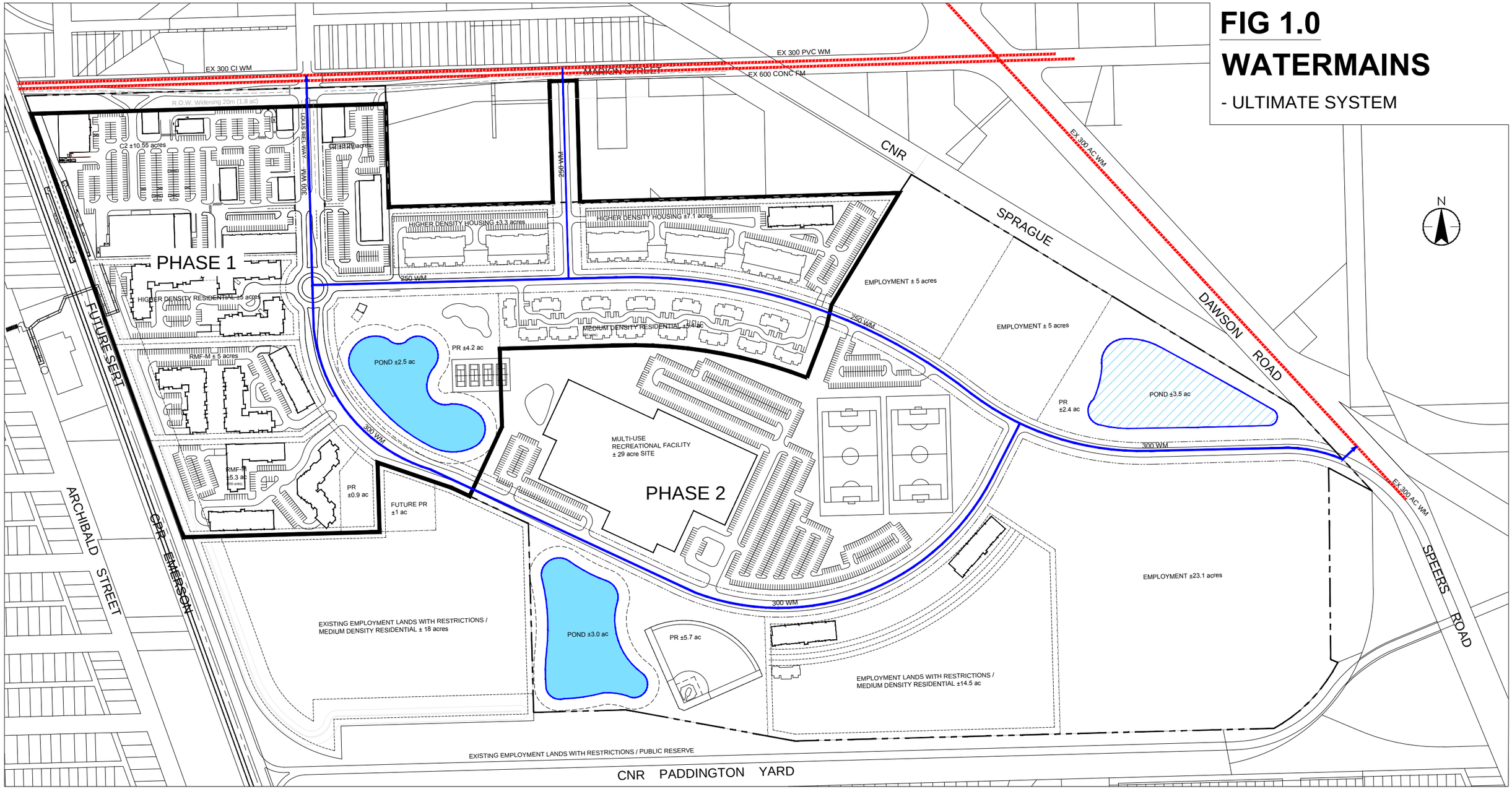
Attachment: Servicing Figures

c. Dan Mages

FIG 1.0

WATERMAINS

- ULTIMATE SYSTEM



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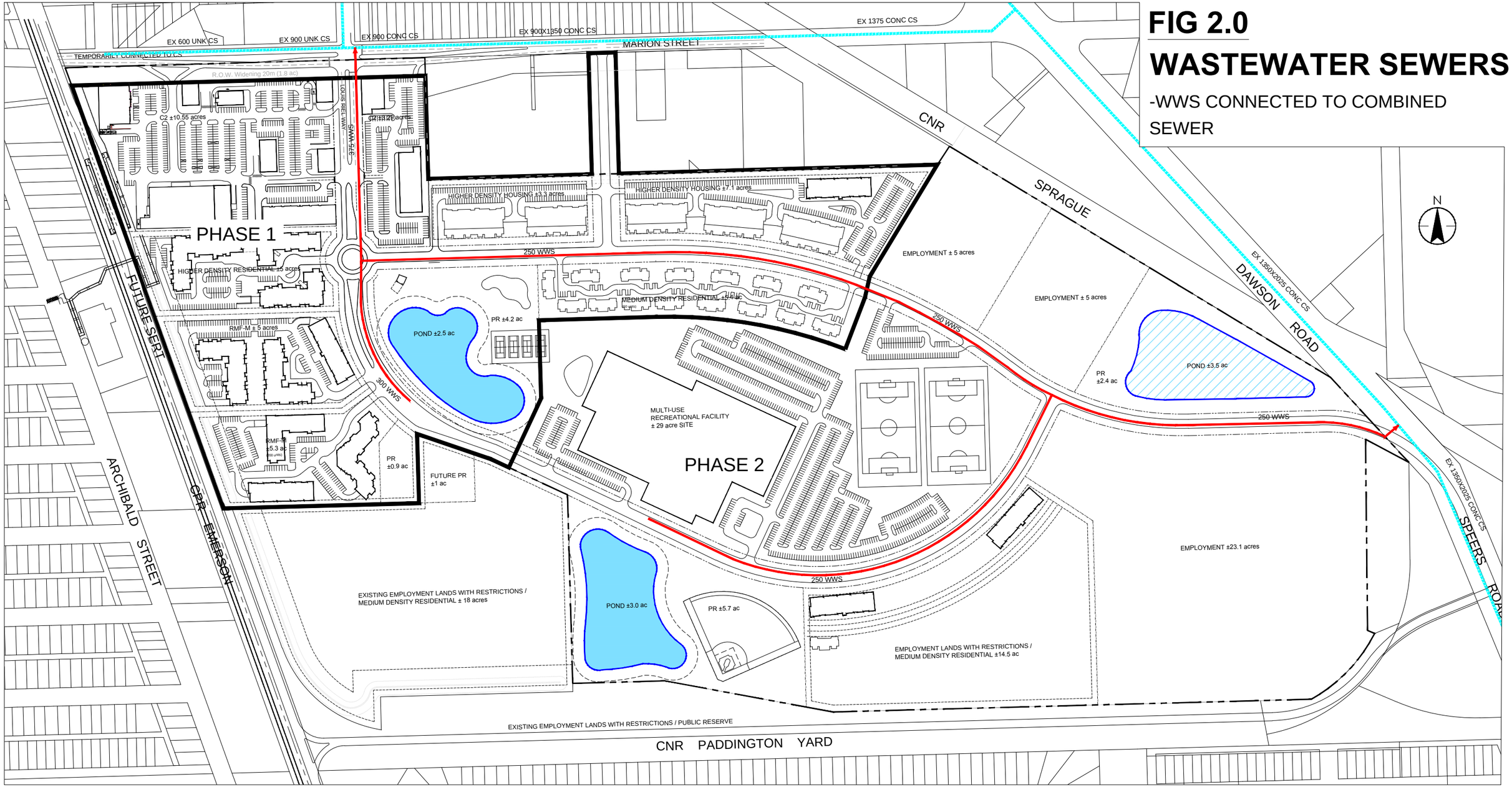
LEGEND :

- PHASE 1 BOUNDARY (25.25 HA)
- PROPOSED WATERMAIN
- EXISTING WATERMAIN

FIG 2.0

WASTEWATER SEWERS

-WWS CONNECTED TO COMBINED SEWER



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LEGEND :

- PHASE 1 BOUNDARY (25.25 HA)
- PROPOSED WASTEWATER SEWER (Connected to Combined Sewer)
- EXISTING WASTEWATER SEWER

FIG 3.0

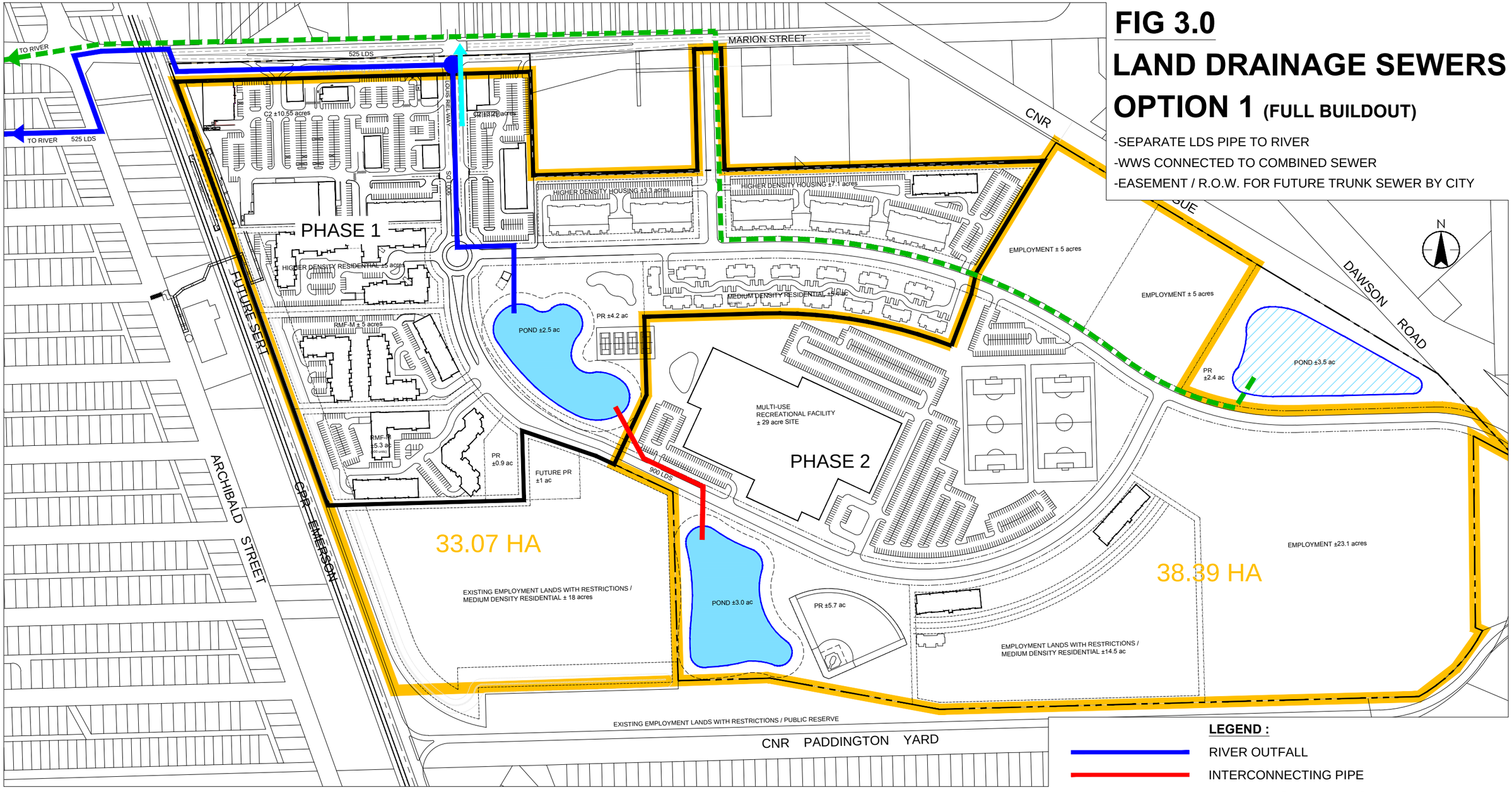
LAND DRAINAGE SEWERS

OPTION 1 (FULL BUILDOUT)

-SEPARATE LDS PIPE TO RIVER

-WWS CONNECTED TO COMBINED SEWER

-EASEMENT / R.O.W. FOR FUTURE TRUNK SEWER BY CITY



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PONDS

FUTURE CITY POND

WEIR MANHOLE

LEGEND :

RIVER OUTFALL

INTERCONNECTING PIPE

FUTURE LDS TRUNK ALIGNMENT
(in widened row or easement on lots - by C of W)

POND CATCHMENTS

PHASE 1 BOUNDARY (25.25 HA)

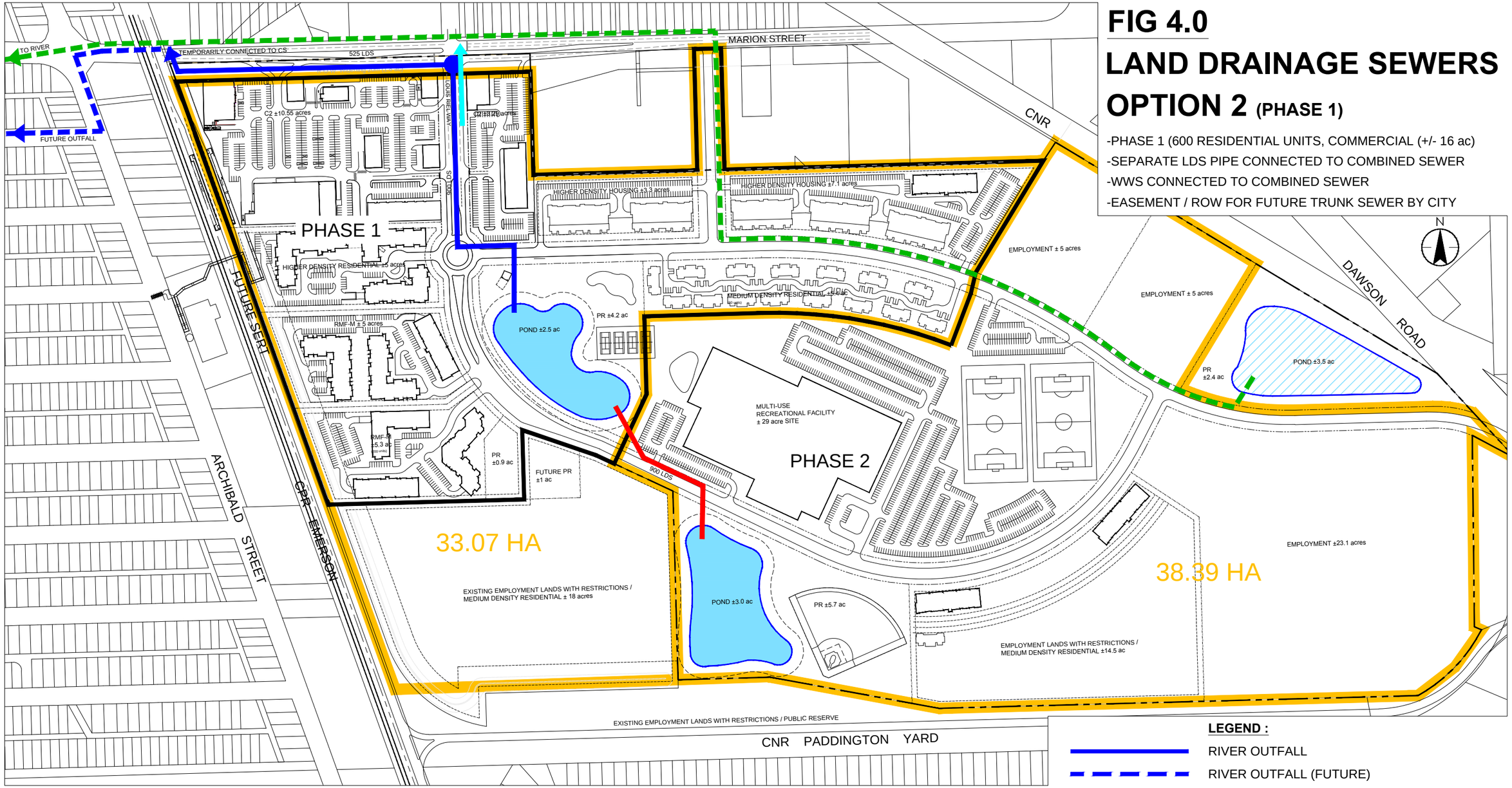
WASTEWATER SEWER
(Connected to Combined Sewer)

FIG 4.0

LAND DRAINAGE SEWERS

OPTION 2 (PHASE 1)

-PHASE 1 (600 RESIDENTIAL UNITS, COMMERCIAL (+/- 16 ac)
-SEPARATE LDS PIPE CONNECTED TO COMBINED SEWER
-WWS CONNECTED TO COMBINED SEWER
-EASEMENT / ROW FOR FUTURE TRUNK SEWER BY CITY



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PONDS
FUTURE CITY POND
WEIR MANHOLE

LEGEND :

RIVER OUTFALL
RIVER OUTFALL (FUTURE)
INTERCONNECTING PIPE
FUTURE LDS TRUNK ALIGNMENT
(in widened row or easement on lots - by C of W)
POND CATCHMENTS
PHASE 1 BOUNDARY (25.25 HA)
WASTEWATER SEWER
(Connected to Combined Sewer)

Stantec Consulting Ltd.
500–311 Portage Avenue
Winnipeg MB R3B 2B9
Tel. 204-489-5900

July 26, 2018
File: 111474043

Attention: Warren Rospad, Contaminated Sites Specialist
Manitoba Sustainable Development
1007 Century Street
Winnipeg, MB R3H 0W4

Dear Mr. Rospad,

Reference: Remediation Plan for the Former Canada Packers, Swifts Canada Company and Public Markets Site in Winnipeg, Manitoba

At the request, and on behalf, of 7319828 Manitoba Ltd., Stantec Consulting Ltd. (Stantec) has prepared the following Remediation Plan as required by Manitoba Sustainable Development (MSD) according to Section 14.1(1) of *The Contaminated Sites Remediation Act* (C.C.S.M., c. C205; 'the CSRA') for soil and groundwater impacts identified at the Former Canada Packers, Swifts Canada Company and Public Markets Site in Winnipeg, Manitoba (herein referred to as "the Site") shown in **Figure 1,** attached.

The purpose of this Remediation Plan is to provide MSD with an update of the current environmental status of the Site and advise on the proposed Site activities (including handling of impacted soil) in concert with proposed future re-development.

BACKGROUND INFORMATION

The Site is currently zoned as M3 – manufacturing – heavy, which would be considered industrial land use. However, with the proposed re-development plan for the Site, the future Site use will consist of a mixture of residential, public reserve space, commercial development, an area with a recreational facility, and light industrial land use (**Figure 2**, attached).

The Site is neighboured to the north and northeast by commercial and light industrial properties, respectively followed by Marion Street and additional commercial and industrial properties. A railway line followed by commercial and light industrial properties and Dawson Road are present to the east of the Site. Railway lines followed by residential dwellings are located south of the Site and a rail, car and truck transportation company is located to the southwest. To the west of the Site is a railway line followed by commercial buildings.

The Site is currently vacant; however, large concrete slabs are present on the central portion of the Site and concrete roadways are present on the west portion of the Site. Other debris is also present. The concrete and debris are remnants of former industrial operations on the Site between the 1940s and late 1980s. Additionally, it was reported that some of the fill materials originated from construction projects throughout the City of Winnipeg (i.e., marshy south-central and south-western portions of the Site were used as disposal locations). A former steel water tower is present in the north central portion of the Site.

Canada Packers formerly occupied the northwest portion of the Site, which consisted of several buildings, railway spur lines and a number of aboveground and underground storage tanks. The plant was utilized for the processing and packaging of animal meat products.

Swifts Canada was formerly located in the southwest portion of the Site and also consisted of several buildings and railway spur lines. Available information regarding site operations appears to be limited; however, it is understood that the Swifts Canada property was also used for the processing and packaging of animal meat products.

The former Public Markets and St. Boniface Hide and Wool properties occupied the remainder of the Site, east of Canada Packers and Swifts Canada. The Public Markets property was used as a holding, selling and transfer area for animals to be auctioned or to be processed at the Canada Packers and Swifts Canada facilities. St. Boniface Hide and Wool was located in the northeast portion of the Site and was a hide treatment facility (salting of hides which were then sold to tanning firms). Several railway spur lines were present along the eastern and northern Site boundaries. The southern portion of the property on the east side remained relatively undeveloped but was used as a storage/disposal area for manure and debris.

The nearest water body is the Seine River which is located approximately 450 m west of the Site and flows north and drains into the Red River located approximately 2.5 km north of the Site.

Stantec's review of the current provincial GWDRill database (2016) identified several observation wells, production, and livestock production wells located on-site; however, as the Site is vacant these wells are no longer in use. Several of the identified on-site wells were reported to have been abandoned or sealed. In addition, within 500 m of the Site, several wells were identified off-site to the north, northeast, east, and one to the south. The records indicate that these wells are either observation wells, recharge or production wells and not for domestic use. Review of the available logs for these wells indicates the wells are generally cased through the overburden to depths of approximately 22 metres below ground surface (m BGS) and 20 m BGS for the shallowest cased well[1]. Further, potable water for the area is known to be supplied via a municipal distribution system that obtains its water from Shoal Lake. On this basis, groundwater does not appear to be used as a source of potable water on or near the Site.

Prior investigations have been completed on the Site by MMM Group Ltd. (MMM 2011 Phase II ESA; shared with this Remediation Plan) and by Stantec (Stantec 2013 Follow-up Phase II ESA; shared with this Remediation Plan). These investigations involved the assessment of soil and groundwater quality with the advancement of 31 test pits, 88 boreholes, as well as the collective installation of 21 monitoring wells (see **Figure 2**). Based on the available borehole logs, the soils at the Site are predominantly fine grained.

The investigations completed by MMM and Stantec identified soil and groundwater impacts that exceeded the most stringent guidelines stipulated by the Canadian Council of Ministers of the Environment (CCME) (soil) and Health Canada (groundwater).

[1] On-Site monitoring wells are installed to 6 m BGS.

In June 2018, Stantec was retained by 7319828 Manitoba Ltd complete a review of the regulatory framework applicable to the Site and the proposed land uses for the Site and develop this Remediation Plan for identified impacts at the Site.

REGULATORY FRAMEWORK CONSIDERED APPLICABLE FOR THE SITE

The soil guidelines considered applicable to the Site are presented in **Tables A.1 and A.2** (attached). The applicable groundwater standards for the Site are provided in **Table A.3** (attached). The rationale for the selection of these guidelines is presented in the subsections below.

APPLICABLE SOIL REGULATORY GUIDELINES

The regulatory framework applicable to the Site in the determination of soil impacts includes:

- CCME. *Canadian Environmental Quality Guidelines (CEQG) Soil Quality Guidelines (SQGs) for the Protection of Environmental and Human Health* including the *CEQG for the Protection of Environmental and Human Health for Polycyclic Aromatic Hydrocarbons* [PAHs]. On-line summary table.

- CCME. 2001. *Canada-Wide Standard (CWS) for Petroleum Hydrocarbons (PHC) in Soil*. Endorsed by CCME Council of Ministers, April 30-May 1, 2001, Winnipeg (Revised in January 2008).

- Ontario Ministry of the Environment, Conservation, and Parks (MOECP) document *Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario*. PIBS #7386e01. April 15, 2011.

- Manitoba Sustainable Development. *Manitoba Criteria for [benzene, toluene, ethylbenzene, xylenes] BTEX in Investigation Results, Guideline*, June 2016.

CEQG SQGs for Human Health

The CCME pathway-specific human health guidelines/standards considered applicable for the Site for the proposed areas of residential development and pubic reserve (see **Figure 2**) are the following:

- Inhalation indoor air check (basement).
- Inhalation of indoor air (slab on grade).
- Soil ingestion.
- Soil dermal contact.

The CCME pathway-specific human health guidelines/standards considered applicable for the Site for the proposed areas of commercial and manufacturing development (see **Figure 2**) are the vapour inhalation (specifically inhalation of indoor air [slab on grade]). The SQG environmental pathways that were ruled out for commercial and industrial/manufacturing land use include:

- Soil ingestion – As the properties are likely to be occupied by commercial/manufacturing buildings and the remaining areas are likely to be asphalt paved, the soil contact pathway was not considered applicable to the proposed commercial and industrial land use areas.

- Soil dermal contact – As the properties are likely to be occupied by commercial/manufacturing buildings and the remaining areas are likely to be asphalt paved, the soil and food ingestion pathway was not considered applicable to the proposed commercial and industrial land use areas.

Other SQG human health pathways that have been ruled out from each of the proposed land uses include:

- Soil inhalation – These guidelines have not been calculated by the CCME for any of the potential chemicals of concern.

- Off-Site Migration – These guidelines have not been calculated by the CCME for any of the potential chemicals of concern.

- Groundwater check (drinking water) – As discussed under site setting, no potable groundwater wells are located within 250 m of the Site and the potable water for the area is known to be supplied via a municipal distribution system. Accordingly, the groundwater check (drinking water) was not considered applicable to the Site.

- Produce, meat and milk check – No produce, meat or milk is produced on the affected lands, nor known to be contemplated and no guidelines are provided for this pathway for a commercial property. Therefore, the produce, meat and milk check was not considered applicable to the Site.

It is noted that the CCME PAH guidelines for soil include an Index of Additive Cancer Risk (IACR), which assesses the potential threat to potable groundwater quality from leaching of carcinogenic PAH mixtures from soil. Potable water for the Site and immediate area is known to be supplied via a municipal distribution system that obtains its water from Shoal Lake and no wells were identified within 250 m of the Site. Therefore, the IACR guidelines do not apply to the Site and should not be included in the evaluation of the soil analytical results.

CEQG SQG for Environmental Health

For the proposed residential/parkland, the public reserve, and sports facility areas (anticipated activity fields) at the Site (see **Figure 2**), the CCME pathway-specific environmental health guidelines/standards considered applicable to the Site are the soil contact guidelines and nutrient and energy cycling check (where calculated).

For the areas proposed for commercial and manufacturing land use at the Site (see **Figure 2**), the CCME pathway-specific environmental health guidelines/standards considered applicable to the Site are the off-site migration check guidelines.

However, for PAHs, the guidelines for soil and food ingestion were considered applicable to the proposed residential/parkland, the public reserve, and sports facility areas. Where provided, the interim soil quality criteria for PAHs were also considered applicable to each of the proposed land uses.

The SQG environmental pathways that were ruled out for commercial and industrial/manufacturing land use include:

- Soil contact – As the properties are likely to be occupied by commercial/manufacturing buildings and the remaining areas are likely to be asphalt paved, the soil contact pathway was not considered applicable to the proposed commercial and industrial land use areas.

- Soil and food ingestion – As the properties are likely to be occupied by commercial/manufacturing buildings and the remaining areas are likely to be asphalt paved, the soil and food ingestion pathway was not considered applicable to the proposed commercial and industrial land use areas.

- Nutrient and energy cycling check – As the properties are likely to be occupied by commercial/manufacturing buildings and the remaining areas are likely to be asphalt paved, the nutrient and energy cycling check pathway was not considered applicable to the proposed commercial and industrial land use areas.

Other SQG environmental pathways that have been ruled out for each of the proposed land uses at the Site include:

- Groundwater check (livestock watering) – There are no livestock kept on or immediately adjacent to the Site and none are known to be contemplated. Accordingly, the groundwater check for livestock watering was not considered applicable to the Site.

- Groundwater check (aquatic life) – As discussed under site setting, the nearest surface water body (Seine River) is located approximately 450 m west of the Site. Accordingly, the groundwater check (aquatic life) was not considered applicable to the Site.

CWS SQGs

In the proposed residential development and public reserve areas the Site (see **Figure 2**), the CCME CWS for PHCs F1-F4 pathway-specific guidelines/standards that are considered applicable are the following:

- Vapour inhalation (indoor, basement)
- Vapour inhalation (indoor, slab-on-grade)
- Direct Contact (Ingestion + Dermal Contact)
- Eco Soil Contact

- Management Limit

In the proposed commercial and manufacturing development areas of the Site (see **Figure 2**), the CCME pathway-specific guidelines/standards that are considered applicable are the following:

- Vapour inhalation (indoor, slab-on-grade)
- Offsite migration
- Management Limit

Other CWS pathways that have been ruled out for the proposed commercial and manufacturing development areas include:

- Direct contact (ingestion and dermal contact) – As the proposed commercial and manufacturing areas are likely to be occupied by a building(s) with the remaining areas likely being asphalt paved, the direct contact pathway was not considered applicable to the commercial and industrial land use areas of the Site.

- Nutrient cycling – The guidelines designate "*NC*" for this category for an industrial site indicating "*NC = Not calculated. Insufficient data to allow derivation*".

- Eco soil contact – As the proposed commercial and manufacturing areas are likely to be occupied by a building(s) with the remaining areas likely being asphalt paved, the direct contact pathway was not considered applicable to the commercial and industrial land use areas of the Site.

Other SQG environmental pathways that have been ruled out for each of the proposed land uses at the Site include:

- Protection of potable groundwater – As discussed under site setting, no groundwater wells for potable use are located within 500 m of the Site and the potable water for the area is known to be supplied via a municipal distribution system. Accordingly, the protection of potable groundwater was not considered applicable to the Site.

- Protection of groundwater for aquatic life – As discussed under site setting, the nearest surface water body (Seine River) is located approximately 450 m from the Site. Accordingly, the protection of groundwater for aquatic life was not considered applicable to the Site.

- Protection of groundwater (aquatic life) – The guidelines designate *"RES"* for this category for residential land use *"RES = Residual PHC Formation. Calculated value exceeds 30,000 mg/kg and solubility limit for PHC fraction"* and "*NA*" for this category for commercial and industrial land use indicating "*NA = Not applicable. Calculated value exceeds 1,000,000 mg/kg or pathway excluded*".

APPLICABLE GROUNDWATER REGULATORY GUIDELINES

As noted above, groundwater does not appear to be used as a source of potable water on or near the Site and accordingly drinking water guidelines do not apply for the Site. Under the MSD CSRR, the CCME guidelines have been stated to be the primary standard; however, the CCME guidelines do not have guidelines for a non-potable groundwater situation. On this basis, the following MOECP standards were chosen by Stantec for the Site because they contain standards for sites with non-potable water conditions and have been identified as the secondary standard to be applied under the CSRR in the determination of groundwater impacts:

- Ontario MOECP document *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*. PIBS #7382e01. March 2004 (Revised April 15, 2011).

The MOECP site condition standards (SCS) for a non-potable water condition were considered appropriate for this Site and were applied in the evaluation of the groundwater quality. Particle size analyses have identified the soils beneath the Site as fine grained. As such, the fine to medium-grained MOECP SCS has been applied. Detectable concentrations of PHCs F2 and F3 in monitoring wells within the area of the Site proposed for commercial land use. The concentrations exceed the generic MOECP SCS for a non-potable water condition. The MOECP SCS are generic guidelines for groundwater, which are numerical values that use conservative assumptions and are designed to be protective of human and ecological receptors at contaminated sites.

Stantec understands that MSD expects that a risk assessment approach would be used in assessing the significance of contamination on a property according to existing or future land use. Accordingly, the MOECP has component values for the modification of generic guidelines, within limits, based on site-specific conditions. This modification of generic guidelines is referred to as a Tier 2 approach in the following MOECP document:

- Ontario MOECP, 2011a. Rationale for the Development of Soil and Groundwater Standards for use at Contaminated Sites in Ontario, dated April 2011.

The purpose of using the Tier 2 approach is to identify which contaminants of potential concern (COPCs), if any, are actually a potential concern at the Site based on site-specific considerations. The information also helps direct any future site assessment and risk assessment work by understanding COPCs based on the Tier 2 screening and having a preliminary understanding of exposure pathways at the Site.

Ontario MOECP component values for a non-potable groundwater scenario in medium-fine textured soil were used in the Tier 2 screening for human health and are provided in **Table 1**. The rationale for the inclusion or exclusion of these components in the Site-specific Tier 2 guidelines is also provided in the table. Where there are no component values for parameters analyzed with detectable concentrations, the parameter was evaluated on a case-by-case basis.

Table 1: Pathways Included in Site-Specific Tier 2 Guidelines for Groundwater

	Include in Site-Specific Tier 2 Guidelines?	Rationale
Human Health Guidelines / Components		
Inhalation of Indoor Air	Yes	The proposed Site development will include buildings; therefore, this is a complete pathway for volatile contaminants.
Environmental Health Guidelines / Components		
Groundwater to surface water (protection of aquatic life)	No	This is not considered a complete pathway as contaminant migration in fine-grained soil to the nearest surface water body (450 m away) is considered insignificant.
½ Solubility	No	This parameter is used by the Ontario MOECP to assess the potential of free-phase formation. As no evidence of free product was observed on Site this component value was not considered to be an environmental concern and was not included.

As shown above, the only applicable pathway is the inhalation of indoor air pathway. As PHC fractions F3 and F4 are non-volatile, these parameters were not retained based on the Tier 2 screening.

SUMMARY OF SITE SOIL AND GROUNDWATER QUALITY

SITE SOIL QUALITY

Based on the comparison of the analytical data for the Site as documented in the MMM 2011 Phase II ESA and Stantec 2013 Follow-up Phase II ESA to the soil guidelines considered applicable for the Site based on the proposed land uses for the Site (see **Tables A.1** and **Table A.2**). Of the samples submitted for analysis in the area proposed for manufacturing land use (industrial guidelines), no exceedances of the selected CCME guidelines were identified. **Table 2** below outlines the location, sample depths, concentrations and guideline values that exceeded the CCME guidelines for the proposed residential land use and pubic reserve development areas (**Figure 3**, attached):

Reference: **Remediation Plan for the Former Canada Packers, Swifts Canada Company and Public Markets Site in Winnipeg, Manitoba**

Table 2: Soil Exceedances of the Selected Residential/Parkland Land Use CCME Guidelines

Sample Location	Depth (m BGS)	Parameter	Concentration (mg/kg)	Guideline (mg/kg)
STNB3	1.5-2.0	Chromium	67.5	64
	1.5-2.0	Nickel	56.7	45
	2.0-2.5	Nickel	66.8	45
	2.5-3.0	Nickel	53.6	45
	3.0-3.5	Nickel	50.1	45
STNW5	0-0.5	Barium	2020	500
	0-0.5	Lead	141	140
	3.5-4.0	Arsenic	12.2	12
	3.5-4.0	Selenium[2]	1.49	1
	4.0-4.5-	Barium[1]	729	500
STNB24	1.0-1.5	Barium	623	500
STNB36	4.0-4.5	Barium[1]	1240	500
STNB10	1.0-1.5	Copper	66.2	63
	1.0-1.5	Lead	177	140
STNB10A	0.5-1.0	Barium	633	500
	0.5-1.0	Lead	150	140
	0.5-1.0	Selenium	1.69	1
	1.0-1.5	Lead	147	140
	1.0-1.5	Tin	65.4	50
	8.5-9.0	Barium[1]	1110	500
6F	0-0.5	Barium	937	500
	0-0.5	Copper	71.2	63
7A	0-0.80	Barium	5920	500
8B	2.4-3.2	Nickel	48.8	45
8D	0-0.08	Nickel	47.8	45
8L	0-0.8	Nickel	45.3	45
9A	0-0.5	Benzo(b)fluoranthene	1.19	1
10A	0-0.8	Nickel	46.6	45
11B	0.8-1.6	Nickel	45.6	45
12D	1.6-2.4	Chromium	73	64
	1.6-2.4	Nickel	61.1	45
	3.2-4.0	Selenium[2]	2.5	1
12DD (duplicate of 12D)	3.2-4.0	Selenium[2]	2.74	1
13I	0.5-1.0	Chromium	103	64
	0.5-1.0	Nickel	46.2	45
13DD (duplicate of 13D)	0.5-1.0	Barium	728	500

Notes:

1) With respect to the barium impacts identified in the areas with proposed residential land use, soil samples at STNW5, STNB36 and STNB10A (from depths ranging from 4.0 m BGS to 4.5 m BGS and 8.5 m BGS to 9.0 m BGS, respectively), are at depths that would be outside of the depth range for protection of environmental health (surface to 1.5 m BGS), which the barium guideline is protective of. Accordingly, the appropriate pathway specific guideline would be for human health (direct contact guideline) of 6,800 mg/kg for a residential property, which the barium concentrations of these samples is below.

2) Similarly, for selenium impacts identified in soil samples at STNW5, 12D and 12DD (field duplicate of 12D both from depths ranging from 3.2 m BGS to 4.0 m BGS and STNW5 with a depth range of 35. To 4.0 m BGS) in the proposed residential land use area, the depth of the soil samples would be outside of the depth for protection of environmental health, which the selenium guideline is protective of. Accordingly, the appropriate pathway specific guideline would be for human health (direct contact guideline) of 80 mg/kg for a residential property, which the concentrations of these samples is below.

Table 3 below outlines the location, sample depths, concentrations and guideline values that exceeded the CCME guidelines for the proposed commercial development areas (see **Figure 3**):

Table 3: Soil Exceedances of the Selected Commercial Land Use CCME Guidelines

Sample Location	Depth (m BGS)	Parameter	Concentration (mg/kg)	Guideline (mg/kg)
STNB27	0.5-1.0	Copper	2410	91
	0.5-1.0	Lead	556	556
	0.5-1.0	Tin	345	345
STNB28	0-0.5	Copper	107	91
6C	0-0.5	Copper	118	91
1A	0.8-1.6	Benzo[a]pyrene Total Potency Equivalents	5.84	5.3
4A	0.8-1.6	Benzo[a]pyrene Total Potency Equivalents	5.42	5.3

Of the samples submitted for analysis in the area proposed for manufacturing land use (industrial guidelines), no exceedances of the selected CCME guidelines were identified.

SITE GROUNDWATER QUALITY

Based on comparison of the analytical data for the Site as documented in the MMM 2011 Phase II ESA and Stantec 2013 Follow-up Phase II ESA to the groundwater standards considered applicable for the Site within each of the various proposed land uses, while a number of parameters had detectable concentrations, there were no component value exceedances.

SITE RE-DEVELOPMENT PREPARATION ACTIVITIES AND REMEDIATION PLANNING

The current Site owners will be undertaking Site clean-up activities commencing in 2018 and will involve on-site crushing of the remnant concrete slabs/foundations present on the Site with storage on-site for re-use during the Site re-development.

Following in 2019, the re-development of the Site will commence and involve regrading of the Site including the excavation of surface materials for the construction of roadways as well as for the installation of the buried utilities to supply the various properties within the Site boundaries.

The overall Site may require fill during re-development for proper topographic contouring. As many of the identified soil impacts only marginally exceed the CCME guidelines, on-site management of soils is being looked at as a potential remedial option with excavation and removal of impacted soils from a more sensitive land use area (i.e., residential development area) to be used as fill material or building landscaping (i.e., berm) in a less sensitive land use area (i.e., commercial or manufacturing development area) depending on the soil impacts.

If on-site management of the identified metal impacted soils is not an approved option for soil management or during the re-development of the Site it is determined to not be practical, the impacted soil will be removed for appropriate off-site disposal at an approved soil treatment facility during the re-development of that specific area.

Following on-site management/excavation and off-site disposal of the impacted soil, confirmatory soil sampling will be completed, and samples submitted for laboratory analysis of the contaminant(s) of concern. The soil sampling will be completed once the new grade is reached and/or the depth required for the proposed building foundations and utilities have been reached. Should areas of impacted soil within the previously investigated areas that exceed the selected guidelines for that development area remain on-Site, these areas may be excavated further to remove these impacts, or a risk assessment will be completed to support leaving the impacts in place.

Should additional areas of soil impacts be identified during the re-development at the Site, an update of the findings and proposed activities will be provided to MSD for review and approval.

REMEDIATION PLAN APPROVAL

At this time, 7319828 Manitoba Ltd. is seeking ‘approval in principle’ of the Remediation Plan outlined above from MSD, with the understanding that further details will be shared as they are confirmed and a more specific timeline for Site re-development is known and with the understanding that all remediation actions taken (whether on-site management, excavation, or risk assessment) will be reported in a Remediation Plan Closure report once Site activities are completed.

CLOSURE

This Remediation Plan is prepared for the sole benefit of Manitoba Sustainable Development and 7319828 Manitoba Ltd. The plan may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and 7319828 Manitoba Ltd. Limitations appended and noted in the reports provided also extend to this letter.

Any use which a third party makes of this plan, or any reliance on decisions made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this plan.

Reference: **Remediation Plan for the Former Canada Packers, Swifts Canada Company and Public Markets Site in Winnipeg, Manitoba**

We trust that the enclosed information is sufficient and request your approval of this Remediation Plan after which the outlined activities will be completed following the proposed schedule. If you have any questions or concerns, please do not hesitate to contact us.

This report was prepared by Scott Coughtrey, B.Env.Sc., EPt, and reviewed by and Karen Mathers, M.Sc., P.Geo. FGC, PMP.

Regards,

Stantec Consulting Ltd.

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Attachment: Figure 1 – Site Location
Figure 2 – Proposed Land Use
Figure 3 – Soil Exceedances for Proposed Land Use
Table A.1 – Summary of Surface Soil Site Criteria
Table A.2 – Summary of Subsoil Site Criteria
Table A.3 – Summary of Groundwater Site Criteria
Limitations
Phase II Environmental Site Assessment for the Former Canada Packers, Swifts Canada Company and Public Markets Site, A Brownfield Development, dated August 2011 (MMM 2011 Phase II ESA)
Follow-Up Phase II Environmental Site Assessment of Former Canada Packers, Swifts Canada Company and Public Markets Site, Winnipeg, Manitoba, dated February 2013 (Stantec 2013 Follow-up Phase II ESA)

c. Robert Scaletta, 7319828 Manitoba Ltd.

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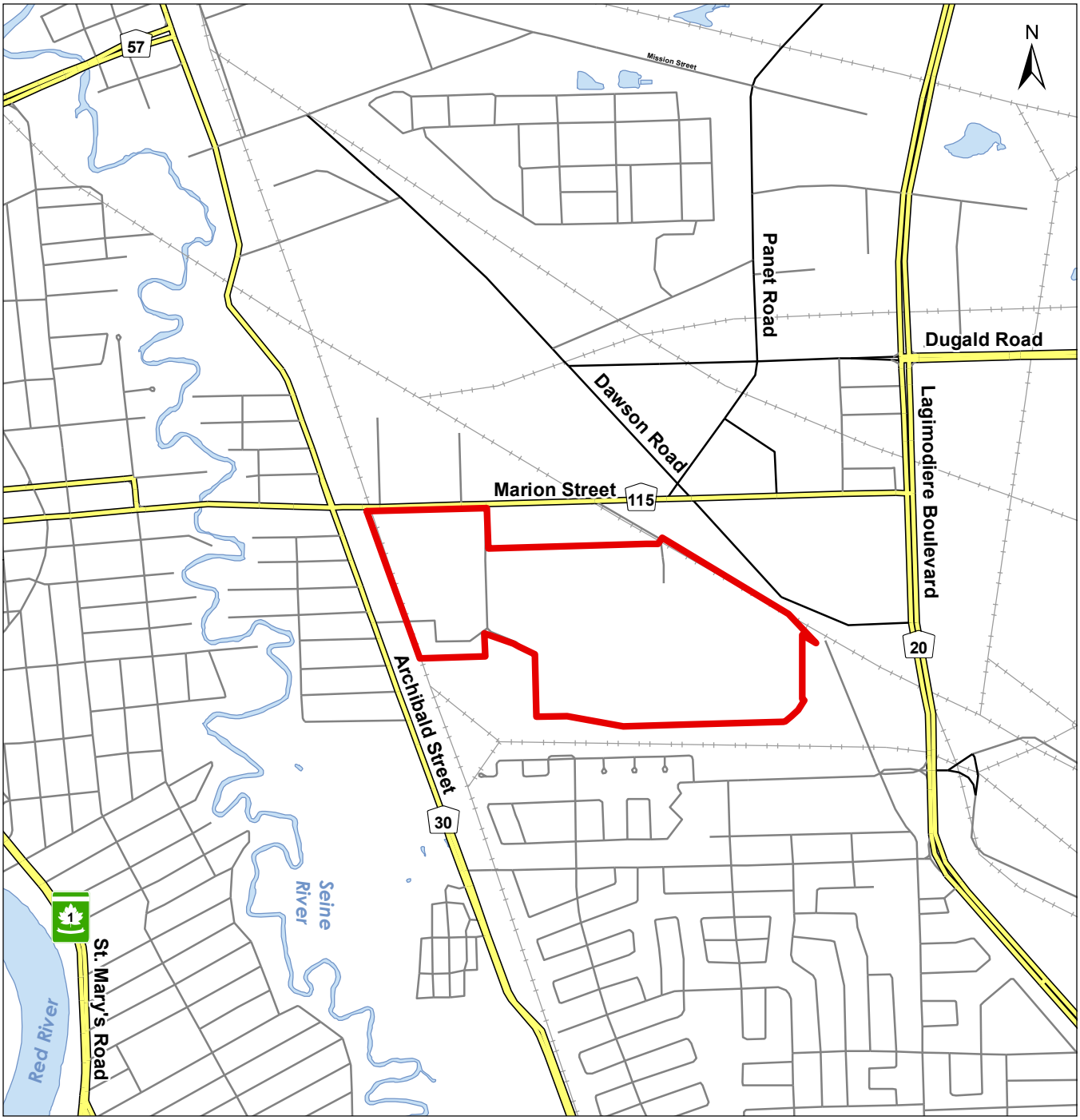

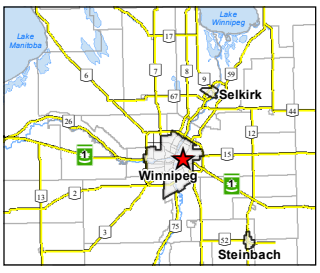

Legend

- Property Boundary
- Major Road
- Minor Road
- Local Road
- Railway
- Waterbody

0 200 400 Metres

1:20,000 (at original document size of 8.5x11)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada

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Project Location 111474043

Former Canada Packers, Swifts Canada Company and Public Markets Site, Winnipeg, Manitoba

Prepared by AC on 2018-06-28
Technical Review by SC on 2018-06-28

Client/Project

7319828 Manitoba Ltd.
Remediation Plan

Figure No.

1

Title

Site Location

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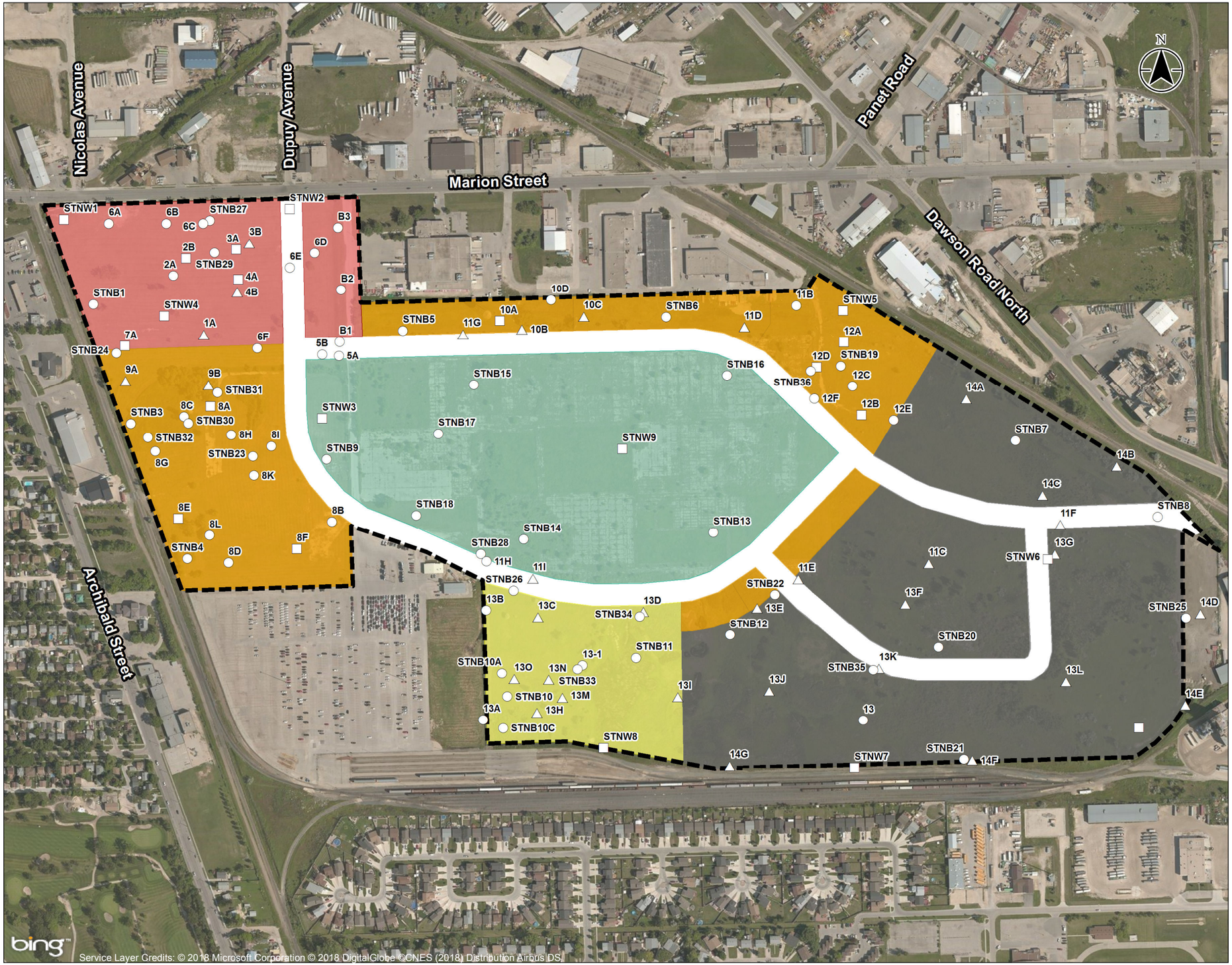

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Legend

- Borehole
- Monitoring Well
- Test Pit
- Property Boundary

Proposed Land Use

- Commercial
- Manufacturing - General
- Multi-Family / Mixed-Use
- Public Reserve
- Sports Facility

0 100 200 metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features obtained from the Government of Canada.
3. Orthoimagery © BING Imagery. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Project Location 111474043

Former Canada Packers, Swifts Canada Company and Public Markets Site, Winnipeg, Manitoba

Prepared by AC on 2018-06-28
Technical Review by SC on 2018-06-28

Client/Project

7319828 Manitoba Ltd.
Remediation Plan

Figure No.

2

Title

Proposed Land Use

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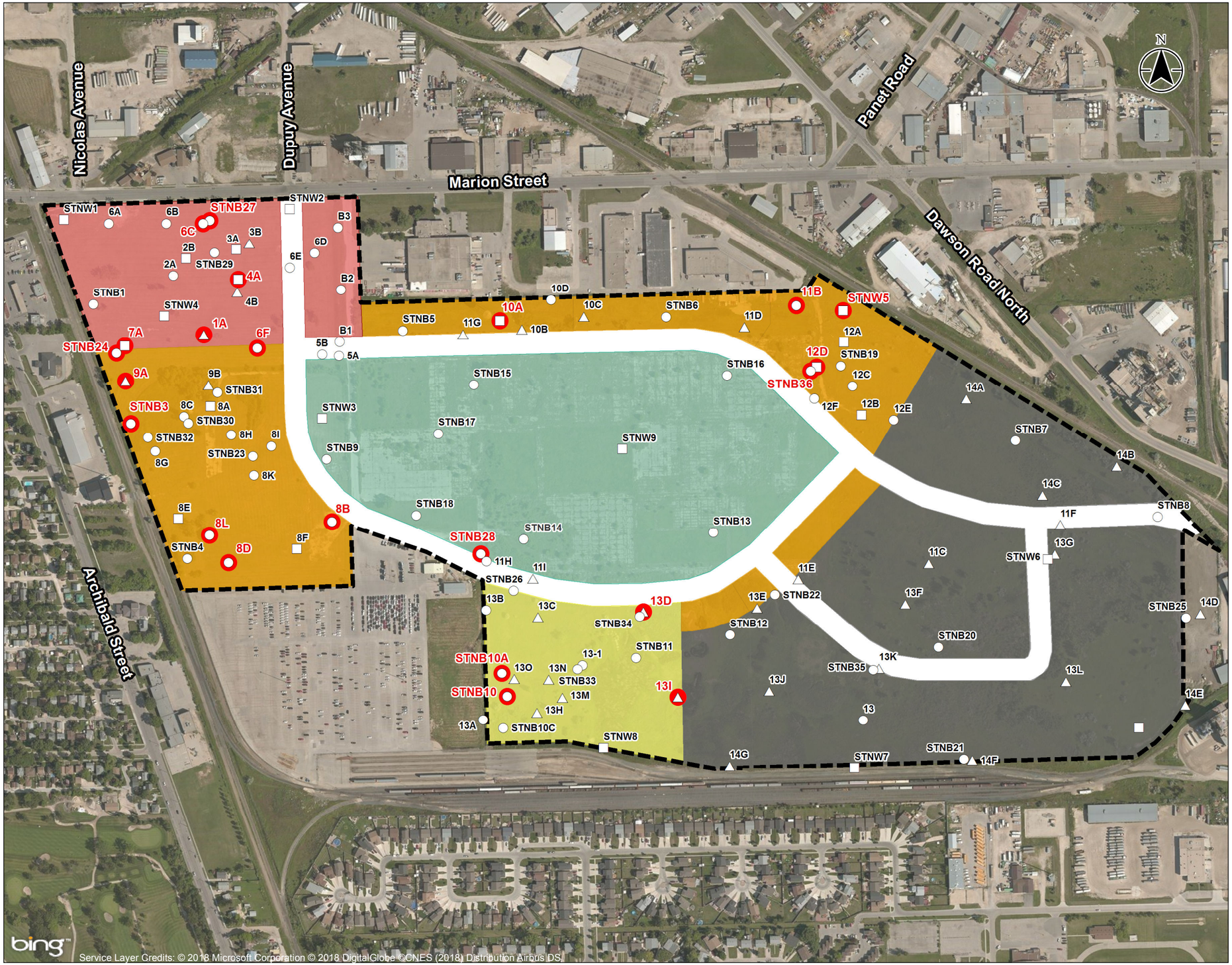

Stantec

Legend

- Borehole
- Monitoring Well
- Test Pit
- Concentration Exceeds Referenced Soil Guideline for Proposed Land Use
- Property Boundary

Proposed Land Use

- Commercial
- Manufacturing - General
- Multi-Family / Mixed-Use
- Public Reserve
- Sports Facility

0 100 200 metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features obtained from the Government of Canada.
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Project Location 111474043

Former Canada Packers, Swifts Canada Company and Public Markets Site, Winnipeg, Manitoba

Prepared by AC on 2018-07-17
Technical Review by SC on 2018-07-17

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Remediation Plan

Figure No.

3

Title

Soil Exceedances for Proposed Land Use

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Table A.1
Summary of Surface Soil (<1.5 m BGS) Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	CCME* Residential	MOE Residential	CCME* Commercial	CCME* Industrial	MOE Commercial/ Industrial
General Chemistry						
Moisture Content	%	n/v	n/a	n/v	n/v	n/a
BTEX and Petroleum Hydrocarbons						
Benzene	mg/kg	2.1[D]	n/a	2.8[F]	2.8[H]	n/a
Toluene	mg/kg	110[J]	n/a	13,000[F]	13,000[H]	n/a
Ethylbenzene	mg/kg	120[J]	n/a	6,500[F]	6,500[H]	n/a
Xylene, m & p-	mg/kg	n/v	n/a	n/v	n/v	n/a
Xylene, o-	mg/kg	n/v	n/a	n/v	n/v	n/a
Xylenes, Total	mg/kg	65[J]	n/a	1,600[F]	1,600[H]	n/a
PHC F1 (C6-C10 range)	mg/kg	n/v	n/a	n/v	n/v	n/a
PHC F1 (C6-C10 range) minus BTEX	mg/kg	210[U]	n/a	4,600[W] 800[X]	4,600[Y] 800[Z]	n/a
PHC F2 (>C10-C16 range)	mg/kg	150[U]	n/a	23,000[W] 1,000[X]	23,000[Y] 1,000[Z]	n/a
PHC F3 (>C16-C34 range)	mg/kg	1,300[U]	n/a	5,000[X]	5,000[Z]	n/a
PHC F4 (>C34-C50 range)	mg/kg	5,600[U]	n/a	10,000[X]	10,000[Z]	n/a
F4G-SG (HeavyHydrocarbons-Gravimetric)	mg/kg	5,600[U]	n/a	10,000[X]	10,000[Z]	n/a
Chromatogram to baseline at C50	none	n/v	n/a	n/v	n/v	n/a
Metals						
Aluminum	mg/kg	n/v	n/a	n/v	n/v	n/a
Antimony	mg/kg	20[A]	n/a	40[B]	40[C]	n/a
Arsenic	mg/kg	12[A]	n/a	12[B]	12[C]	n/a
Barium	mg/kg	500[A]	n/a	2000[B]	2000[C]	n/a
Beryllium	mg/kg	4[A]	n/a	8[B]	8[C]	n/a
Boron	mg/kg	n/v	n/a	n/v	n/v	n/a
Bismuth	mg/kg	n/v	n/a	n/v	n/v	n/a
Cadmium	mg/kg	10[A]	n/a	22[B]	22[C]	n/a
Calcium	mg/kg	n/v	n/a	n/v	n/v	n/a
Chromium	mg/kg	64[A]	n/a	87[B]	87[C]	n/a
Cobalt	mg/kg	50[A]	n/a	300[B]	300[C]	n/a
Copper	mg/kg	63[A]	n/a	91[B]	91[C]	n/a
Iron	mg/kg	n/v	n/a	n/v	n/v	n/a
Lead	mg/kg	140[A]	n/a	260[B]	600[C]	n/a
Magnesium	mg/kg	n/v	n/a	n/v	n/v	n/a
Manganese	mg/kg	n/v	n/a	n/v	n/v	n/a
Mercury	mg/kg	6.6[A]	n/a	24[B]	50[C]	n/a
Molybdenum	mg/kg	10[A]	n/a	40[B]	40[C]	n/a
Nickel	mg/kg	45[A]	n/a	89[B]	89[C]	n/a
Phosphorus	mg/kg	n/v	n/a	n/v	n/v	n/a
Potassium	mg/kg	n/v	n/a	n/v	n/v	n/a
Selenium	mg/kg	1[A]	n/a	5.0[B]	5.0[C]	n/a
Silver	mg/kg	20[A]	n/a	40[B]	40[C]	n/a
Sodium	mg/kg	n/v	n/a	n/v	n/v	n/a
Strontium	mg/kg	n/v	n/a	n/v	n/v	n/a
Thallium	mg/kg	1[A]	n/a	1[B]	1[C]	n/a
Tin	mg/kg	50[A]	n/a	300[B]	300[C]	n/a
Titanium	mg/kg	n/v	n/a	n/v	n/v	n/a
Uranium	mg/kg	23[A]	n/a	33[B]	300[C]	n/a
Vanadium	mg/kg	130[A]	n/a	130[B]	130[C]	n/a
Zinc	mg/kg	250[A]	n/a	410[B]	410[C]	n/a

See notes on last page

Table A.1
Summary of Surface Soil (<1.5 m BGS) Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	CCME* Residential	MOE Residential	CCME* Commercial	CCME* Industrial	MOE Commercial/ Industrial
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	n/v	78[E1]	n/v	n/v	96[F1]
Acenaphthylene	mg/kg	n/v	7.8[E1]	n/v	n/v	9.6[F1]
Acridine	mg/kg	n/v	n/v	n/v	n/v	n/v
Anthracene	mg/kg	2.5[MOP]	5,400[E1]	32[RT]	32[R]	42,000[F1]
Benzo(a)anthracene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Benzo(a)pyrene	mg/kg	20[MOP]	n/a	72[RT]	72[R]	n/a
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	n/v	n/v	n/v
Benzo(b/j)fluoranthene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Benzo(e)pyrene	mg/kg	n/v	n/a	n/v	n/v	n/a
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	n/v	n/v	n/a
Benzo(k)fluoranthene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Chrysene	mg/kg	n/v	n/a	n/v	n/v	n/a
Dibenzo(a,h)anthracene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Fluoranthene	mg/kg	50[MOP]	7.8[E1]	180[RT]	180[R]	9.6[F1]
Fluorene	mg/kg	n/v	720[E1]	n/v	n/v	5,600[F1]
Indeno(1,2,3-cd)pyrene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Methylnaphthalene, 2-	mg/kg	n/v	72_{s2}[E1]	n/v	n/v	560_{s2}[F1]
Naphthalene	mg/kg	0.6[N]	360[E1]	22[S]	22[S]	2,800[F1]
Phenanthrene	mg/kg	5[N]	n/v	50[S]	50[S]	n/v
Pyrene	mg/kg	10[MN]	78[E1]	100[RS]	100[RS]	96[F1]
Low Molecular Weight PAHs	mg/kg	n/v	n/v	n/v	n/v	n/v
High Molecular Weight PAHs	mg/kg	n/v	n/v	n/v	n/v	n/v
Total PAH	mg/kg	n/v	n/v	n/v	n/v	n/v
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,c}$[L]	n/a	$5.3_{a,b,c}$[Q]	$5.3_{a,b,c}$[Q]	n/a
Index of Additive Cancer Risk	none	n/v	n/a	n/v	n/v	n/a
Volatile Organic Compounds						
Bromodichloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Bromoform (Tribromomethane)	mg/kg	n/v	n/a	n/v	n/v	n/a
Bromomethane (Methyl bromide)	mg/kg	n/v	n/a	n/v	n/v	n/a
Carbon Tetrachloride (Tetrachloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Chlorobenzene (Monochlorobenzene)	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Chloroethane (Ethyl Chloride)	mg/kg	n/v	n/a	n/v	n/v	n/a
Chloroform (Trichloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Chloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Dibromochloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Dichlorobenzene, 1,2-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichlorobenzene, 1,3-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichlorobenzene, 1,4-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichloroethane, 1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethane, 1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, 1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, cis-1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, trans-1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloropropane, 1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloropropene, cis-1,3-	mg/kg	n/v	n/a	n/v	n/v	n/a
Dichloropropene, trans-1,3-	mg/kg	n/v	n/a	n/v	n/v	n/a
Ethylene Dibromide (Dibromoethane, 1,2-)	mg/kg	n/v	n/a	n/v	n/v	n/a
Methyl Methacrylate	mg/kg	n/v	n/a	n/v	n/v	n/a
Methyl tert-butyl ether (MTBE)	mg/kg	n/v	n/a	n/v	n/v	n/a
Methylene Chloride (Dichloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Styrene	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Tetrachloroethane, 1,1,1,2-	mg/kg	n/v	n/a	n/v	n/v	n/a
Tetrachloroethane, 1,1,2,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Tetrachloroethene (PCE)	mg/kg	0.2[A]	n/a	0.5[B]	0.6[C]	n/a
Trichlorobenzene, 1,2,3-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichlorobenzene, 1,2,4-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichlorobenzene, 1,3,5-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichloroethane, 1,1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Trichloroethane, 1,1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Trichloroethene (TCE)	mg/kg	0.01[A]	n/a	0.01[B]	0.01[C]	n/a
Trichlorofluoromethane (Freon 11)	mg/kg	n/v	n/a	n/v	n/v	n/a
Trimethylbenzene (mixed isomers)	mg/kg	n/v	n/a	n/v	n/v	n/a
Trimethylbenzene, 1,3,5-	mg/kg	n/v	n/a	n/v	n/v	n/a
Vinyl chloride	mg/kg	n/v	n/a	n/v	n/v	n/a

See notes on last page

Table A.2
Summary of Surface Soil (<1.5 m BGS) Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	CCME* Residential	MOE Residential	CCME* Commercial	CCME* Industrial	MOE Commercial/ Industrial
General Chemistry						
Moisture Content	%	n/v	n/a	n/v	n/v	n/a
BTEX and Petroleum Hydrocarbons						
Benzene	mg/kg	2.1[E]	n/a	2.9[G]	2.9[I]	n/a
Toluene	mg/kg	220[K]	n/a	13,000[G]	13,000[G]	n/a
Ethylbenzene	mg/kg	240[K]	n/a	6,500[G]	6,500[G]	n/a
Xylene, m & p-	mg/kg	n/v	n/a	n/v	n/v	n/a
Xylene, o-	mg/kg	n/v	n/a	n/v	n/v	n/a
Xylenes, Total	mg/kg	130[K]	n/a	1,600[G]	1,600[G]	n/a
PHC F1 (C6-C10 range)	mg/kg	n/v	n/a	n/v	n/v	n/a
PHC F1 (C6-C10 range) minus BTEX	mg/kg	800[V]	n/a	4,600[A1] 800[B1]	4,600[C1] 800[D1]	n/a
PHC F2 (>C10-C16 range)	mg/kg	1,000[V]	n/a	23,000[A1] 1,000[B1]	23,000[C1] 1,000[D1]	n/a
PHC F3 (>C16-C34 range)	mg/kg	3,500[V]	n/a	5,000[B1]	5,000[D1]	n/a
PHC F4 (>C34-C50 range)	mg/kg	10,000[V]	n/a	10,000[B1]	10,000[D1]	n/a
F4G-SG (HeavyHydrocarbons-Gravimetric)	mg/kg	10,000[V]	n/a	10,000[B1]	10,000[D1]	n/a
Chromatogram to baseline at C50	none	n/v	n/a	n/v	n/v	n/a
Metals						
Aluminum	mg/kg	n/v	n/a	n/v	n/v	n/a
Antimony	mg/kg	20[A]	n/a	40[B]	40[C]	n/a
Arsenic	mg/kg	12[A]	n/a	12[B]	12[C]	n/a
Barium	mg/kg	500[A]	n/a	2000[B]	2000[C]	n/a
Beryllium	mg/kg	4[A]	n/a	8[B]	8[C]	n/a
Bismuth	mg/kg	n/v	n/a	n/v	n/v	n/a
Cadmium	mg/kg	10[A]	n/a	22[B]	22[C]	n/a
Calcium	mg/kg	n/v	n/a	n/v	n/v	n/a
Chromium	mg/kg	64[A]	n/a	87[B]	87[C]	n/a
Cobalt	mg/kg	50[A]	n/a	300[B]	300[C]	n/a
Copper	mg/kg	63[A]	n/a	91[B]	91[C]	n/a
Iron	mg/kg	n/v	n/a	n/v	n/v	n/a
Lead	mg/kg	140[A]	n/a	260[B]	600[C]	n/a
Lithium	mg/kg	n/v	n/a	n/v	n/v	n/a
Magnesium	mg/kg	n/v	n/a	n/v	n/v	n/a
Manganese	mg/kg	n/v	n/a	n/v	n/v	n/a
Mercury	mg/kg	6.6[A]	n/a	24[B]	50[C]	n/a
Molybdenum	mg/kg	10[A]	n/a	40[B]	40[C]	n/a
Nickel	mg/kg	45[A]	n/a	89[B]	89[C]	n/a
Phosphorus	mg/kg	n/v	n/a	n/v	n/v	n/a
Potassium	mg/kg	n/v	n/a	n/v	n/v	n/a
Selenium	mg/kg	1[A]	n/a	2.9[B]	2.9[C]	n/a
Silver	mg/kg	20[A]	n/a	40[B]	40[C]	n/a
Sodium	mg/kg	n/v	n/a	n/v	n/v	n/a
Strontium	mg/kg	n/v	n/a	n/v	n/v	n/a
Thallium	mg/kg	1[A]	n/a	1[B]	1[C]	n/a
Tin	mg/kg	50[A]	n/a	300[B]	300[C]	n/a
Titanium	mg/kg	n/v	n/a	n/v	n/v	n/a
Uranium	mg/kg	23[A]	n/a	33[B]	300[C]	n/a
Vanadium	mg/kg	130[A]	n/a	130[B]	130[C]	n/a
Zinc	mg/kg	250[A]	n/a	410[B]	410[C]	n/a
Zirconium	mg/kg	n/v	n/a	n/v	n/v	n/a

See notes on last page

Table A.2
Summary of Surface Soil (<1.5 m BGS) Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	CCME* Residential	MOE Residential	CCME* Commercial	CCME* Industrial	MOE Commercial/ Industrial
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	n/v	78[E1]	n/v	n/v	96[F1]
Acenaphthylene	mg/kg	n/v	7.8[E1]	n/v	n/v	9.6[F1]
Acridine	mg/kg	n/v	n/v	n/v	n/v	n/v
Anthracene	mg/kg	2.5[MOP]	5,400[E1]	32[RT]	32[R]	42,000[F1]
Benzo(a)anthracene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Benzo(a)pyrene	mg/kg	20[MOP]	n/a	72[RT]	72[R]	n/a
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	n/v	n/v	n/v
Benzo(b/j)fluoranthene	mg/kg	1MN	n/a	10[RS]	10[RS]	n/a
Benzo(e)pyrene	mg/kg	n/v	n/a	n/v	n/v	n/a
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	n/v	n/v	n/a
Benzo(k)fluoranthene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Chrysene	mg/kg	n/v	n/a	n/v	n/v	n/a
Dibenzo(a,h)anthracene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Fluoranthene	mg/kg	50[MOP]	7.8[E1]	180[RT]	180[R]	9.6[F1]
Fluorene	mg/kg	n/v	720[E1]	n/v	n/v	5,600[F1]
Indeno(1,2,3-cd)pyrene	mg/kg	1[MN]	n/a	10[RS]	10[RS]	n/a
Methylnaphthalene, 2-	mg/kg	n/v	72_{s2}[E1]	n/v	n/v	560_{s2}[F1]
Naphthalene	mg/kg	0.6[N]	360[E1]	22[S]	22[S]	2,800[F1]
Perylene	mg/kg	n/v	n/v	n/v	n/v	n/v
Phenanthrene	mg/kg	5[N]	n/v	50[S]	50[S]	n/v
Pyrene	mg/kg	10[MN]	78[E1]	100[RS]	100[RS]	96[F1]
Low Molecular Weight PAHs	mg/kg	n/v	n/v	n/v	n/v	n/v
High Molecular Weight PAHs	mg/kg	n/v	n/v	n/v	n/v	n/v
Total PAH	mg/kg	n/v	n/v	n/v	n/v	n/v
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,c}$[L]	n/a	$5.3_{a,b,c}$[Q]	$5.3_{a,b,c}$[Q]	n/a
Index of Additive Cancer Risk	none	n/v	n/a	n/v	n/v	n/a
Volatile Organic Compounds						
Bromodichloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Bromoform (Tribromomethane)	mg/kg	n/v	n/a	n/v	n/v	n/a
Bromomethane (Methyl bromide)	mg/kg	n/v	n/a	n/v	n/v	n/a
Carbon Tetrachloride (Tetrachloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Chlorobenzene (Monochlorobenzene)	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Chloroethane (Ethyl Chloride)	mg/kg	n/v	n/a	n/v	n/v	n/a
Chloroform (Trichloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Chloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Dibromochloromethane	mg/kg	n/v	n/a	n/v	n/v	n/a
Dichlorobenzene, 1,2-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichlorobenzene, 1,3-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichlorobenzene, 1,4-	mg/kg	1[A]	n/a	10[B]	10[C]	n/a
Dichloroethane, 1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethane, 1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, 1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, cis-1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloroethene, trans-1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloropropane, 1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Dichloropropene, cis-1,3-	mg/kg	n/v	n/a	n/v	n/v	n/a
Dichloropropene, trans-1,3-	mg/kg	n/v	n/a	n/v	n/v	n/a
Ethylene Dibromide (Dibromoethane, 1,2-)	mg/kg	n/v	n/a	n/v	n/v	n/a
Methyl Methacrylate	mg/kg	n/v	n/a	n/v	n/v	n/a
Methyl tert-butyl ether (MTBE)	mg/kg	n/v	n/a	n/v	n/v	n/a
Methylene Chloride (Dichloromethane)	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Styrene	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Tetrachloroethane, 1,1,1,2-	mg/kg	n/v	n/a	n/v	n/v	n/a
Tetrachloroethane, 1,1,2,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Tetrachloroethene (PCE)	mg/kg	0.2[A]	n/a	0.5[B]	0.6[C]	n/a
Trichlorobenzene, 1,2,3-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichlorobenzene, 1,2,4-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichlorobenzene, 1,3,5-	mg/kg	2[A]	n/a	10[B]	10[C]	n/a
Trichloroethane, 1,1,1-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Trichloroethane, 1,1,2-	mg/kg	5[A]	n/a	50[B]	50[C]	n/a
Trichloroethene (TCE)	mg/kg	0.01[A]	n/a	0.01[B]	0.01[C]	n/a
Trichlorofluoromethane (Freon 11)	mg/kg	n/v	n/a	n/v	n/v	n/a
Trimethylbenzene (mixed isomers)	mg/kg	n/v	n/a	n/v	n/v	n/a
Trimethylbenzene, 1,3,5-	mg/kg	n/v	n/a	n/v	n/v	n/a
Vinyl chloride	mg/kg	n/v	n/a	n/v	n/v	n/a

See notes on last page

Tables A.1 and A.2
Summary of Surface Soil and Subsoil Site Criteria
Former Canada Packers, Swifts Canada Company
and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

Notes:

CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for residential/parkland land use and fine grained soil
B	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained soil
C	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for commercial land use and fine grained soil
D	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (basement), on-line summary table, for residential/parkland land use and fine grained surface soil
E	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (basement), on-line summary table, for residential/parkland land use and fine grained subsoil
F	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (slab-on-grade), on-line summary table, for commercial land use and fine grained surface soil
G	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (slab-on-grade), on-line summary table, for commercial land use and fine grained subsoil
H	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (slab-on-grade), on-line summary table, for industrial land use and fine grained surface soil
I	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for Inhalation of indoor air check (slab-on-grade), on-line summary table, for industrial land use and fine grained subsoil
J	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for soil contact, on-line summary table, for residential/parkland land use and fine grained surface soil
K	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for soil contact, on-line summary table, for residential/parkland land use and fine grained subsoil
L	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Residential/Parkland land use (Table 1 - Direct contact)
M	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Residential/Parkland land use (Table 1 - Environmental health guidelines based on non-carcinogenic effects of PAHs)
N	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Residential/Parkland land use (Table 2 - Interim/Provisional Soil Quality Critera, CCME 1991)
O	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Residential/Parkland land use (Table 2 - Soil Quality Guideline for Environmental Health)
P	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Residential/Parkland land use (Table 2 - Soil Quality Guideline for Soil Contact)
Q	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Commercial/Industrial land use (Table 1 - Direct contact)
R	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Commercial/Industrial land use (Table 1 - Environmental health guidelines based on non-carcinogenic effects of PAHs)
S	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Commercial/Industrial land use (Table 2 - Interim/Provisional Soil Quality Critera, CCME 1991)
T	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for a Commercial/Industrial land use (Table 2 - Soil Quality Guideline for Environmental Health)
U	Canada Wide Standards for PHC in Soil - Residential - Fine - Surface soil - Eco Soil Contact; (Revised Jan 2008)
V	Canada Wide Standards for PHC in Soil - Residential - Fine - Subsoil - Management Limit (Revised Jan 2008)
W	Canada Wide Standards for PHC in Soil - Commercial - Fine - Surface soil - Vapour Inhalation (indoor); (Revised Jan 2008)
X	Canada Wide Standards for PHC in Soil - Commercial - Fine - Surface soil - Management Limit (Revised Jan 2008)
Y	Canada Wide Standards for PHC in Soil - Commercial - Fine - Subsoil - Vapour Inhalation (indoor); (Revised Jan 2008)
Z	Canada Wide Standards for PHC in Soil - Commercial - Fine - Subsoil - Management Limit (Revised Jan 2008)
A1	Canada Wide Standards for PHC in Soil - Industrial - Fine - Surface soil - Vapour Inhalation (indoor); (Revised Jan 2008)
B1	Canada Wide Standards for PHC in Soil - Industrial - Fine - Surface soil - Management Limit (Revised Jan 2008)
C1	Canada Wide Standards for PHC in Soil - Industrial - Fine - Subsoil - Vapour Inhalation (indoor); (Revised Jan 2008)
D1	Canada Wide Standards for PHC in Soil - Industrial - Fine - Sub soil - Management Limit (Revised Jan 2008)
MOE	Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario (MOE, 2011)
E1	Soil Components for Table 3 - Full Depth, Non-potable Water Scenario for Residential Land Use, Medium/Fine Textured Soil, Soil Contact S1 Risk
F1	Soil Components for Table 3 - Full Depth, Non-potable Water Scenario for Industrial/Commercial Land Use, Medium/Fine Textured Soil, Soil Contact S2 Risk
s2	The criterion is for methylnaphthalenes, therefore the sum of 1-methylnaphthalene and 2-methylnaphthalene must be calculated for comparison.
n/v	No standard/guideline value.
n/a	Not applicable
a,b,c	SQG based on an incremental lifetime cancer risk (ILCR) of 1 in 100,000 (10e-5). B[a]P TPE = Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing the products: Benz[a]anthracene = 0.1, Benzo[a]pyrene = 1, Benzo[b+j+k]fluoranthene = 0.1, Benzo[g,h,i]perylene = 0.01, Chrysene = 0.01, Dibenz[a,h]anthracene =1, Indeno[1,2,3-cd]pyrene = 0.1.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
*	CCME criteria are applicable for both surface and subsoil sample except indicated "#" sign which are only applicable to surface soil sample. Surface soil =<1.5 m, subsoil >1.5m depth.
#	CCME criteria are only applicable to the surface soil sample.

Table A.3
Summary of Groundwater Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	Ontario CV[1, 2]	Units	Ontario CV[1, 3]
BTEX and Petroleum Hydrocarbons				
Benzene	µg/L	430	µg/L	5700
Toluene	µg/L	810000	µg/L	12000000
Ethylbenzene	µg/L	160000	µg/L	660000
Methyl tert-butyl ether (MTBE)	µg/L	1400	µg/L	18000
Xylene, m & p-	µg/L	n/v	µg/L	n/v
Xylene, o-	µg/L	n/v	µg/L	n/v
Xylenes, Total	µg/L	80000	µg/L	1100000
PHC F1 (C6-C10 range)	µg/L	n/v	µg/L	n/v
PHC F1 (C6-C10 range) minus BTEX	µg/L	15000	µg/L	220000
PHC F2 (>C10-C16 range)	µg/L	25000	µg/L	360000
PHC F3 (>C16-C34 range)	µg/L	n/v	µg/L	n/v
PHC F4 (>C34-C50 range)	µg/L	n/v	µg/L	n/v
Volatile Organic Compounds				
Bromodichloromethane	µg/L	n/v	µg/L	n/v
Bromoform (Tribromomethane)	µg/L	770	µg/L	13000
Bromomethane (Methyl bromide)	µg/L	56	µg/L	230
Carbon Tetrachloride (Tetrachloromethane)	µg/L	8.4	µg/L	120
Chlorobenzene (Monochlorobenzene)	µg/L	36000	µg/L	520000
Chloroethane (Ethyl Chloride)	µg/L	n/v	µg/L	n/v
Chloroform (Trichloromethane)	µg/L	22	µg/L	300
Chloromethane	µg/L	n/v	µg/L	n/v
Dibromochloromethane	µg/L	n/v	µg/L	n/v
Dichlorobenzene, 1,2-	µg/L	36000	µg/L	520000
Dichlorobenzene, 1,3-	µg/L	n/v	µg/L	n/v
Dichlorobenzene, 1,4-	µg/L	67	µg/L	900
Dichlorodifluoromethane (Freon 12)	µg/L	n/v	µg/L	n/v
Dichloroethane, 1,1-	µg/L	3100	µg/L	44000
Dichloroethane, 1,2-	µg/L	12	µg/L	160
Dichloroethene, 1,1-	µg/L	17	µg/L	230
Dichloroethylene, cis-1,2-	µg/L	17	µg/L	230
Dichloroethylene, trans-1,2-	µg/L	17	µg/L	230
Dichloropropane, 1,2-	µg/L	140	µg/L	2000
Dichloropropene, cis-1,3-	µg/L	45	µg/L	610
Dichloropropene, trans-1,3-	µg/L	n/v	µg/L	n/v
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	0.83	µg/L	12
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	µg/L	4.5	µg/L	61
Methyl Methacrylate	µg/L	n/v	µg/L	n/v
Methyl tert-butyl ether (MTBE)	µg/L	1400	µg/L	18000
Methylene Chloride (Dichloromethane)	µg/L	5500	µg/L	74000
Styrene	µg/L	11000	µg/L	160000
Tetrachloroethane, 1,1,1,2-	µg/L	28	µg/L	380
Tetrachloroethane, 1,1,2,2-	µg/L	15	µg/L	210
Tetrachloroethylene (PCE)	µg/L	17	µg/L	230
Trichlorobenzene, 1,2,3-	µg/L	n/v	µg/L	n/v
Trichlorobenzene, 1,2,4-	µg/L	850	µg/L	13000
Trichlorobenzene, 1,3,5-	µg/L	n/v	µg/L	n/v
Trichloroethane, 1,1,1-	µg/L	6700	µg/L	95000
Trichloroethane, 1,1,2-	µg/L	30	µg/L	410
Trichloroethylene (TCE)	µg/L	17	µg/L	230
Trichlorofluoromethane (Freon 11)	µg/L	n/v	µg/L	n/v
Trihalomethanes	µg/L	n/v	µg/L	n/v
Trichlorotrifluoroethane (Freon 113)	µg/L	n/v	µg/L	n/v
Trimethylbenzene (mixed isomers)	µg/L	n/v	µg/L	n/v
Trimethylbenzene, 1,3,5-	µg/L	n/v	µg/L	n/v
Vinyl chloride	µg/L	1.7	µg/L	23

See notes on last page

Table A.3
Summary of Groundwater Site Criteria
Former Canada Packers, Swifts Canada Company and Public Markets Site , Winnipeg, Manitoba
Remediation Plan
7319828 Manitoba Ltd.

	Units	Ontario CV[1, 2]	Units	Ontario CV[1, 3]
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	µg/L	1700	µg/L	24000
Acenaphthylene	µg/L	120	µg/L	1700
Acridine	µg/L	n/v	µg/L	n/v
Anthracene	µg/L	n/v	µg/L	n/v
Benzo(a)anthracene	µg/L	240	µg/L	3500
Benzo(a)pyrene	µg/L	790	µg/L	9600
Benzo(b)fluoranthene	µg/L	n/v	µg/L	n/v
Benzo(b)pyridine (Quinoline)	µg/L	n/v	µg/L	n/v
Benzo(b/j)fluoranthene	µg/L	4800	µg/L	62000
Benzo(e)pyrene	µg/L	n/v	µg/L	n/v
Benzo(g,h,i)perylene	µg/L	n/v	µg/L	n/v
Benzo(k)fluoranthene	µg/L	n/v	µg/L	n/v
Chrysene	µg/L	6300	µg/L	75000
Dibenzo(a,h)anthracene	µg/L	6400	µg/L	87000
Fluoranthene	µg/L	3000	µg/L	46000
Fluorene	µg/L	n/v	µg/L	n/v
Indeno(1,2,3-cd)pyrene	µg/L	11000	µg/L	140000
Methylnaphthalene, 1-	µg/L	35000	µg/L	150000
Methylnaphthalene, 2-	µg/L	35000	µg/L	150000
Naphthalene	µg/L	6400	µg/L	94000
Perylene	µg/L	n/v	µg/L	n/v
Phenanthrene	µg/L	n/v	µg/L	n/v
Pyrene	µg/L	23000	µg/L	370000
Low Molecular Weight PAH`s	µg/L	n/v	µg/L	n/v
High Molecular Weight PAH`s	µg/L	n/v	µg/L	n/v
Total PAH	µg/L	n/v	µg/L	n/v
Metals				
Aluminum	µg/L	n/v	µg/L	n/v
Antimony	µg/L	n/v	µg/L	n/v
Arsenic	µg/L	n/v	µg/L	n/v
Barium	µg/L	n/v	µg/L	n/v
Beryllium	µg/L	n/v	µg/L	n/v
Bismuth	µg/L	n/v	µg/L	n/v
Boron	µg/L	n/v	µg/L	n/v
Cadmium	µg/L	n/v	µg/L	n/v
Calcium	µg/L	n/v	µg/L	n/v
Chromium (Total)	µg/L	n/v	µg/L	n/v
Cobalt	µg/L	n/v	µg/L	n/v
Copper	µg/L	n/v	µg/L	n/v
Iron	µg/L	n/v	µg/L	n/v
Lead	µg/L	n/v	µg/L	n/v
Lithium	µg/L	n/v	µg/L	n/v
Magnesium	µg/L	n/v	µg/L	n/v
Manganese	µg/L	n/v	µg/L	n/v
Mercury	µg/L	2.8	µg/L	40
Molybdenum	µg/L	n/v	µg/L	n/v
Nickel	µg/L	n/v	µg/L	n/v
Potassium	µg/L	n/v	µg/L	n/v
Selenium	µg/L	n/v	µg/L	n/v
Silicon	µg/L	n/v	µg/L	n/v
Silver	µg/L	n/v	µg/L	n/v
Sodium	µg/L	n/v	µg/L	n/v
Strontium	µg/L	n/v	µg/L	n/v
Sulfur	µg/L	n/v	µg/L	n/v
Thallium	µg/L	n/v	µg/L	n/v
Tin	µg/L	n/v	µg/L	n/v
Titanium	µg/L	n/v	µg/L	n/v
Uranium	µg/L	n/v	µg/L	n/v
Vanadium	µg/L	n/v	µg/L	n/v
Zinc	µg/L	n/v	µg/L	n/v
Zirconium	µg/L	n/v	µg/L	n/v

Notes:

Ontario CV Ontario Ministry of the Environment and Climate Change (MOECC), 2011a. Rationale for the Development of Soil and Groundwater Standards for use at Contaminated Sites in Ontario, dated April 2011.

[1] Standard from MOECC Rationale Rationale for the Development of Soil and Groundwater Standards

[2] Tier 2 standards - Exposure pathway due to inhalation air containing soil vapour from - Residential Land Use

[3] Tier 2 standards - Exposure pathway due to inhalation air containing soil vapour from - Commercial/ Industrial Land Use

n/v No standard/guideline value.

LIMITATIONS

This Remediation Plan has been prepared for the sole benefit of Manitoba Sustainable Development and may not be used by any other person or entity without the express written consent of Stantec Consulting Ltd. and 7319828 Manitoba Ltd.

This report documents a review of work that was completed by others. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report or the source documents provided to Stantec, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to the assessments may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

The conclusions are based on the site conditions encountered by others at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Due to the nature of the investigation and the limited data available as well as the fact that the work was completed by others, for which Stantec cannot ascertain the completeness or accuracy, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site. As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.

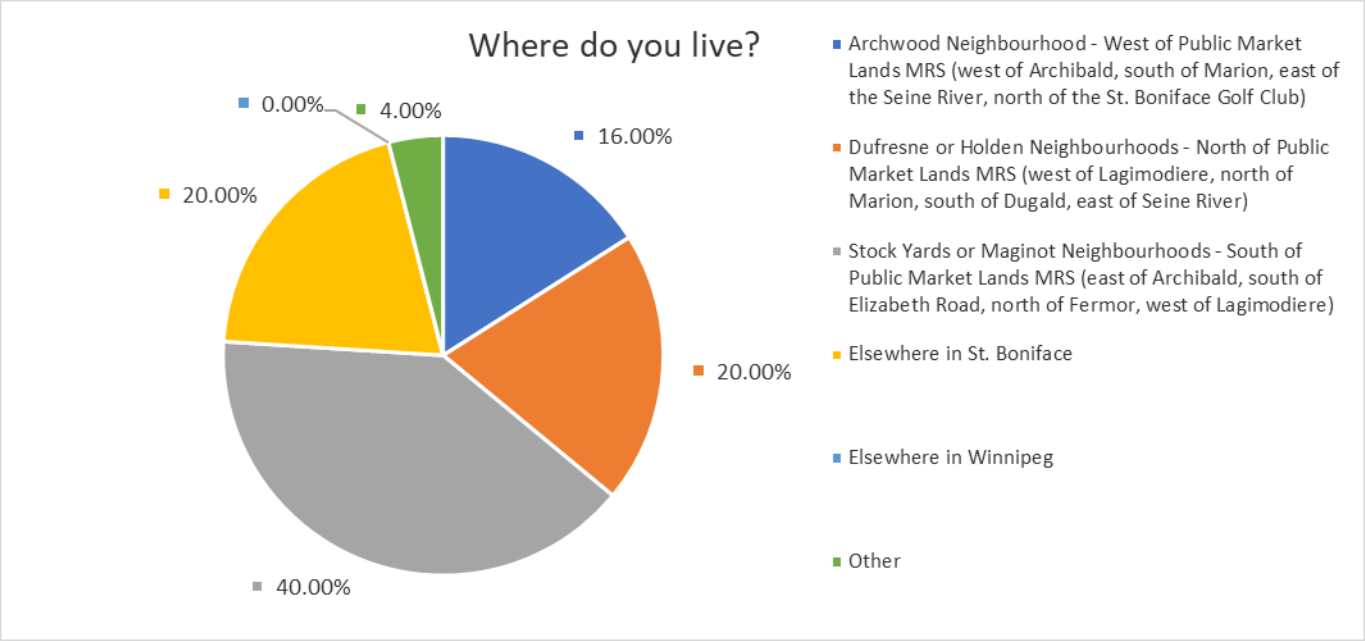
Public Markets Site (MRS D) Conceptual Development Plan
First Stakeholders Meetings
June 4, 5, and 6th, 2018

1.0 Stakeholders Introduction

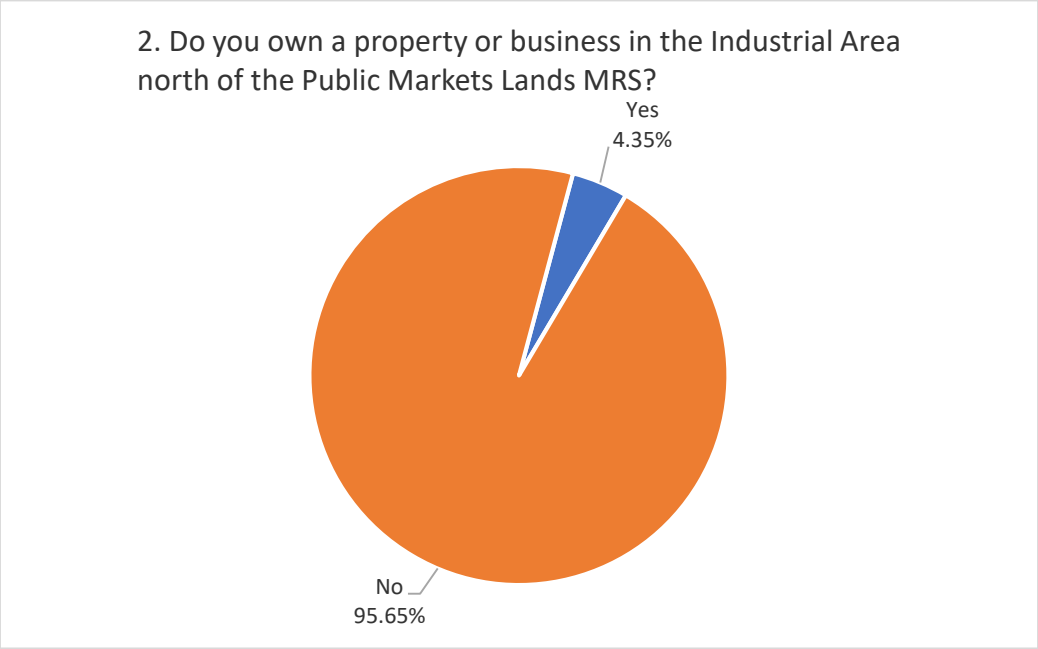
The purpose of the stakeholders' meetings was to provide information on the Public Markets Conceptual Development Plan for the Public Markets Lands MRS D Site. A Questionnaire was provided to obtain stakeholder input on the Conceptual Development Plan Vision of how the area may be developed.

There were over 46 participants at these First Stakeholders Meetings which were held at the Canad Inns Destination Centre located at 1034 Elizabeth Road on June 4, 5 and 6th 2018. Of these 42 people responded to the questionnaire.

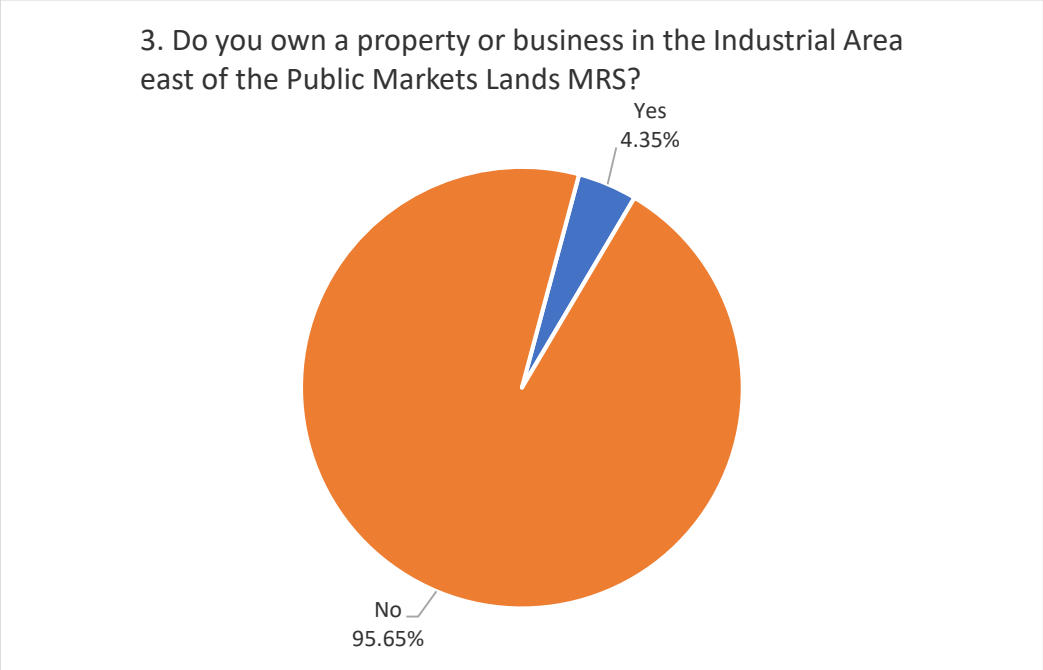
40% of respondents live in the Stock yards or Maginot neighbourhood south of Public Markets Lands MRS (east of Archibald, south of Elizabeth Road, north of Fermor, west of Lagimodiere), 20% live in Dufresne or Holden Neighbourhoods, north of the Public Markets Lands MRS (west of Lagimodiere, north of Marion, south of Dugald, east of the Seine river) another 20% Live elsewhere in St. Boniface, 16% in the Archwood neighbourhood west of the Public Market Lands MRS (west of Archibald, south of Marion, east of Seine river, north of St. Boniface Golf Club), 20% live in, and 4% of respondents live in another location noted as Other.



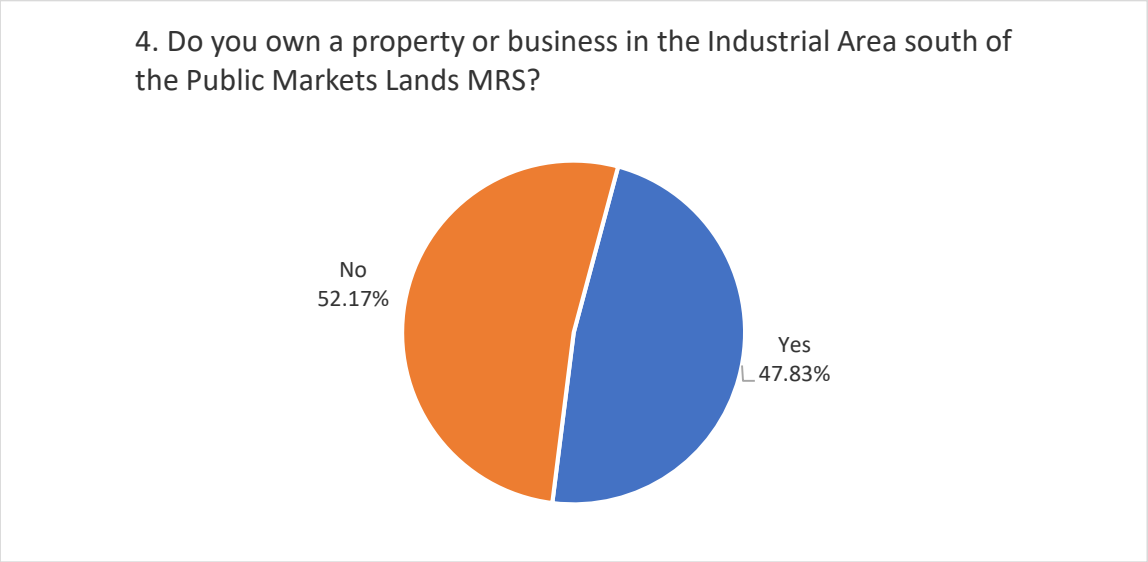
4.35% of participants own a property or business in the Industrial Area north of the Public Market Lands MRS.



4.35% of participants own a property or business in the Industrial Area east of the Public Market Lands MRS.



47.83% of participants own a property or business in the Industrial Area south of the Public Market Lands MRS.



The stakeholders' meetings were advertised by delivering an invitation letter to all addresses along Marion Street (between Archibald Street and Dawson Road N), on Speers Road all the way to Elizabeth road, Maginot Street (between Speers Road and Brunet Promenade) and Archibald Street (between Elizabeth Road and Marion Street). We also contacted by phone and email the Provencher BIZ, Norwood BIZ, Old St. Boniface Residence Association and South St. Boniface Residence Association to invite a few representatives from each association.

The following summarizes the results of the stakeholders' meetings. These results represent only the views of those who chose to attend the stakeholders meetings and submit a questionnaire and cannot be generalized to represent the view of all residents, property or business owners within and adjacent to the Public Markets Conceptual Development Plan.

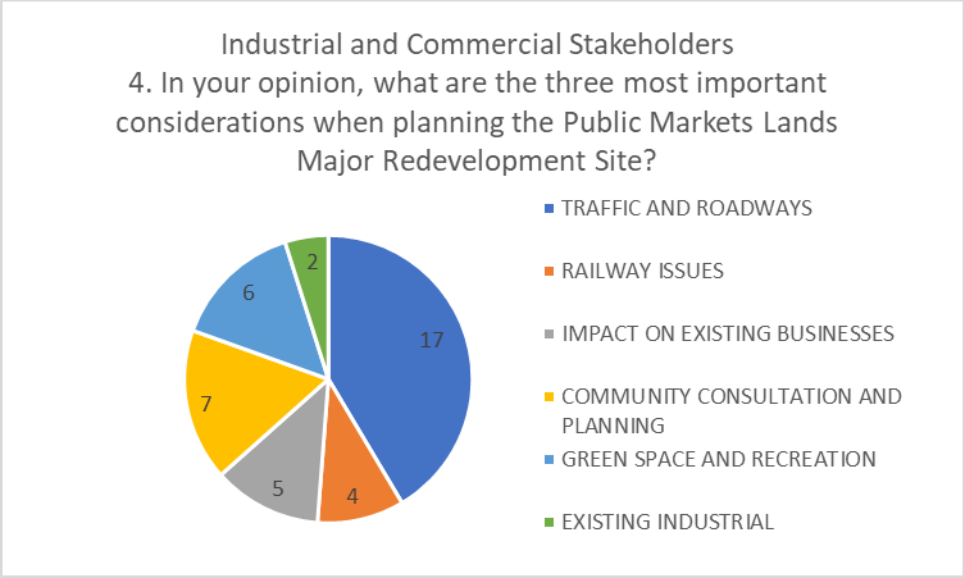
2.0 Summary of Stakeholder Meeting Findings

The highlights of the Exit Survey findings are:

4. In your opinion, what are the three most important considerations when planning the Public Markets Lands Redevelopment Site?

The most important considerations identified were as follows:

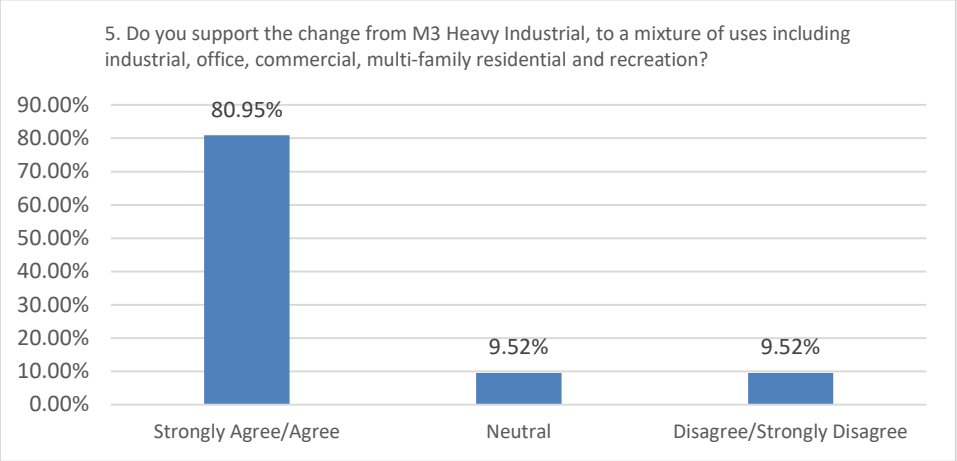
- Traffic and Roadways (17)
- Community Consultation and Planning (7)
- Green Space and Recreation (6)
- Impact on Existing Businesses (5)
- Railway Issues (4)
- Existing Industrial (2)



Included as attached please find the combined results in chart format answers from number 4 and 5 for all the stakeholders who attended. See attachment 1.

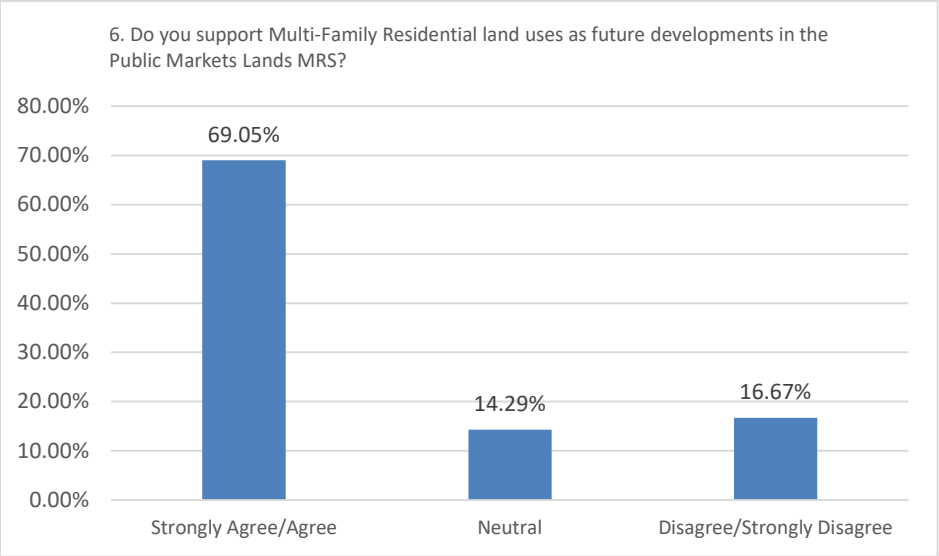
5. Do you support the change from M3 Heavy Industrial to a mixture of uses including industrial, office, commercial, multi-family residential and recreation?

80.95% of respondents indicated they either Strongly Support or Support and 9.52% were Neutral and 9.52% disagreed or strongly disagreed.



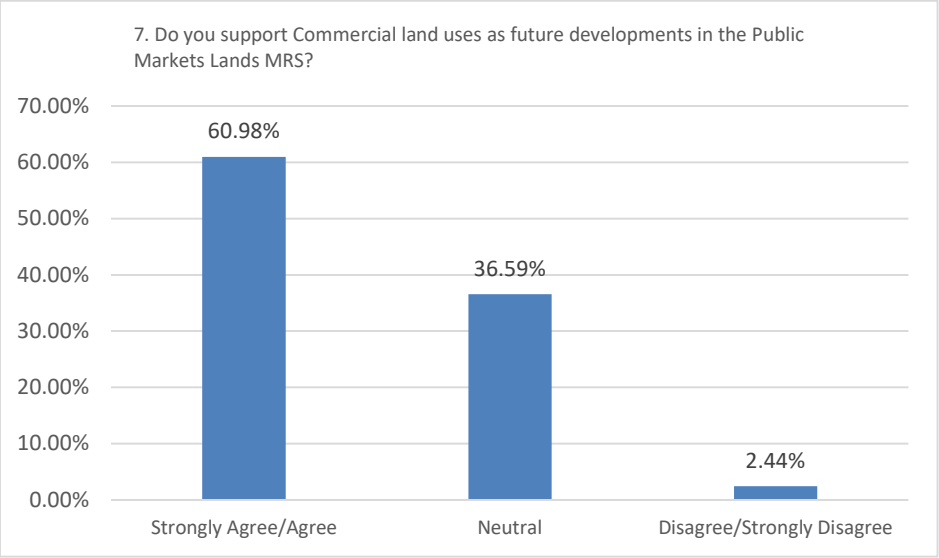
6. Do you support Multi-Family Residential land uses as future developments in the Public Markets Lands MRS?

69.05% of respondents indicated they either Strongly Support or Support, 14.29% were Neutral and 16.67% disagreed or strongly disagreed.



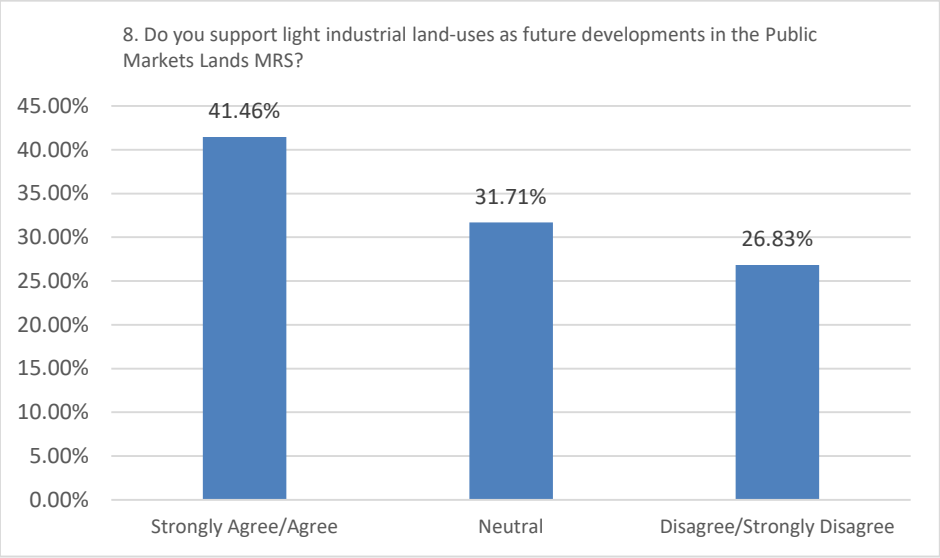
7. Do you support the Commercial land uses as future developments in the Public Markets Lands MRS?

60.98% of respondents indicated they either Strongly Support or Support, 36.59% were Neutral and 2.44% disagreed or strongly disagreed.



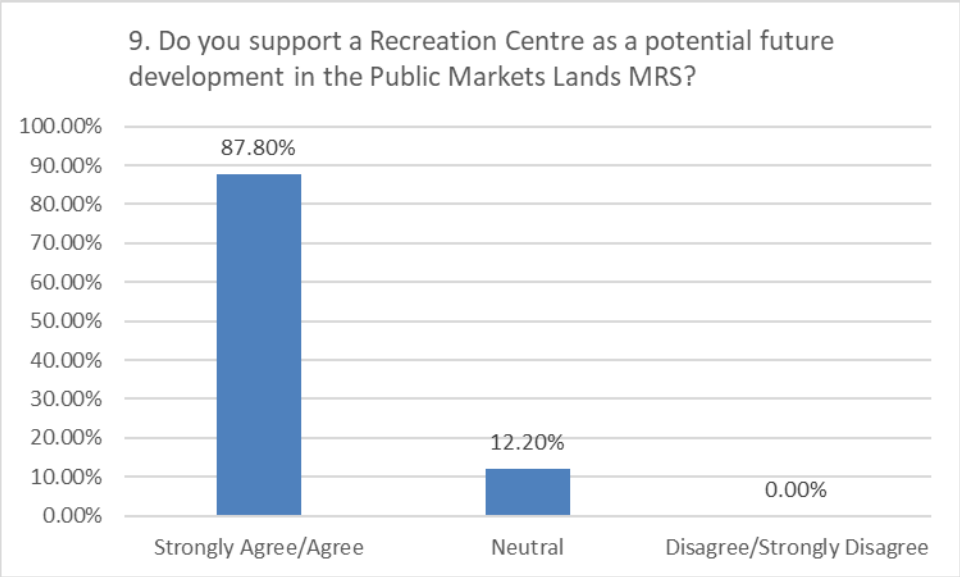
8. Do you support light industrial land-uses as future developments in the Public Markets Lands MRS?

41.46% of respondents indicated they either Strongly Support or Support, 31.71% were Neutral and 26.83% disagreed or strongly disagreed.



9. Do you support a Recreation Centre as a potential future development in the Public Markets Lands MRS?

87.80% of respondents indicated they either Strongly Support or Support, 12.20% were Neutral. No one Disagreed.



10. Please give reasons why you AGREE or DISAGREE with Items 5 through 9 above.

The most common reasons as to why respondents agreed or disagreed with Items 5 through 8 were as follows:

Five (5) respondents stated that they liked the plan. Clean up the neighbourhood. Make the area more useable. Bring more customers to the area.

One (1) respondent noted that they disagree with having industrial mixed in with residential and commercial developments.

Please refer to attached for a listing of all responses.

11. Was this meeting helpful?

95.65% of respondents felt this meeting was helpful. 4.35% of respondents did not feel this meeting was helpful.

12. Please provide us with any additional comments you may have.

Please refer to the attached for a list of all comments provided.

Stakeholder meeting - Question # 4/5 Residential/Commercial/Industrial

4. In your opinion, what are the three most important considerations when planning the Public Markets Lands Major Redevelopment Site?

TRAFFIC AND ROADWAYS

Traffic or Traffic Flow or Underpass
Transit/recreations
Transportation
Traffic Volume
If possible, access south should be greatly appreciated.
Accessibility to main roads
Traffic or Traffic Flow or Underpass (including ambulance)
Access from neighbourhood west of tracks-south to Elizabeth and north to Marion
Manage transportation to keep area walkable, cyclable.
Parking space
Fix intersection by Tim's, too many close calls
Access Egress from Archibald & Marion
Traffic
Traffic Impact/increase
No widening of Marion, west of Archibald, no widening of Archibald.
Don’t create more traffic nightmares
No bus rapid transit, waste of money and keep it small do not want excessive traffic
Easy access in and out of new development
Traffic Study

ENVIRONMENT AND WILDLIFE

Preserve current "wildlife habitat"
Greenspace (along the tracks)
Wildlife
Keep river clean

EXISTING INDUSTRIAL USES

Vehicle storage area should be gone
Bad frequent odor from feed plant
No Industrial (Heavy)
Industrial Impact of M3 Zoning
Get rid of Mission Ind. High Hazard Area
Adjacent M3 Industrial zoning North of Marion
Surrounding M3 zoning, city plan 4 increasing industry
Issue surrounding current activities at Mission Industrial site (prevailing wind, blow in our way)
Industrial Pollutants
Noise - people who work shift work, years of noise
Get rid of the M3 High hazard Mission IND
Do industrialized adjacent zoning from M3 to protect residents.
Industrial Metals new metal shredder on Mission street
Air quality - from new intensified industry

IMPACT ON EXISTING RESIDENTS

Impact on Property Value
Ensure the privacy of the neighbourhood is maintained

Health and Wellness area and walking paths
Upgrades to Happyland Park so that it is the same standard of new parklands
Ensure surrounding neighbourhoods areas not forgotten
Need more hospital facilities, ER rooms, personal care homes and senior homes
Limit impacts on Archwood/dufresne from infrastructure upgrades.

COMMUNITY CONSULTATION AND PLANNING
A good mix of residential and commercial use
Mixed Use - Complete community
Communication with land owners
Stores or Grocery stores
Affordability
Involving the current residential and business community
Not to overload housing
No High-rises (limited to 3 storeys)
High rises not developed closer to Brunet
Mixed housing types for all ages and incomes.
Balanced and thoughtful planning
Development of wasted lands
Apply pressure on the City to Master Plan (planning overlay) for area at least 2km outside main area.
Residential Use
Not high-rises/take away from downtown high-rises/skyline/fireworks at the forks

Giving the area a facelift, new life
No low-income housing, we have enough in the area that causes nothing but problems.
Emergency Exit Planning
Service self sufficiency within the area

RAILWAY ISSUES
Trains
Frequent trains thru area/Train Congestion
Rail Underpass Marion at Archibald essential
Removal of Rail line/yard
Removal of as much rail as possible
Get rid of the tracks and provide access to new area including replace our back fences along that area would be a bonus.

GREENSPACE AND RECREATION
Adequate Green Space
Recreation and pathways
Jogging and walking paths
Connectivity - Active transport, theme connection
Green Areas (in a natural - trees - grasses)
Infrastructure integration capacity (traffic, sewer, water)
Greenspace close to Brunet including access
Green space - Dog park - fully fenced
Recreational area

IMPACT ON EXISTING BUSINESSES
Making sure businesses are not impacted by construction

Making sure local businesses are able to thrive in the development.
How it will benefit residences
Impact to surrounding businesses
Access to local shops and businesses by road and pathway

5. In your opinion, what are the three most important considerations when planning the Public Markets Lands Major Redevelopment Site?

TRAFFIC AND ROADWAYS

Traffic or Traffic Flow or Underpass (including ambulance)
Access from neighbourhood west of tracks-south to Elizabeth and north to Marion
Manage transportation to keep area walkable, cyclable.
Parking space
Fix intersection by Tim's, too many close calls
Access Egress from Archibald & Marion
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Easy access in and out of new development
Traffic Study

ENVIRONMENT AND WILDLIFE

Preserve current "wildlife habitat"
Greenspace (along the tracks)
Wildlife
Keep river clean

EXISTING INDUSTRIAL USES

No Industrial (Heavy)
Industrial Impact of M3 Zoning
Get rid of Mission Ind. High Hazard Area
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IMPACT ON EXISTING RESIDENTS

Impact on Property Value
Ensure the privacy of the neighbourhood is maintained
Health and Wellness area and walking paths
Upgrades to Happyland Park so that it is the same standard of new parklands
Ensure surrounding neighbourhoods areas not forgotten
Need more hospital facilities, ER rooms, personal care homes and senior homes
Limit impacts on Archwood/Dufresne from infrastructure upgrades.

COMMUNITY CONSULTATION AND PLANNING

Involving the current residential and business community

Not to overload housing

No High-rises (limited to 3 storeys)

High rises not developed closer to Brunet

Mixed housing types for all ages and incomes.

Balanced and thoughtful planning

Development of wasted lands

Apply pressure on the City to Master Plan (planning overlay) for area at least 2km outside main area.

Residential Use

Not high-rises/take away from downtown high-rises/skyline/fireworks at the forks

Giving the area a facelift, new life

No low income housing, we have enough in the area that causes nothing but problems.

Emergency Exit Planning

Service self sufficiency within the area

RAILWAY ISSUES

Trains

Removal of Rail line/yard

Removal of as much rail as possible

Get rid of the tracks and provide access to new area including replace our back fences along that area would be a bonus.

GREENSPACE AND RECREATION

Infrastructure integration capacity (traffic, sewer, water)

Greenspace close to Brunet including access

Green space - Dog park - fully fenced

Recreational area

Stakeholder meetings - Question 10/11 Residential/Commercial and Industrial

10. **Please give reasons why you AGREE OR DISAGREE with Items 5 though 9 above.**

- I agree to the mixed-use approach with rezoning
- To make area which is unused nice and enjoyable to look at
- I personally like the idea of improving the mostly empty lot with more businesses and housing as it will bring more customers to local businesses and encourage access to those areas.
- I own a small business and would like the public added walk in business
- The idea is sound and I would support it generally
- Generally area with development because of the current central location of development right now is just a waste
- Clean up community, makes use of the land for services and recreation for people in the area and surrounding areas.
- #8 Disagree - any industrial shouldn't be in residential/commercial developments.
- It is important to eliminate the M3 zoning. I think it is important to have rapid transit.
- We need new arena's in area the ones we have currently are condemnable.
- Should add value to this area and makes this area more attractive.
- I believe the health and success of a community is dependant on multiple factors and the fulfillment of multiple needs to individuals and families. A community must have as much service-based support as cultural.
- #5 I have some property that I can develop, #6 If I develop I can do the same, #9 It needs to have some recreational in the area

11. **Please give reasons why you AGREE OR DISAGREE with Items 6 though 10 above.**

- This land has been out of commission for years - so I am concerned that there could be "over development" of this area and as a result an increase of traffic that is already an issue. Not sure if only 2 routes in and out will be enough?
- A recreation centre like the one at 7 oaks would be good as it looks after all ages - lots of seniors in the area.
- With more residential they only concern is for schools - how would it affect the existing school Archwood - Marion school is underused now.
- I feel an active lifestyle is important and needed in this area. There seems to be enough industrial land use and it would be nice to build more of a community instead.
- Would like the additional walk/run ways plus green space - additional shopping would be nice.
- Traffic is already to heavy and the existing infrastructure cannot handle
- Our city needs more greenspace for families etc. & our wellbeing.
- would not like high rise apts. behind my home

- I support the change and development of new neighbourhoods and greenspace. I do not support low income housing. Sage Creek, Bridgewater are 2 great examples of neighbourhoods I would like to live in. So if we could get something like that I would be happy.

- I believe for a city of close to 1M - we should have more to offer as indoor/outdoor recreation areas. Winter is 7 months out of 12! Understand the need for more multi-family, however too much area will not be able to support it.

- There may be "greenspaces: but all the area that is a marsh would be gone not giving the wildlife their adequate space to live. The new area will also have a negative impact on traffic flow, more people will use it to cut through.

- The increase in low income housing will/can increase crime. There is no plan for the increased traffic, being built on false transit promises.

- Area is not that big to need industrial, multifamily with retail on ground. Recreation (private & public) will be the USP.
- Helps to make it friendly, walkable and less industrial.
- A first-class opportunity to make St. Boniface livable for all.
- It makes good sense to develop mixed use in this area.
- Concern about limiting industry to light (M2) medium allows for too much
- Brownfield into residential? No brainer

Stakeholder Meeting - Question 12/13 Residential/Commercial and Industrial

12. Please provide us with any additional comments you may have.

- Tarraeon Park is a great place to have a business and would like to have a similar situation developed here.
- How long/duration of this development will be?
- Very important again the underpass at Marion and Archibald
- Access to major traffic routes seem restricted, and not enough to service existing traffic and additional
- Stay connected with the BIZ
- When do they expect construction to start?
- Rail Yard needs to be removed - promised by their developer/realtor
- Natural corridors for wildlife
- Workshop with homeowners
- Check Caveats on fences along CN yard.

13. Please provide us with any additional comments you may have.

- As a homeowner of an 'older home' this does raise some concerns if this newer development would decrease my property's value?
- Would a new pool be built and replace the current outdoor pool at happyland park?
- Would the over/underpass be built on Marion/Archibald as talked about 3yrs ago to accommodate this - the trains?
- Would like to see city work with developers so that those who live and choose to stay living across Archibald Street are not left with a neighbourhood that looks like the poor relative. That you have out reach with all neighbourhoods.
- Have access from Archibald, not having to go to Marion to access.
- I don't want the areas outside of this development, specifically west of Archibald to turn into the "poor cousin" ie. Archibald becomes a deviding line between new and old. Access from Archibald is also important
- Would attend a workshop mentioned during this meeting.
- This meeting was informative. I look forward to attending the next session
- I was happy to be included/invited. I honestly don’t know how much if any influence we have as homeowners even have in these possible upcoming changes but I would like to be updated on the process.
- Don’t want to see all these building be developed and sit empty
- Recreational facility would be nice and a rink etc.
- Keep us in the loop and be transparent
- It appears that our ideas/opinions are being heard, but a plan is in place and what we have to say will not be considered.

- For a group that's done a lot of study, don't seem to have a lot of answers. We get all of the bad but none of the good from this.
- This is a nice plan but it has the potential of making people and children very sick being so close to high hazard industry and 2 active rail lines. People in this new area will not be safe from the mission industry on a daily basis the shredders, rock and shake our homes leaving massive amounts of dust. The noise is unbearable. The smells I am sure are toxic as well as the air we breathe. It would be a shame to fool people into thinking they are safe, breathing clean air and eating nice clean food from their community gardens. Like our homes, these people will experience cracked walls, noise so loud it makes you crazy, The shredder is our alarm clock. Fixing our cracked walls has now become a regular expense. I believe this mission industrial area will make all our children have developmental issues that will last a lifetime. Mission Industrial has to go for this area to be good.
- Don’t give up.
- Looks like a great development idea
- Would like pamphlet to show presentation. Please help get rid of M3 zoning north of this project as it is damaging to health of current residents and future (your) residents.
- Please work with South St. Boniface residents Association to stop M3 metal recycling which is hazardous to our health.
- Life in East St. Boniface was quite acceptable until they installed the largest metal shredder in all of Western Canada at Industrial Metals on Mission Street. The noise from 7am to 5pm weekdays is truly unacceptable.
- Please consult the information gathered by SSBRA regarding Mission Industrial Site and the very serious concerns currently the Hazardous business.
- The Old St. Boniface Residents Association recently received a mandate at its recent AGM to pressure the city to open the Mission Industrial Secondary plan for the purpose of densification. Perhaps Olexa could partner to apply pressure to revisit the plan.

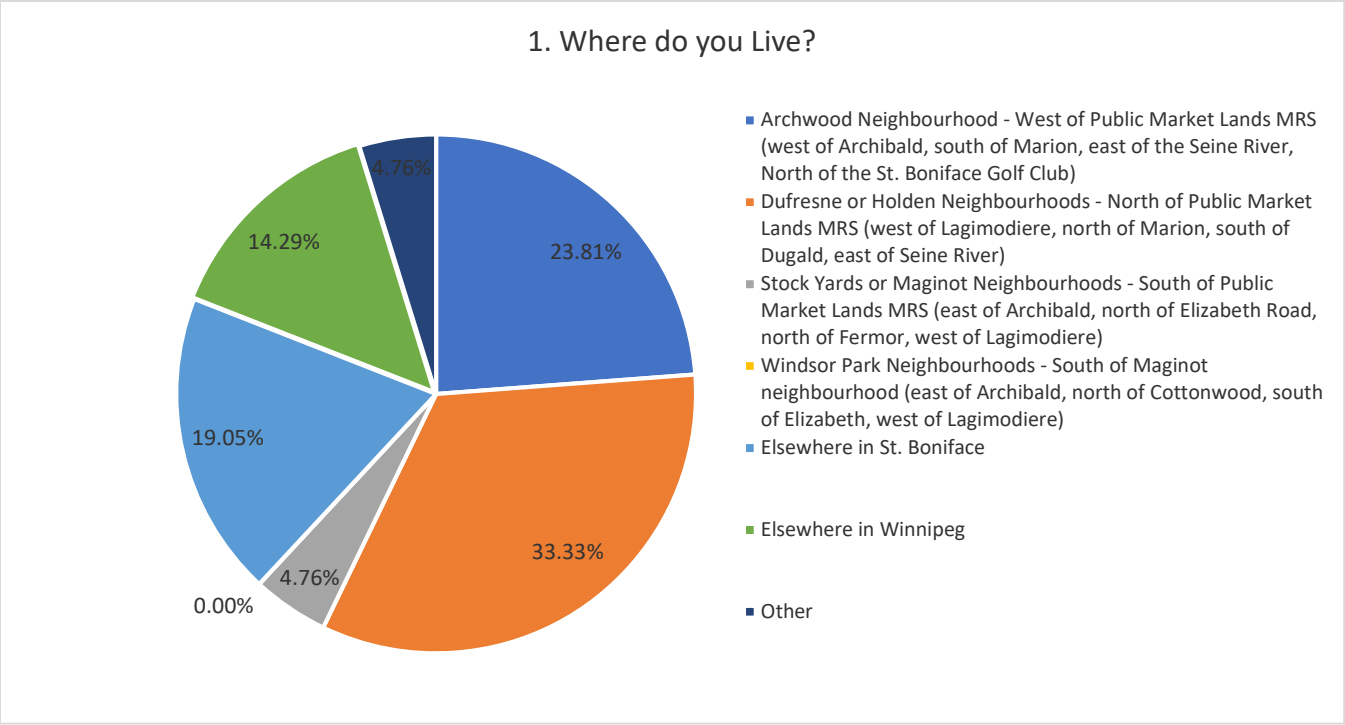
Public Markets Site (MRS D) Conceptual Development Plan
Stakeholder Meeting # 2
October 30th, 2018

1.0 Stakeholder Meeting #2

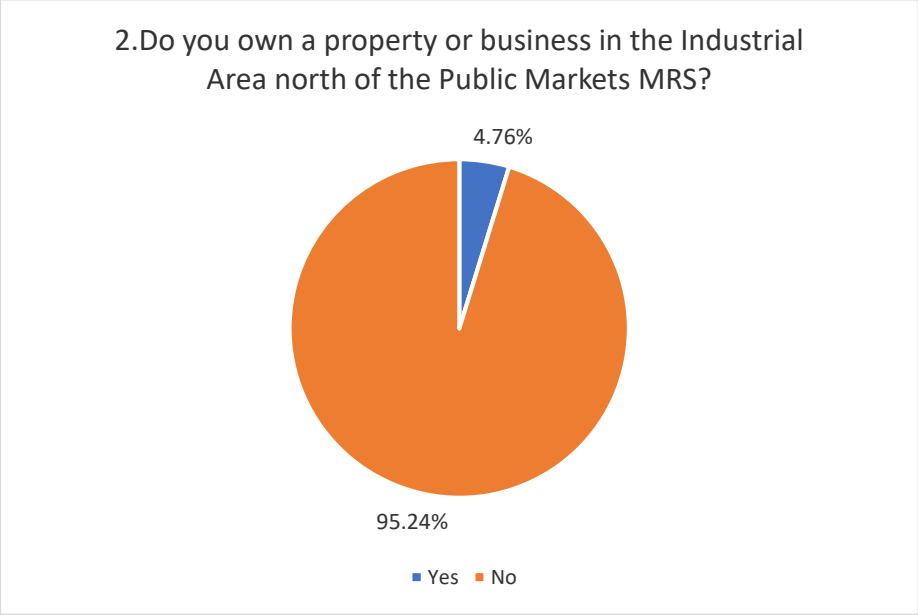
The purpose of this second round stakeholder meetings were to provide more information on the refined Public Markets Conceptual Development Plan for the Public Markets Lands MRS D Site. A more refined questionnaire was provided following the presentation to obtain public input on the Conceptual Development Plan and results from the previous stakeholders' meetings and open house.

There were 29 participants at the stakeholder meeting that were held at the Canad Inns Destination Centre located at 1034 Elizabeth Road on October 30th, 2018 in two sessions, one from 4:30-6pm and the other at 7-8:30pm. Of the 29 participants 21 people responded to the survey provided.

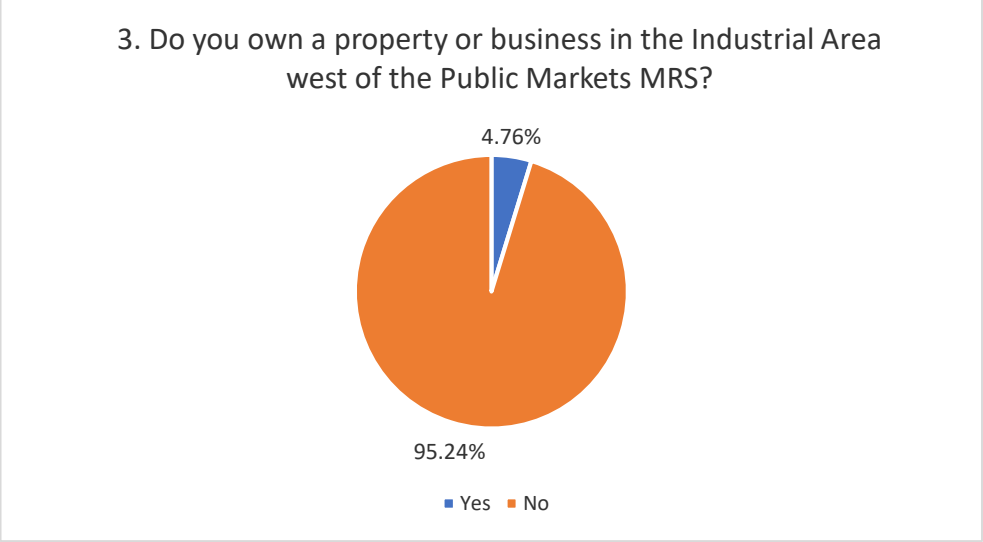
23.81% of resident respondents live in the Archwood neighbourhood west of the Public Markets Lands MRS, 33.33% live in Dufresne or Holden Neighbourhoods, north of Public Market Lands MRS, 4.76% Stock Yards or Maginot Neighbourhoods, south of the Public Markets Lands, 0% of respondents live in Windsor Park Neighbourhoods, south of Maginot neighbourhood, 19.05% live elsewhere in St. Boniface, 14.2.9% live elsewhere in Winnipeg and 4.76% were in the other areas.



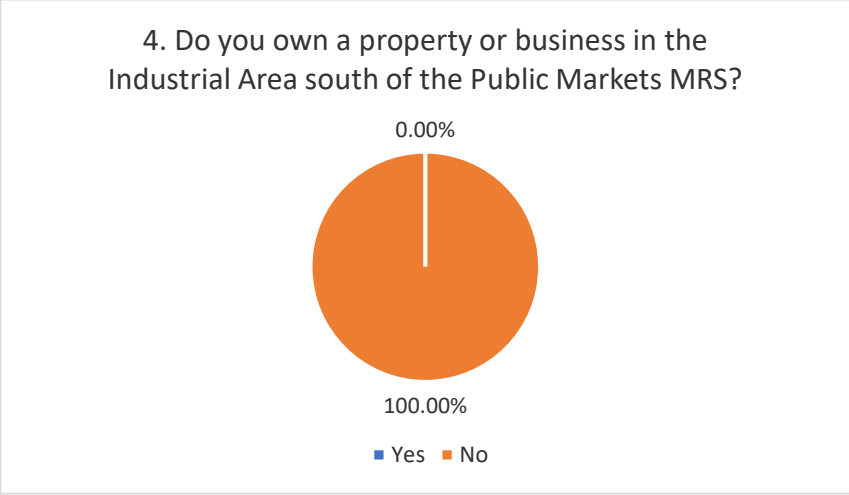
4.76% of the open house participants own a property or business in the Industrial Area north of the Public Market Lands MRS.



4.76% of the open house participants own a property or business in the Industrial Area west of the Public Market Lands MRS.



0% of the open house participants own a property or business in the Industrial Area south of the Public Market Lands MRS.



This invitation for these Stakeholders meetings was emailed out to all participants who provided email contact information at the last set of stakeholder meetings and the previous open house. The email invitation was sent out to all participants on October 16th and again on October 23rd. An invitation was also posted on Old St. Boniface Residence Association's Facebook page. All materials were provided in French and English as well as a translator was on hand for any questions.

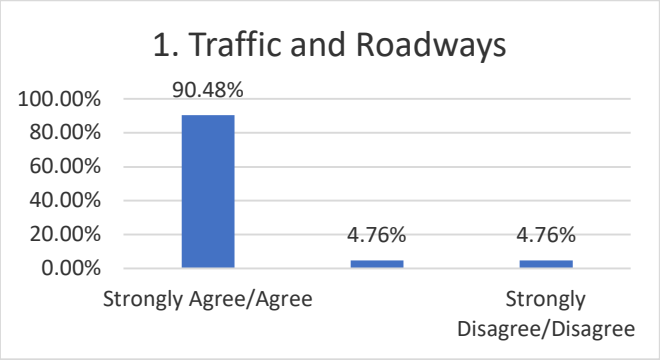
The following summarizes the results of these Stakeholders meetings. These results represent only the views of those who chose to attend the Stakeholders meetings and submit a questionnaire and cannot be generalized to represent the view of all residents and business property or business owners within and adjacent to the Public Markets Major Redevelopment Site.

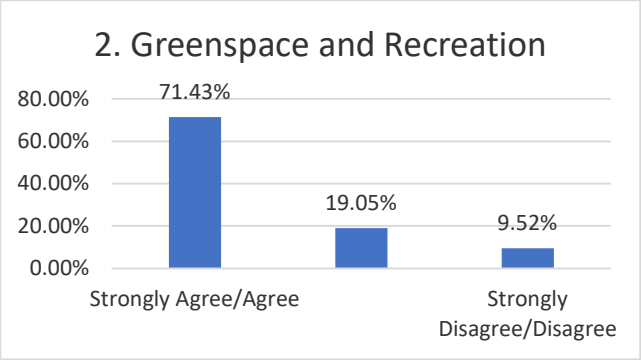
2.0 Summary of Open House Findings

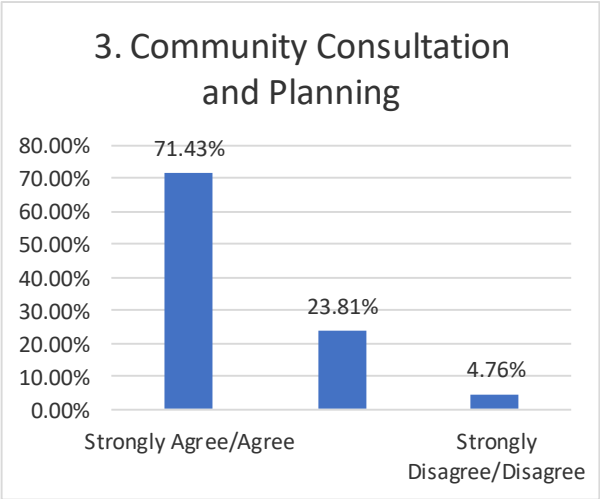
The highlights of the Exit Survey findings are:

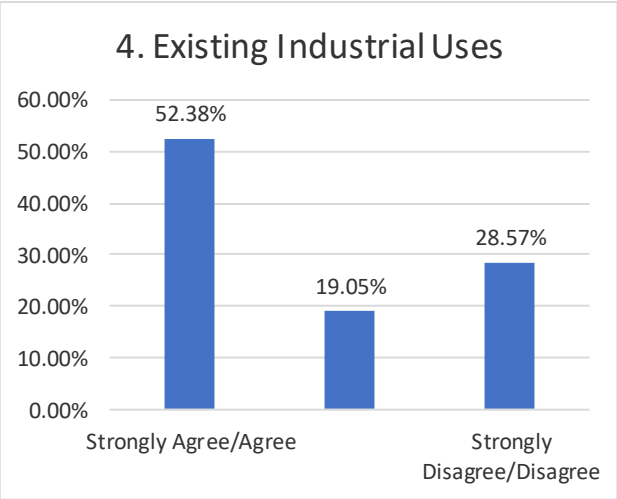
5. Results of the First Round Public Engagement indicated the following top 10 most important considerations. Please indicate whether you agree or disagree.

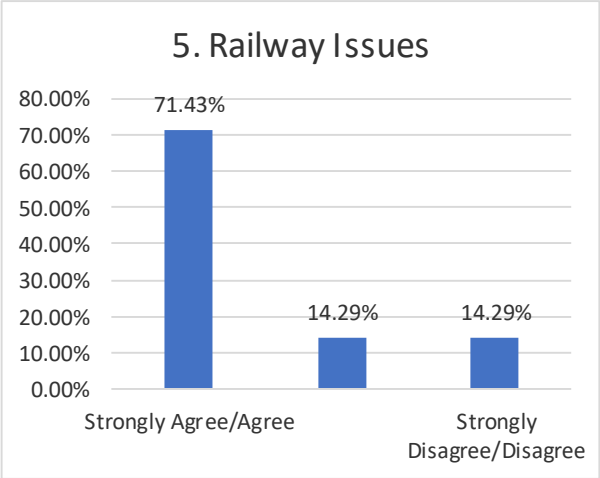
Most important considerations identified were as follows:

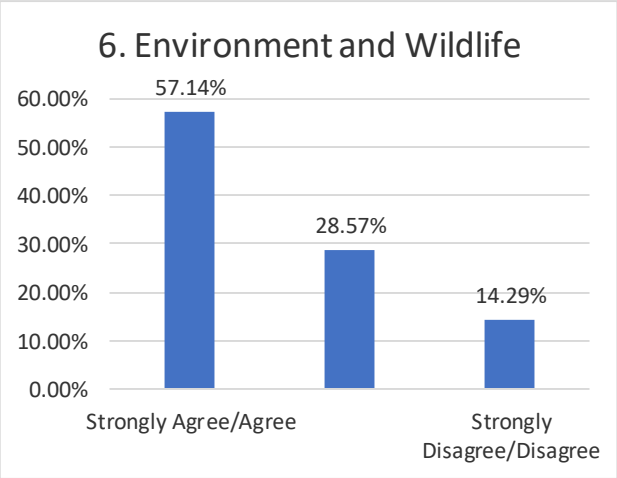


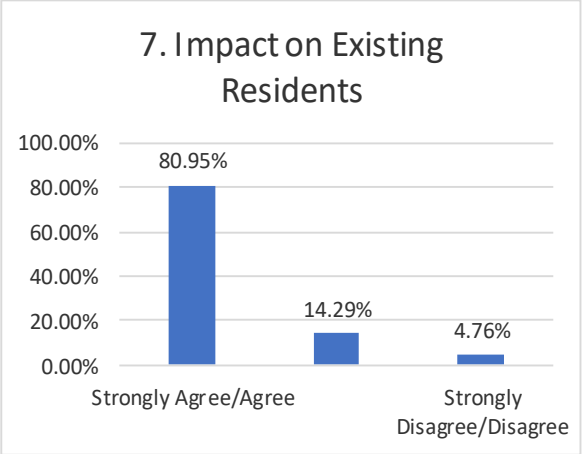


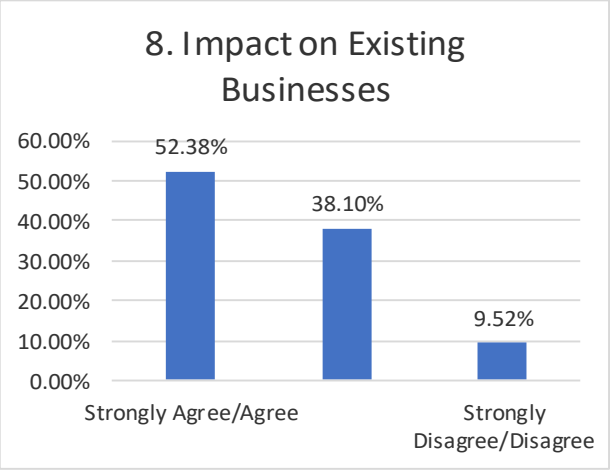

3. Community Consultation and Planning
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
71.43%
23.81%
4.76%
Strongly Agree/Agree
Strongly Disagree/Disagree

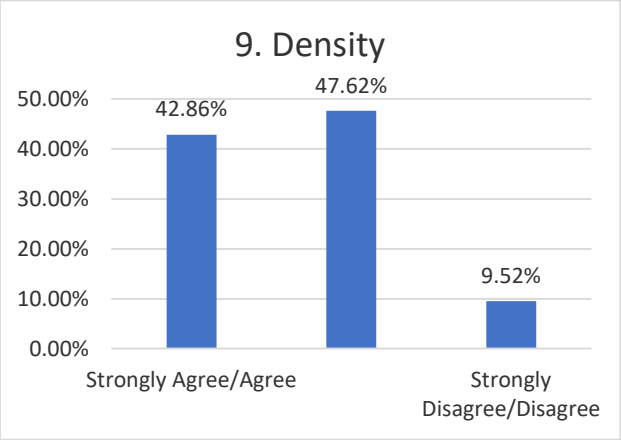

4. Existing Industrial Uses
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
52.38%
19.05%
28.57%
Strongly Agree/Agree
Strongly Disagree/Disagree

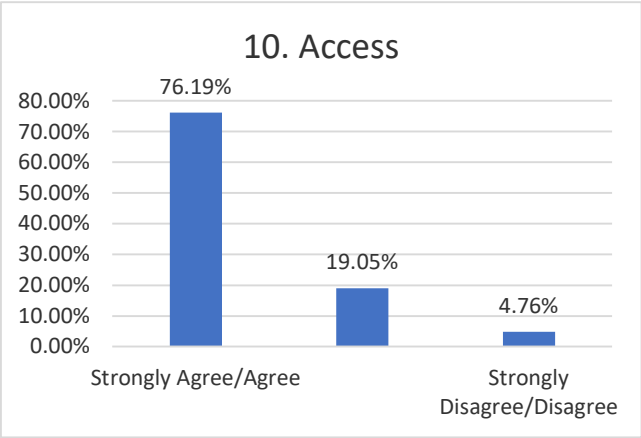

5. Railway Issues
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
71.43%
14.29%
14.29%
Strongly Agree/Agree
Strongly Disagree/Disagree


6. Environment and Wildlife
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
57.14%
28.57%
14.29%
Strongly Agree/Agree
Strongly Disagree/Disagree


7. Impact on Existing Residents
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
80.95%
14.29%
4.76%
Strongly Agree/Agree
Strongly Disagree/Disagree


8. Impact on Existing Businesses
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
52.38%
38.10%
9.52%
Strongly Agree/Agree
Strongly Disagree/Disagree

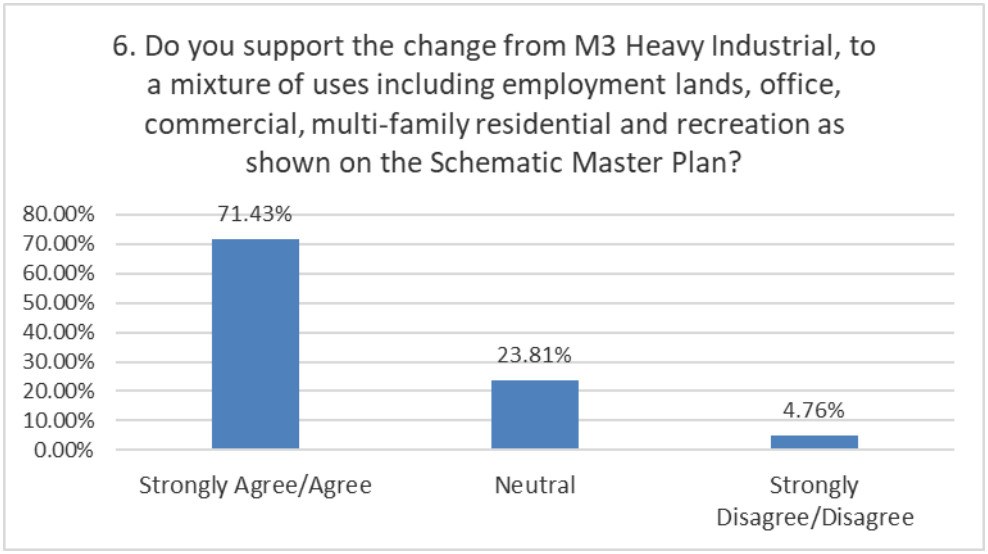




Note: All Center bars are Neutral responses.

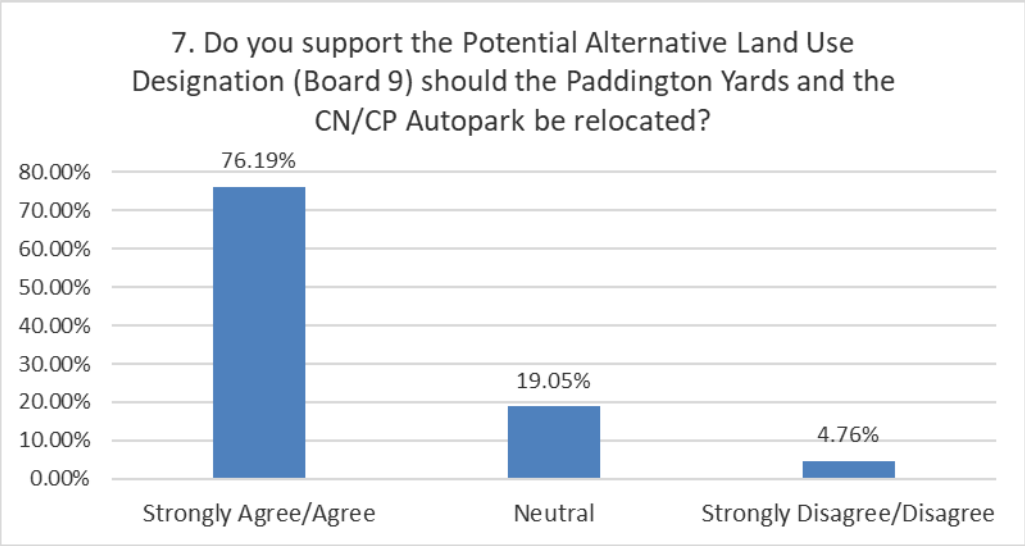
6. **Do you support the change from M3 Heavy Industrial to a mixture of uses including employment lands, office, commercial, multi-family residential and recreation as shown on the Schematic Master Plan?**

71.43% of respondents indicated they either Strongly Support or Support and 23.81% were Neutral and 4.76% disagreed or strongly disagreed.



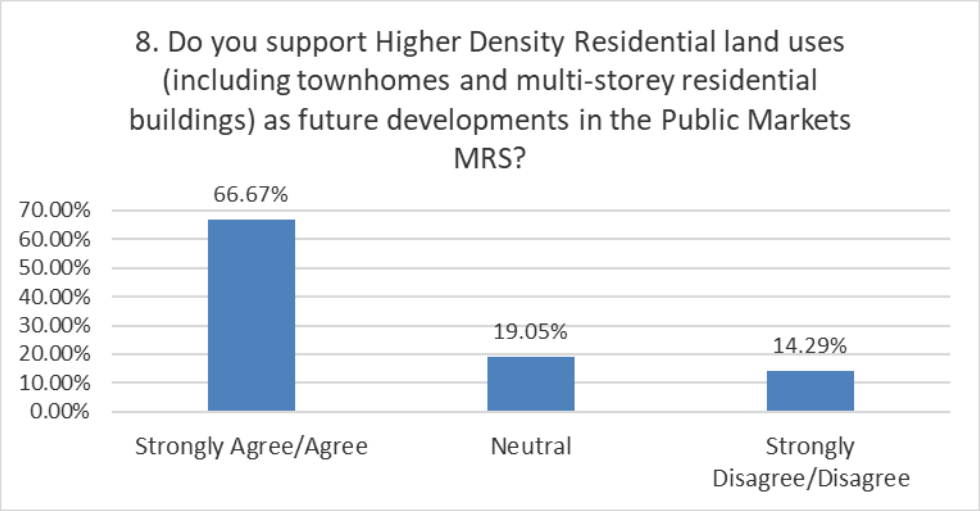
7. Do you support the Potential Alternative Land Use Designation (Board 9) should the Paddington Yards and the CN/CP Autopark be relocated?

76.19% of respondents indicated they either Strongly Support or Support, 19.05% were Neutral and 4.76% disagreed or strongly disagreed.



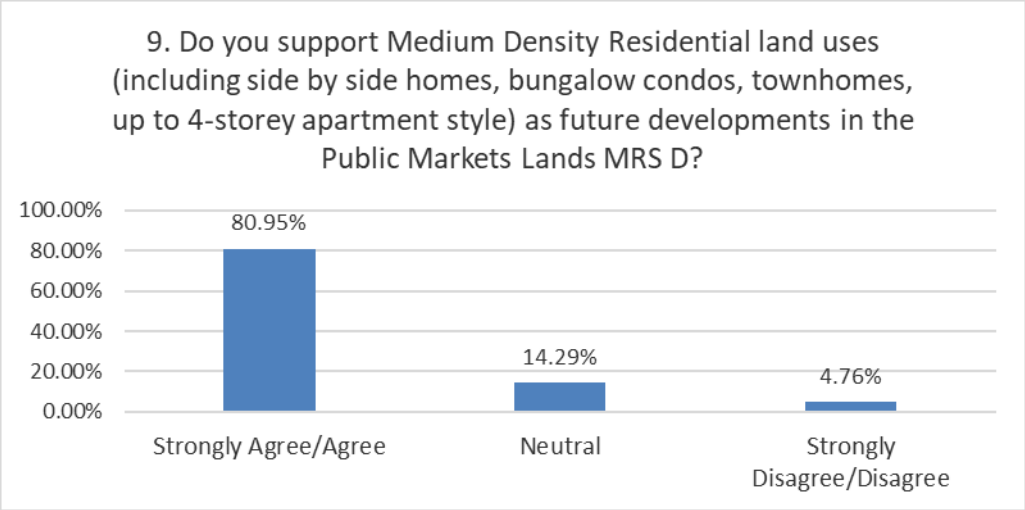
8. Do you support Higher Density Residential land uses (including townhomes and multi-storey residential buildings) as future developments in the Public Markets Lands MRS?

66.67% of respondents indicated they either Strongly Support or Support, 19.05% were Neutral and 14.29% disagreed or strongly disagreed.



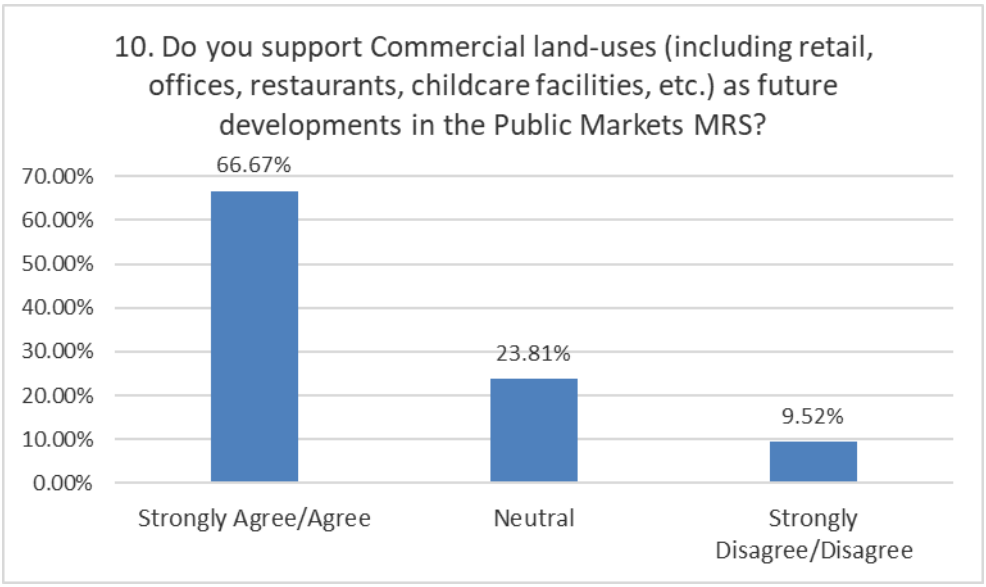
9. **Do you support Medium Density Residential land uses (including side by side homes, bungalow condos, townhomes, up to 4-storey apartment style) as future developments in the Public Markets Lands MRS D?**

80.95% of respondents indicated they either Strongly Support or Support, 14.29% were Neutral and 4.76% disagreed or strongly disagreed.



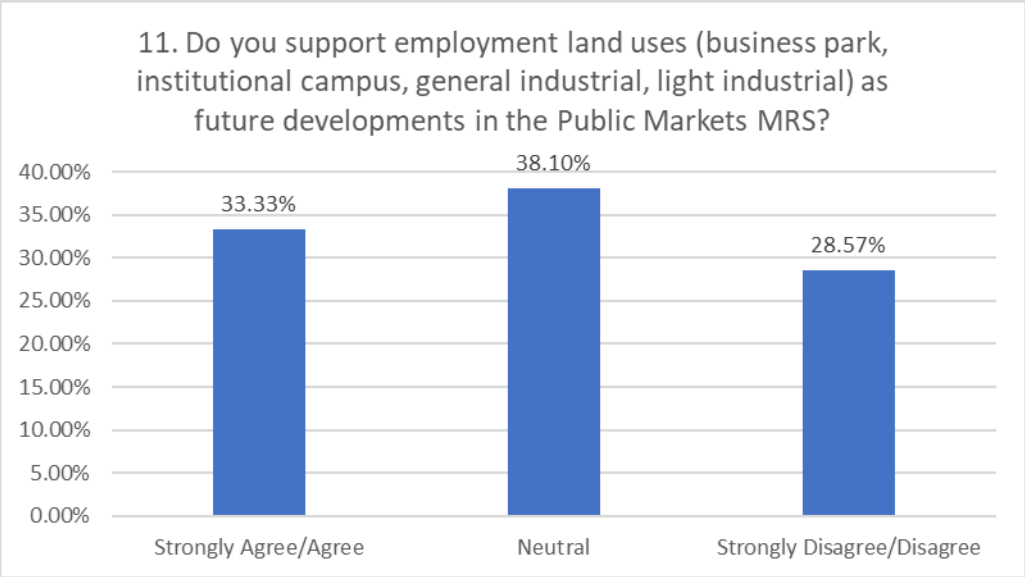
10. **Do you support Commercial land-uses (including retail, offices, restaurants, childcare facilities, etc.) as future developments in the Public Markets Lands MRS?**

66.67% of respondents indicated they either Strongly Support or Support, 23.81% were Neutral and 9.52% disagreed or strongly disagreed.



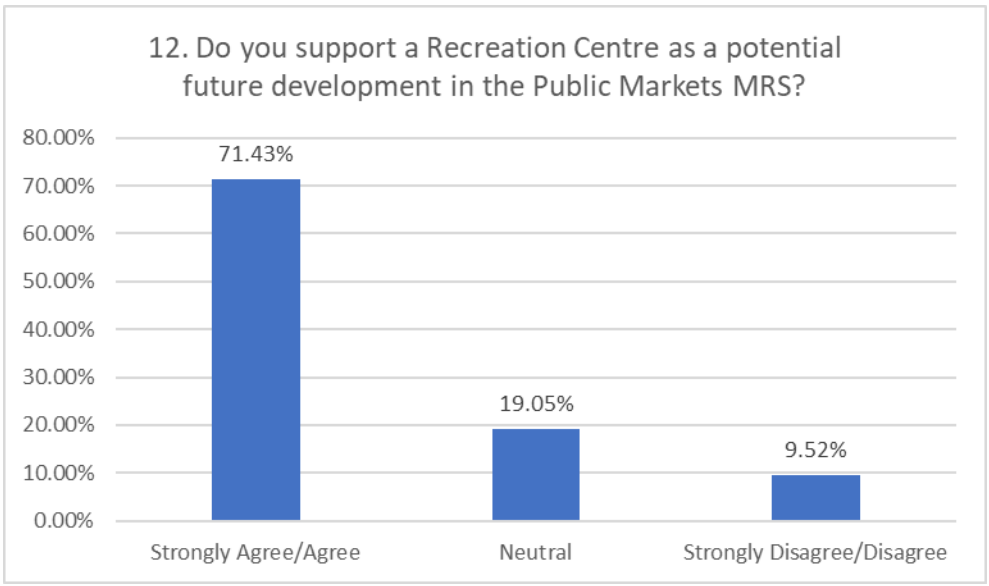
11. Do you support employment land uses (business park, institutional campus, general industrial, light industrial) as future developments in the Public Markets MRS?

33.33% of respondents indicated they either Strongly Support or Support, 38.10% were Neutral and 28.57% disagreed or strongly disagreed.



12. Do you support a Recreation Centre as a potential future development in the Public Markets MRS?

71.43% of respondents indicated they either Strongly Support or Support, 19.05% of respondents were Neutral, and 9.52% of respondents disagreed or strongly disagreed.



13. Please give reasons why you AGREE or DISAGREE with Items 5 through 12 above.

Here are all the reasons provided by the respondents:

Add parks, playgrounds, etc.
Given the prospect of high-density housing and other types of residence, including a recreation centre will be essential so as not to create a disadvantaged environment.
Even completely remove any M3!
Change to M1 use, no buildings taller then 6 floors, supports employment land uses if it is institutional campus and light industrial (M1)
Given the proximity to Downtown higher density residential and commercial use makes sense, industrial makes little sense and I would much prefer mixed use to office park type development.
Industrial will not increase land value or encourage people to the area.
I need more information on impact on surrounding areas before deciding what to do. M3 zoning and heavy industry is a hazard to this area. Please hand out plans before meetings so we can look at them ahead of time, so we can make more informed decisions. Also, we need to know impact on roads and surrounding neighbourhood first before deciding on anything.
Multi-use recreational center with parks are needed in St. Boniface. Hockey Rinks are old.
More materials in advance to study and come up with questions.
The more this is discussed, the clearer the picture will be…These items will sort themselves out with more dialogue and participation. This is great. These questions seem formulated for everyone to agree with different levels of assertiveness.
#12 a Rec Centre to be paid by whom? Run by whom, city run? Private?
Access from the Archwood neighbourhood - to have to walk to Marion is not something I would do. Student getting to school? - too close to be bussed if English K-8 students.
Public spaces are important to the health & well-being of the residents - parks, greenspace etc. Proximity to commercial is preferable for walking or biking to/from.
NO to Marion/Archibald widening. Development is fine, but not at the expense of existing neighbourhoods. The Archibald/Marion intersection plan was a concrete disaster. Also, Archwood school does NOT have a 30km zone. (its still 60km) and increased traffic is dangerous to the students.
Moving away from industrial use is extremely important for healthy communities close to downtown.

14. Was this meeting helpful?

90.48% of respondents felt this meeting was helpful. 9.52% of respondents were non-responsive and 0% of respondents did not feel this meeting was helpful.

15. The Developer is investigating options for the name of the proposed Development. We would welcome your thoughts and ideas for names, potential names will be presented at the next Public Open House.

There was only one suggestion:

Rooster town – in memory of the shame put upon the Metis who had their lives stolen.

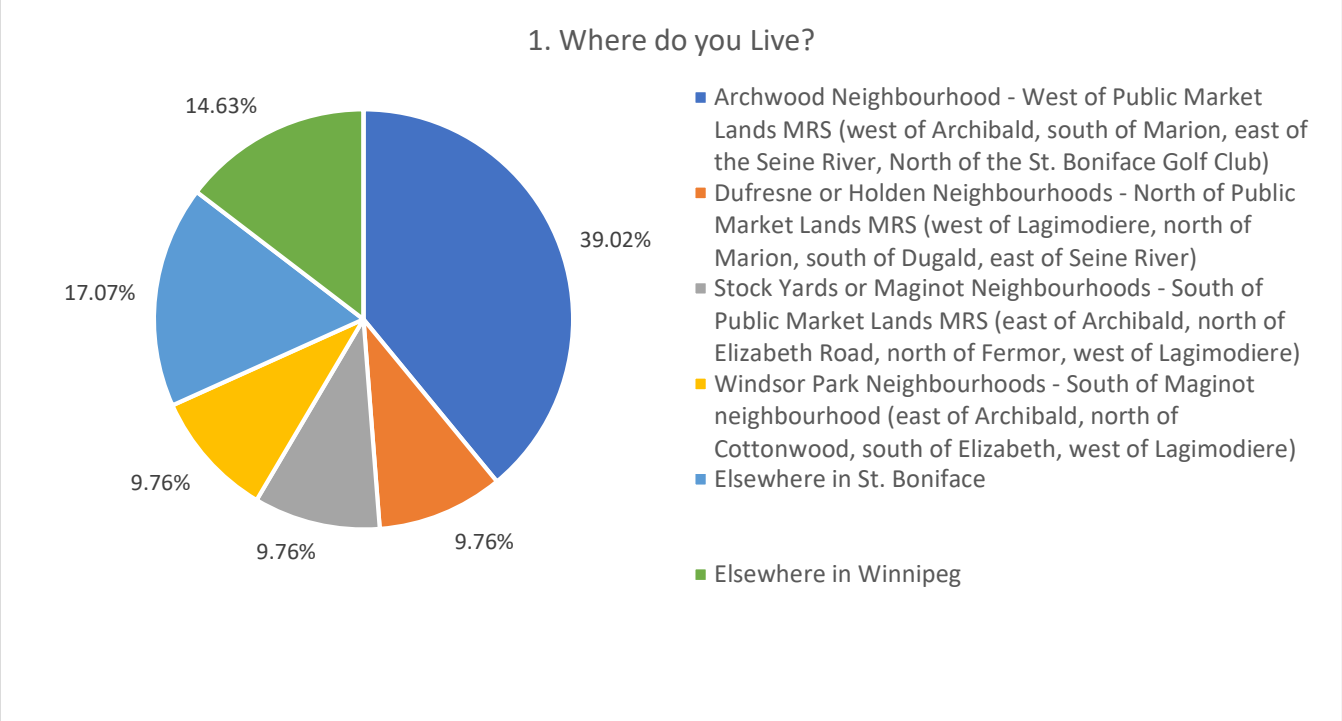
Public Markets Site (MRS D) Conceptual Development Plan
Open House #1
June 21st, 2018

1.0 Open House

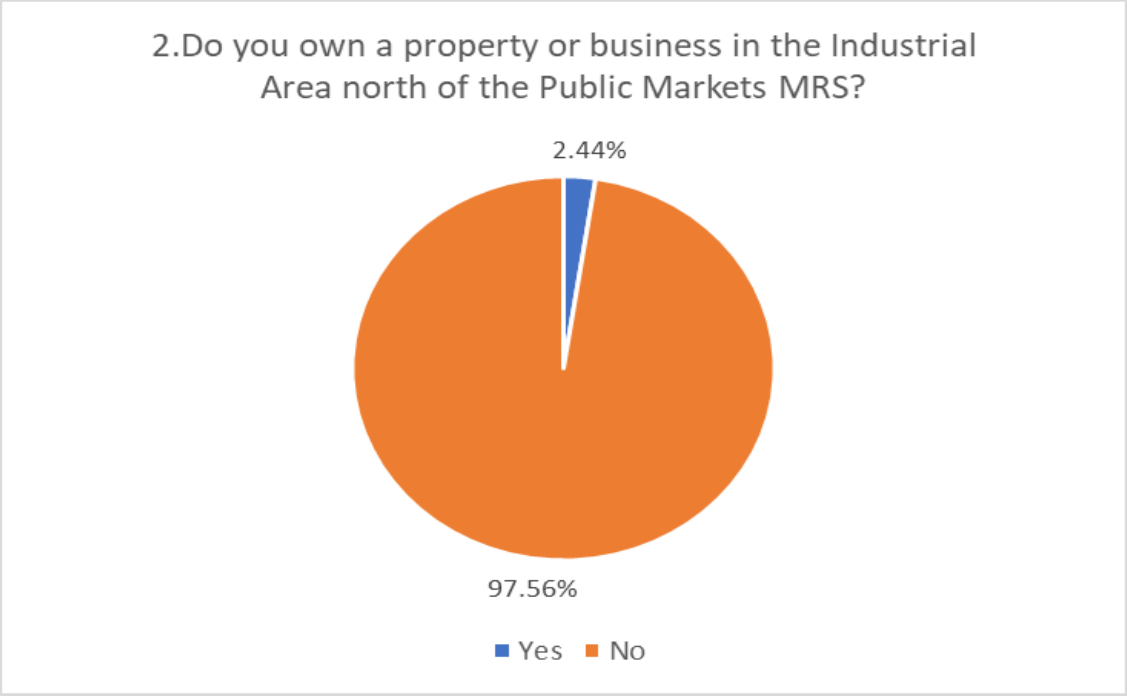
The purpose of the open house was to provide information on the Public Markets Conceptual Development Plan for the Public Markets Lands MRS D Site. A questionnaire was provided following the presentation to obtain public input on the Conceptual Development Plan Vision of how the area may be developed.

There were over 60 participants at the Open House that was held at the Canad Inns Destination Centre located at 1034 Elizabeth Road on June 21st, 2018 from 4:30-7:30pm. Of the over 60 participants 41 people responded to the questionnaire.

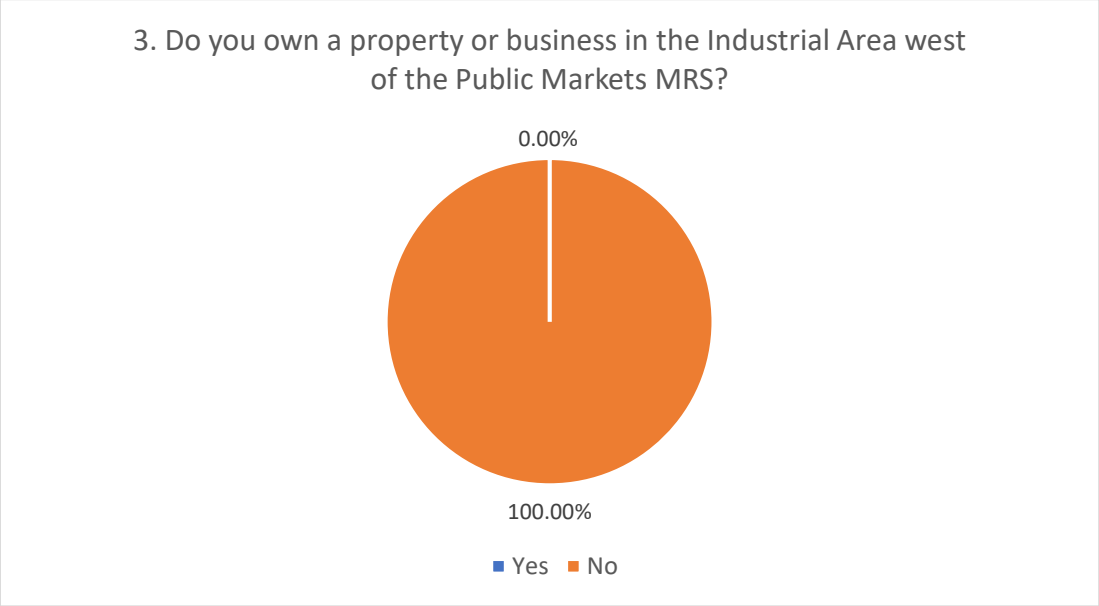
39.02% of resident respondents live in the Archwood neighbourhood west of the Public Markets Lands MRS, 9.76% live in Dufresne or Holden Neighbourhoods, north of Public Market Lands MRS, 9.76% Stock Yards or Maginot Neighbourhoods, south of the Public Markets Lands, 9.76% of respondents live in Windsor Park Neighbourhoods, south of Maginot neighbourhood, 17.07% live elsewhere in St. Boniface, 14.63% live elsewhere in Winnipeg.



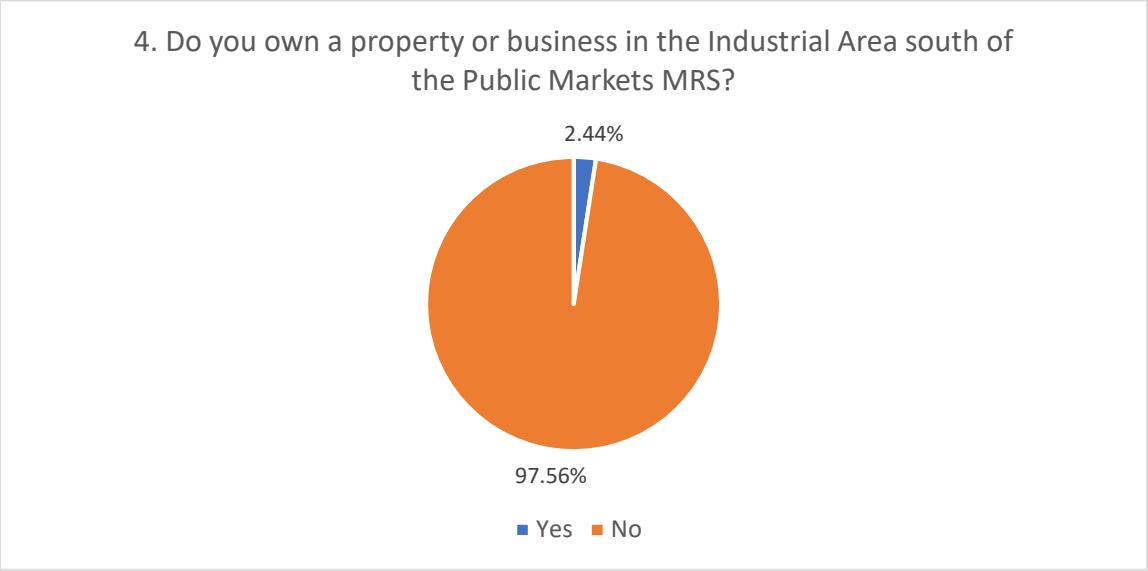
2.44% of the open house participants own a property or business in the Industrial Area north of the Public Market Lands MRS.



0% of the open house participants own a property or business in the Industrial Area west of the Public Market Lands MRS.



2.44% of the open house participants own a property or business in the Industrial Area south of the Public Market Lands MRS.



The open house meeting was advertised in the local Lance newspaper on June 6th 2018 and 13th 2018 and by delivering an information flyer to all addresses in Archwood neighbourhood (from Marion Street between Archibald and the Seine River to Elizabeth Road), Dufresne neighbourhood (from Kavanagh Street between Archibald Street and the Seine River to Marion St.) Holden neighbourhood (from Dugald Rd. between Holden St. and Lagimodiere Blvd. to Marion St.), businesses along both sides of Marion Street (from Archibald to Dawson Rd. N), and Archibald St. (from Marion St. to Elizabeth Rd.), businesses on both side of Dawson Rd. N. from Marion St. to Lagimodiere Blvd, all addresses on Speers Rd. to Dugas St., all addresses on Brunet Promenade, Leonard Shakespeare Bay, Drake Blvd from Brunet Promenade to Wickham Rd. and addresses on Berkshire Bay. An information flyer was posted in the IGA on Elizabeth road and emailed to all attendees from the Stakeholders meetings, Archwood school, the Provencher BIZ, Norwood BIZ, Archwood Community Club, Old St. Boniface Residence Association and South St. Boniface Residence Association. In attendance were reporters from Radio Canada and La Liberte. All materials were provided in French and English as well as a translator was on hand for any questions.

The following summarizes the results of the Public Open House meetings. These results represent only the views of those who chose to attend the open house and submit a questionnaire and cannot be generalized to represent the view of all residents and business property or business owners within and adjacent to the Public Markets Major Redevelopment Site.

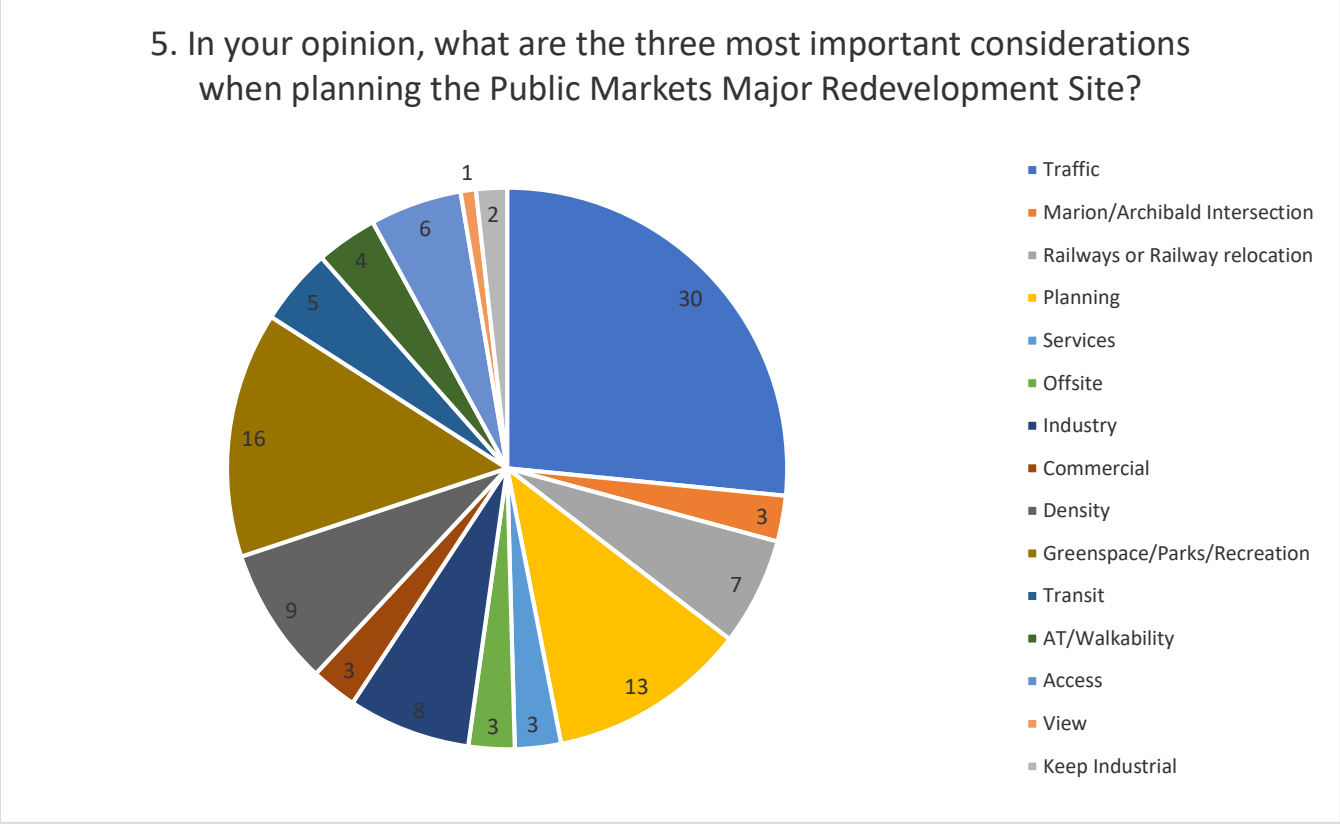
2.0 Summary of Open House Findings

The highlights of the Exit Survey findings are:

5. In your opinion, what are the three most important considerations when planning the Public Markets Lands Redevelopment Site?

The most important considerations identified were as follows:

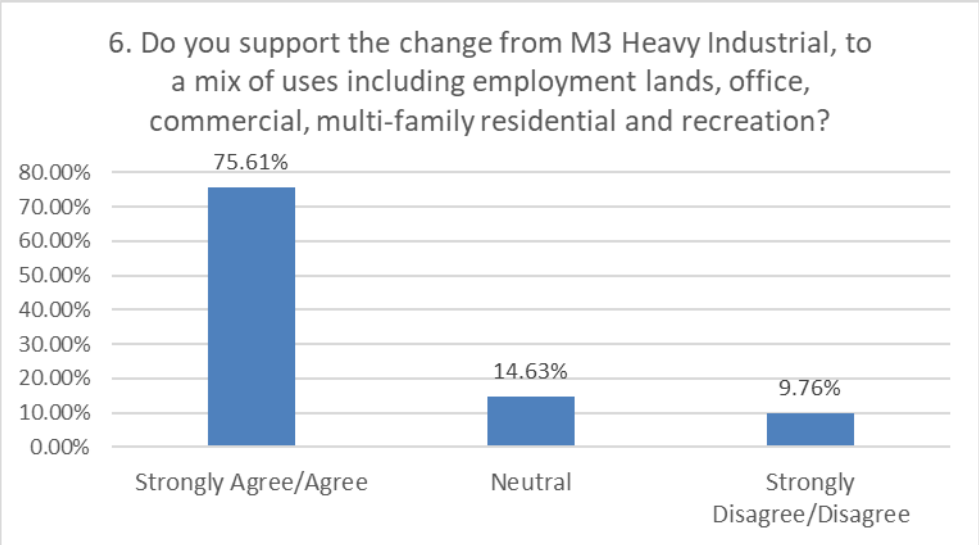
- Traffic (30)
- Green Space Parks and Recreation (16)
- Planning (13)
- Density (9)
- Industry (8)
- Railway/Railway Relocation (7)
- Access (6)
- Transit (5)
- AT/Walkability (4)
- Marion/Archibald Intersection (3)
- Services (3)
- Offsite (3)
- Commercial (3)
- Keep Industrial (2)
- View (1)



The summary above combines all responses. Refer to pages 8-9 for a complete list of responses.

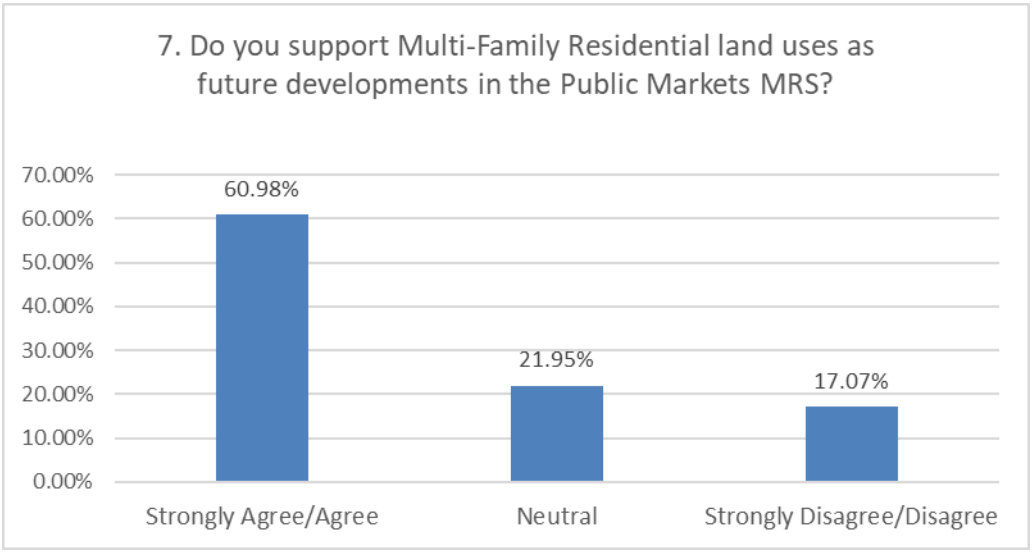
6. **Do you support the change from M3 Heavy Industrial to a mixture of uses including employment lands, office, commercial, multi-family residential and recreation?**

71.61% of respondents indicated they either Strongly Support or Support and 14.63% were Neutral and 9.76% disagreed or strongly disagreed.



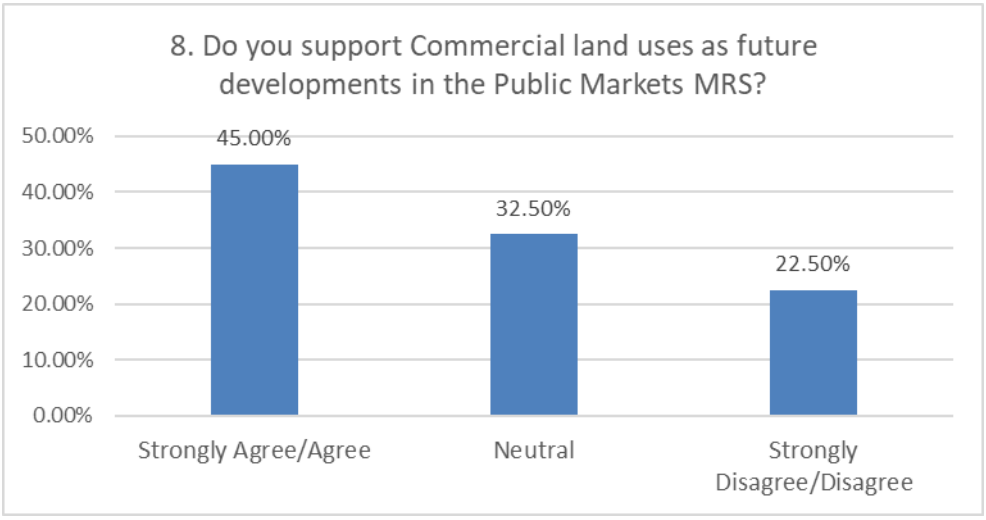
7. **Do you support Multi-Family Residential land uses as future developments in the Public Markets Lands MRS?**

60.98% of respondents indicated they either Strongly Support or Support, 21.95% were Neutral and 17.07% disagreed or strongly disagreed.



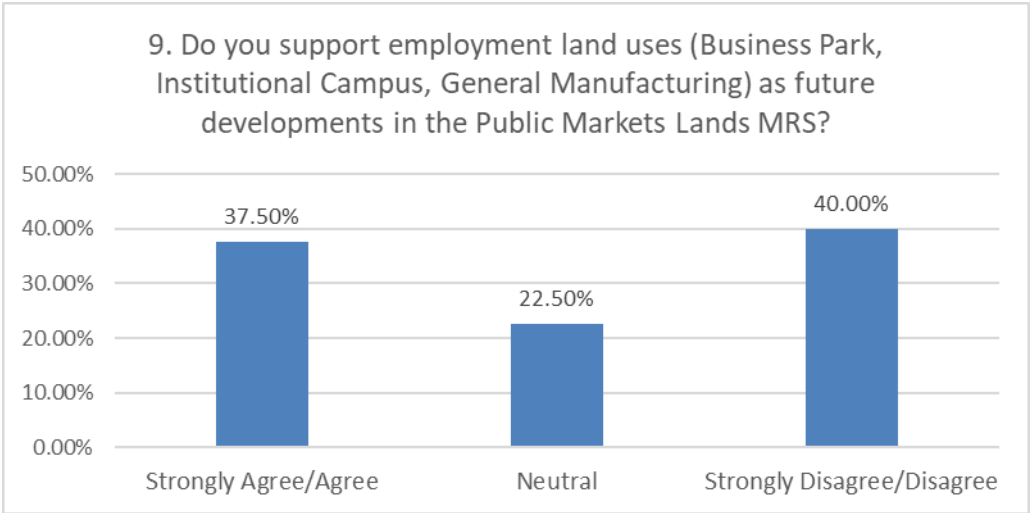
8. **Do you support the Commercial land uses as future developments in the Public Markets Lands MRS?**

45.00% of respondents indicated they either Strongly Support or Support, 32.50% were Neutral and 22.50% disagreed or strongly disagreed.



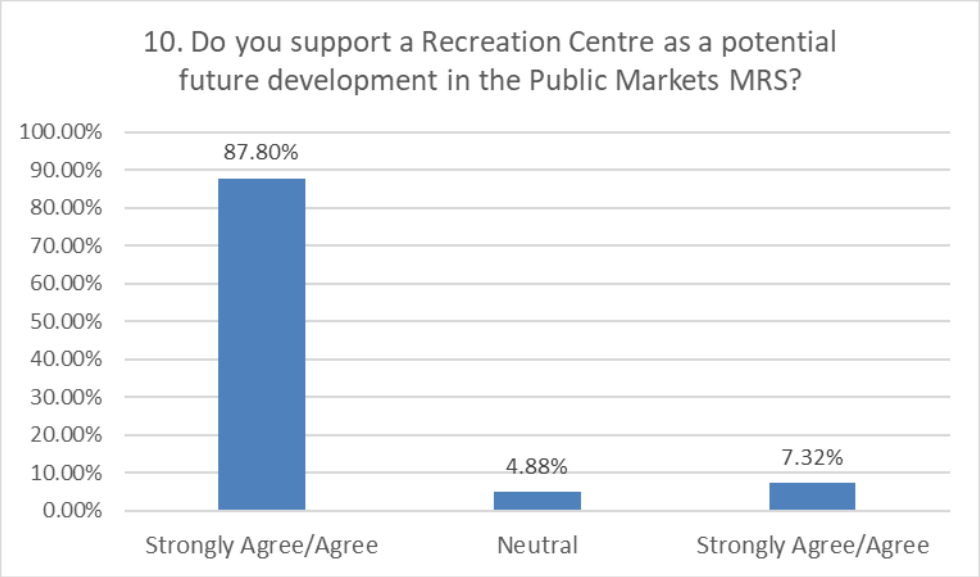
9. **Do you support light industrial land-uses as future developments in the Public Markets Lands MRS?**

41.46% of respondents indicated they either Strongly Support or Support, 31.71% were Neutral and 26.83% disagreed or strongly disagreed.



10. Do you support a Recreation Centre as a potential future development in the Public Markets Lands MRS?

87.80% of respondents indicated they either Strongly Support or Support, 4.88% were Neutral and 7.32% disagreed or strongly disagreed.



11. Please give reasons why you AGREE or DISAGREE with Items 6 through 10 above.

The most common reasons as to why respondents agreed or disagreed with Items 6 through 10 were as follows:

Twenty (20) respondents specifically stated that they support this type of multi-use development (with residential, commercial and light industrial uses).

Five (5) respondents specifically stated that heavy industry should not be located on this site.

Four (4) respondents noted that traffic issues must be dealt with, so this development does not make the situation worse.

Please refer to pages 9, 10 & 11 for a listing of all responses.

12. Was this meeting helpful?

95.65% of respondents felt this meeting was helpful. 4.35% of respondents did not feel this meeting was helpful.

13. Please provide us with any additional comments you may have.

Please refer to pages 11 & 12 for a list of all comments provided.

5. In your opinion, what are the most important considerations when planning the Public Markets Major Redevelopment Site?

Traffic

Traffic or Traffic Flow or Traffic Movement (23)
Future Archibald/Marion Development (1)
Agreement with the city/support for road expansion (2)
Noise (piles of traffic) (2)
Cannot turn left on Marion only right (has been too many accidents already) (1)
Noise/crime/traffic (1)

Marion/Archibald Intersection

Overpass (1)
Building overpass would take too long (1)
This doesn't create another ridiculous Archibald and Marion (1)

Railways or Railway relocation

Railways or Railway relocation (6)
Change Train times to less busy traffic?? (1)

Planning

Commitment to completion (2)
Main driving force of the zone (1)
A whole workable community (1)
Engage the public honestly & often (good job so far!) (1)
Be sensitive to the St. Boniface History (1)
The location of family dwellings (1)
Good Mix of Commercial/Residential (1)
Don't take away from existing neighbourhoods. (1)
Schools for families (1)
Concurrent development of Area Master Plan for Mission Industrial Site (1)
Add residential, commercial/institutional, light industrial to the east (1)
Taking advantage of the opportunity to create something that serves as an example of what can be done (1)

Services

Sewer and water sucks (1)
Sewage/Drainage (1)
Types of Services (1)

Offsite

Property Values (1)
The existing area (Happyland park, Archwood) are not affected (1)
Bilingual Services (1)

Industry

No Pollution - Metals in air (shredders)- Health and Safety (2)
Relocation of industrial businesses (2)
Existing Industrial activities - Canada packers, Man.Park, Rothesay Rendering - odors and noise (1)
No industries (heavy) (2)
Be aware that St. B wants to see less industrial and this will be a huge step in that (1)

Commercial

Redundancy of Commercial enterprises (1)
Commercial/Residential (1)
Having small scale commercial that is accessible and fwd. (1)

Density

Population - Numbers/Density (3)
No more apartments (1)
Extra 1300-1500 units - why? (1)
Phased in mixed use not high density residential (1)
Improving housing options (1)
Upscale housing (1)
Ensuring Multi-Level housing access (1)

Greenspace/Parks/Recreation

Greenspace (8)
Parks (1)
Talk of Rec Site - Who is going to pay and maintain it? (1)
Anchor feature that benefits the broader community, water park etc. (1)
Secure Centrepiece for recreation sport use (1)
With population more recreational opportunities (1)
Recreational facilities/restaurants (1)
Add rec centre to do away with Maginot, Bertrand, residential on Maginot and Bertrand. (1)
Loss of Natural Habitat (1)

Transit

Bus Services/Transit (3)
Plan a bus route (50) more frequent down Marion (1)
No new street lights put up/Rapid transit to encourage this development (1)

AT/Walkability

Active transportation (BRT to East of Rail) (2)
Walkability of new & existing areas (1)
Access to development without having to walk all the way to Marion - would like to see access Deniset & Archibald (1)

Access

Balanced approach proper services and access to area. (1)
Good transportation access (transit, car, pedestrian) (2)
Emergency Accessibility (1)
Need Better Access (1)
Intersection plan (1)

View

Skyline (1)

Keep Industrial

Keeping employment lands (1)
Allow for employment opportunities (1)

11. Please give reasons why you AGREE OR DISAGREE with items 6 through 10 above.

Land unused currently looking "unkept". Residential use, parks would look nice, but the roads need to be thought of.
Currently the land is poorly used, and this development can enhance a city eye sore. I am for development that utilizes existing space inside the city. I do have concerns for the odors of Rothesay Recycling and Maple Leaf.
Area development is long overdue. Should act as a buffer between the M3 West of Marion and residential area of Windsor Park.

Recreation Centre = sports, health, activities for kids (keep them busy & off the streets) activities for adults. What type of "Commercial" land uses? What type of Multi-Family residential? Low income housing, apts? Houses? Condos?
All heavy industry should be relocated to the St. Boniface Industrial Park
Development of a new high-density residential district in St. Boniface is desirable!
Consistency - Commercial - retain a measure of consistency with the site and NO chain stores or big strip malls!! LIGHT COMMERCIAL with ice cream vendors or small businesses. Also, employment consistency: research, development, green technology and Recreation centre: see DOKK 1 in Aarhus, Denmark to get an idea of what soft leisure development can look like.
Multi-use will satisfy more needs than one use for land. Manufacturing sooner or later will become vacant land (old Schneider's plant). Multi use is best.
Reduce risk of even more high hazard industry.
Has the potential to be an asset to the area if cone correctly and made in a desirable way.
Moving away from heavy industrial 10 minutes from downtown & tourist attractions is a smart move.
6-10 would develop a whole community aspect including residential, commercial and recreation areas.
We need more housing in St. B at a variety of price points and styles. We need a development of this nature to prevent further industrial use so close to current residential.
Limiting the size of commercial development as to not overwhelm the overall concept of the Market development.
Public Markets thought it was just that, markets being built, nothing about apartments (more people living in the neighbourhood) Park/Playground (when there's talk about fixing up Happyland and work has already been started in) *How will this affect our taxes? * Greenspace - Fresh air
Bus service is only Mon-Fri daytime only (50) would be nice to see some family development as well as recreational center since the Archwood school is so close.
There is enough population and traffic in the area. Do not need additional problems. Could raise crime rate.
Fire hazard have been a problem here before in the area, stuffing the space with close houses causes more traffic to our already heavy flow and little to no green space for the area.
Feel that outer communities are not going to have access - we are the poor relative looking in.
#9 Does not give you the option of disagreeing with manufacturing
Absolutely changing zoning from M3 to commercial/residential/recreation is very needed in an area that is only 10 minutes from the heart of the city.
The city has already invested in the St. Boniface Industrial Park that is where the industrial should be located. Need better phasing lower density scale.
Good idea to develop lands that are currently unused, with projects that do not impact neighbouring residents. I like the idea that we are not contributing to sprawl.
Dev. is needed but traffic must be dealt with BEFORE Dev. starts.
Agree with residential and recreation but am really concerned with traffic flow.
I would like to see a regulation size swimming pool for the neighbourhood. Then re-open the up-grade to Marion Street traffic.
We need more residential developments with some commercial support. In present plan I feel there should be residential and less commercial development. I support schools, colleges, Tech Voc type of campus as well as recreation community centre. St. Boniface growth depends on small commercial offices but not manufacturing.

Total area can accommodate a mix of use to provide live, work, recreation.
Nobody needs another Burger King strip mall. Think of something more unique artisan village, indoor produce development. Etc.
Redeveloping as a complete community is important.
It would help increase population density and allows for provision of additional services & opportunities that come from having the population.
#7 great location to downtown - upscale neighbourhood. Lots of multi-family already exists in Windsor Park with multiple new complexes already built. Sage Creek example to follow.
6 the current industrial nature of this area is a misuse of this land so close to downtown, 9 manufacturing and business park should be further our i.e. Past Lagimodiere, St. Boniface could easily be a cool, hip neighbourhood with its proximity to downtown.
This is a prized area of the city where people will want to live - close to Downtown, Old St. Boniface, Provencher, so converting the area from industrial to family and commercial makes sense.
Would be nice to use land for better use then growing hay.
Need to provide a buffer for M3 to the east by providing light industrial on the east MRS, higher density housing to support commercial so close to down town with all services already.
When we purchased our home, which is off Brunet Promenade we were told by developer there would be no development behind us towards the rail yards. That is why we purchased our home where we did.
6 The trend that has seen heavy ind. Facilities taken down has been positive for the area. 7 MFR use particularly a mix of affordable and rental and other targets close to downtown is much needed. 8 not opposed if they are regulated and contained indoors.9 Not opposed if they fit with or complement a residentially focused plan. 10 Accessible low-cost sports facilities would be welcome - soccer/tennis/baseball etc.
I feel it is important to increase residential opportunities in the centre of the city. A mixed community with options of various housing types, rental owners multifamily makes for a healthy community.

13. Please provide us with any additional comments you may have.

Possibly look at extending/creating a second road running parallel to Archibald to ease traffic congestion.
Look forward to seeing this move forward.
Concern is disruption of water services. Increased traffic on heavily used (Marion & Archibald)
It would be good to use the land again
Traffic: Avoid non-resident traffic - reduces speed - DETERRENCE-
Over developing could turn the area into St. James = bad traffic flow, over crowded. Plan it right and keep the area the same. Turning Marion into a highway would ruin the neighbourhood but packing too much in one area will do the same.
For future meetings flyer drops in Archwood/Dufresne areas will encourage higher turn outs.
Encouraging green development/employment more creative development
Try to encourage City to be more forward thinking with regards to industry & moving it away from dense areas.
Keep the pressure on our city to support this! Engage the residents' associations for help as needed - there is strength in numbers!

I was hoping to see an open market for farm products and a regular schedule of availability of public access to the farmers market area.
I would like to know what businesses are being built - do not want drug rehab center, marijuana stores or anymore apartments (have lots on Archibald and Elizabeth too many)
Stop developing we can't bring back green space once buildings are up.
There was only one person able to answer questions? Most of the info was in French. Very hard to read and understand.
Too many apartments in our area already, I would like to see spaced single family homes and/or commercial use of the space.
What is put in needs 2-3 roads in and out to deal with heavy traffic.
Will the Recreation centre be accessible for everyone Seine River to Archibald to the side of Marion - would low income families be able to attend?
Marion has enough traffic problems without adding more, fix Lagimodiere Blvd.
I'm very supportive and look forward to seeing more concrete plans/any anchor feature points.
Need to focus further consultations in the Archwood Neighbourhood - Archwood Community Club, need anchor community element - water park, Consultations should be done in the fall and broad advertising.
It would be ideal if all industrial would be removed from Marion for health concerns.
Appreciate opportunity & openness of hosts, engineers and owners.
I noticed an access point to Speers road from the SE corner of the site. My concern with this is the extra traffic this may bring on to Speers- south bound to the Southdale area.
It would be great to get rid of Paddington Yards and perhaps to create a link to Maginot row and Windsor Park as well as a second access road to the south for bikes, potential for putting at east side of turning all the way to Fermor and North Transcona.
Good Luck
The Archwood community fought hard to stop the Archibald/Marion intersection plan that would destroy Happyland Park and required 140 expropriations. This development should not re-ignite another plan that harms the Archwood area.
City needs to realize the tax advantage of investing here!!
My biggest concern is the increase in traffic to the area. Already has increased greatly in the last 12 years especially down Archibald. Congested from 0720-0850 now in the AM. I see only more of the same with this proposal. Infrastructure planning in city of Winnipeg!!
At lease I have been able to see what the proposed plan is. Had not heard anything about it prior to the notice in the Lance.

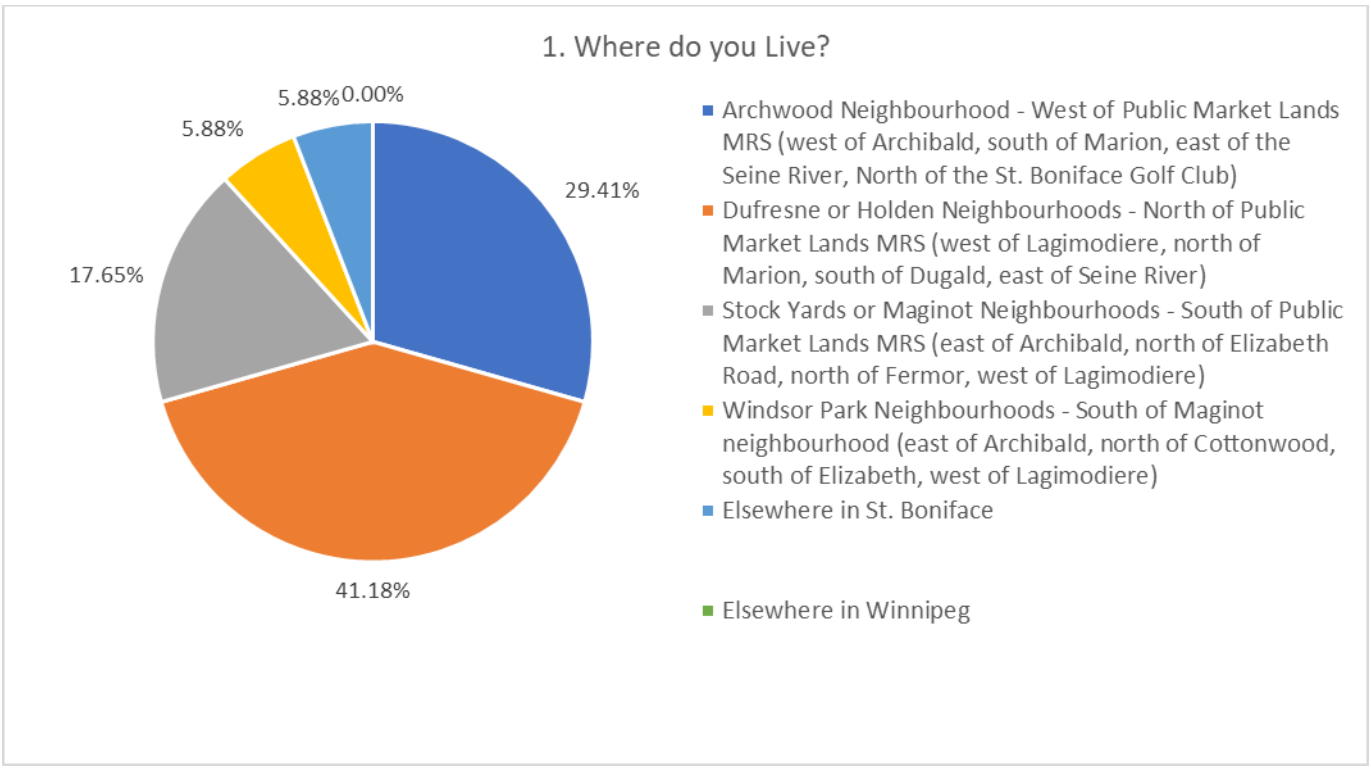
Public Markets Site (MRS D) Conceptual Development Plan
Open House Round 2
November 29th, 2018

1.0 Open House Round 2

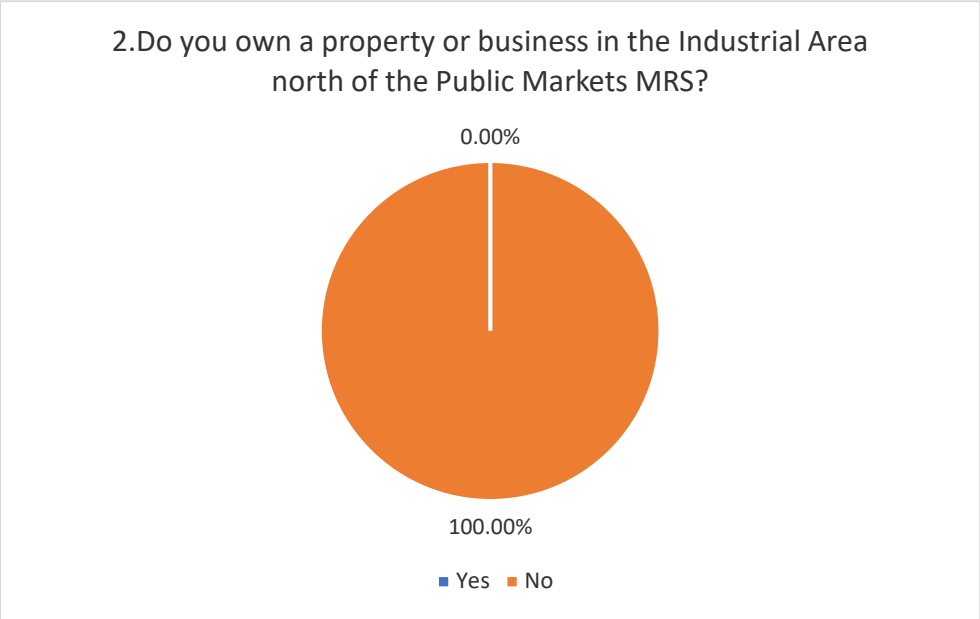
The purpose of the open house was to provide refined information on the Public Markets Conceptual Development Plan for the Public Markets Lands MRS D Site using comments received from the City of Winnipeg in late July, previous stakeholders and open house meetings results which were held in June of 2018 and October 2018. A revised questionnaire was provided following the presentation to obtain public input on the Conceptual Development Plan Vision of how the area may be developed.

There were over 40 participants at the Open House that was held at the Canad Inns Destination Centre located at 1034 Elizabeth Road on November 29th, 2018 from 4:30-7:30pm. Of the over 40 participants 17 people responded to the questionnaire.

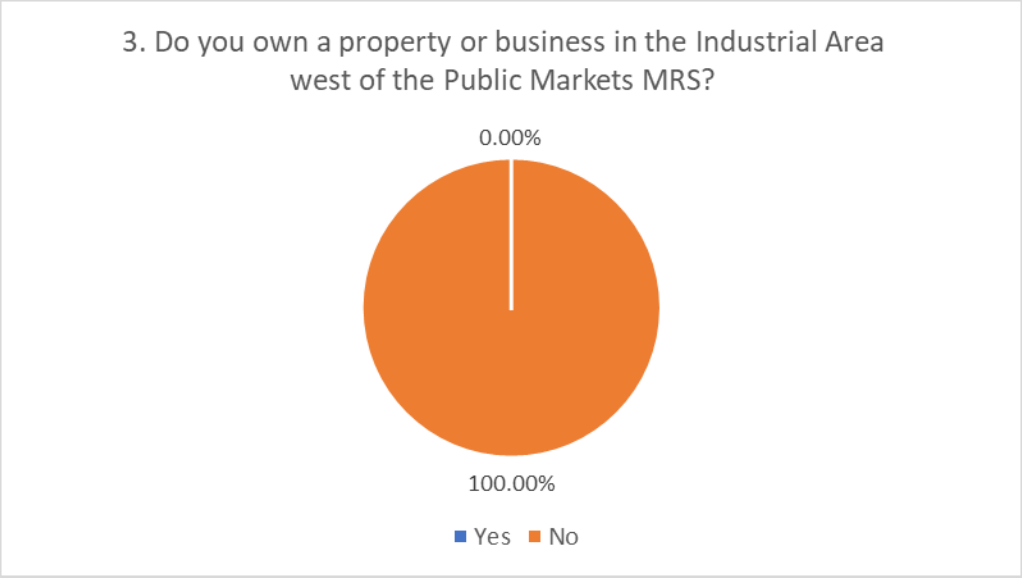
29.41% of resident respondents live in the Archwood neighbourhood west of the Public Markets Lands MRS, 41.18% live in Dufresne or Holden Neighbourhoods, north of Public Market Lands MRS, 17.65% Stock Yards or Maginot Neighbourhoods, south of the Public Markets Lands, 5.88% of respondents live in Windsor Park Neighbourhoods, south of Maginot neighbourhood, 5.88% live elsewhere in St. Boniface, 0% live elsewhere in Winnipeg.



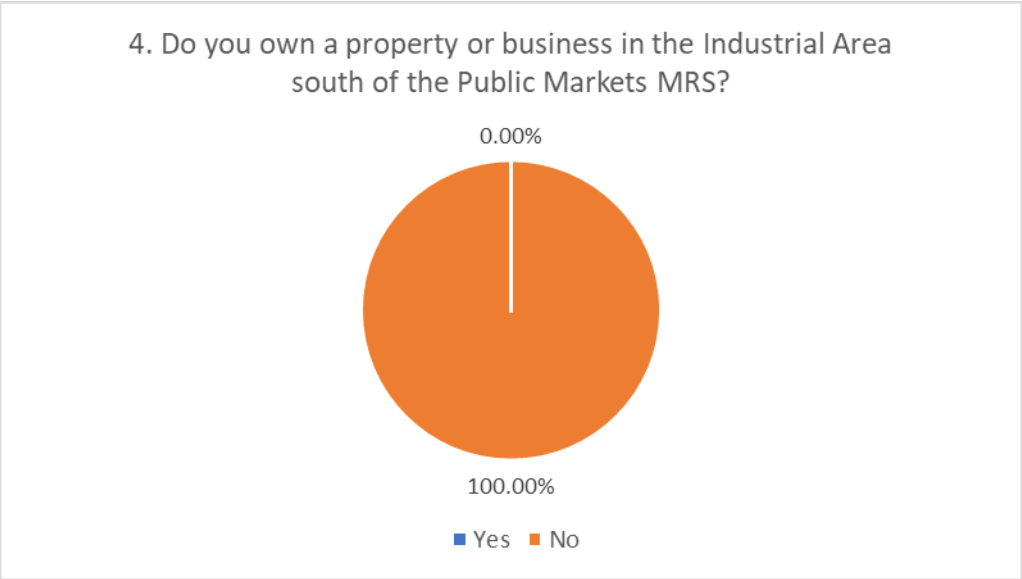
0% of the open house participants own a property or business in the Industrial Area north of the Public Market Lands MRS.



0% of the open house participants own a property or business in the Industrial Area west of the Public Market Lands MRS.



0% of the open house participants own a property or business in the Industrial Area south of the Public Market Lands MRS.



The open house meeting was advertised in the local Lance newspaper on November 15th, 2018 and 22nd, 2018 and by delivering 1000 information flyers to addresses in Archwood neighbourhood (from Marion Street between Archibald and the Seine River to Elizabeth Road), Dufresne neighbourhood (from Kavanagh Street between Archibald Street and the Seine River to Marion St.) Holden neighbourhood (from Dugald Rd. between Holden St. and Lagimodiere Blvd. to Marion St.), businesses along both sides of Marion Street (from Archibald to Dawson Rd. N), and Archibald St. (from Marion St. to Elizabeth Rd.), businesses on both side of Dawson Rd. N. from Marion St. to Lagimodiere Blvd, all addresses on Speers Rd. to Dugas St., all addresses on Brunet Promenade, Leonard Shakespeare Bay, Drake Blvd from Brunet Promenade to Wickham Rd. and addresses on Berkshire Bay. An information flyer was emailed to all attendees from both sets of Stakeholders meetings (June and October), and all attendees at the Round 1 Open House, the Provencher BIZ, Norwood BIZ, Old St. Boniface Residence Association and South St. Boniface Residence Association. In total over 92 emails were sent. All materials were provided in French and English as well as a translator was on hand for any questions.

The following summarizes the results of the Public Open House meetings. These results represent only the views of those who chose to attend the open house and submit a questionnaire and cannot be generalized to represent the view of all residents and business property or business owners within and adjacent to the Public Markets Major Redevelopment Site.

Summary of Open House Findings

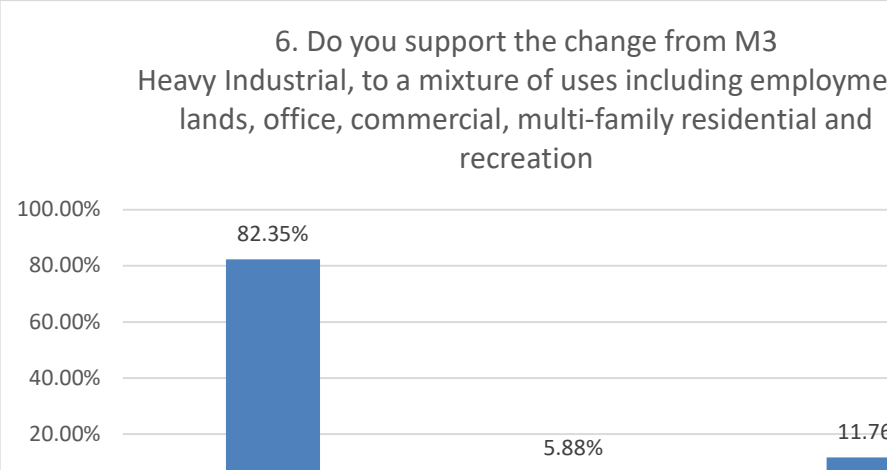
The highlights of the Exit Survey findings are:

5. **Results of the First Round Public Engagement indicated the following top 10 most important considerations. Please indicate whether you agree or disagree.**

Please see Charts attached.

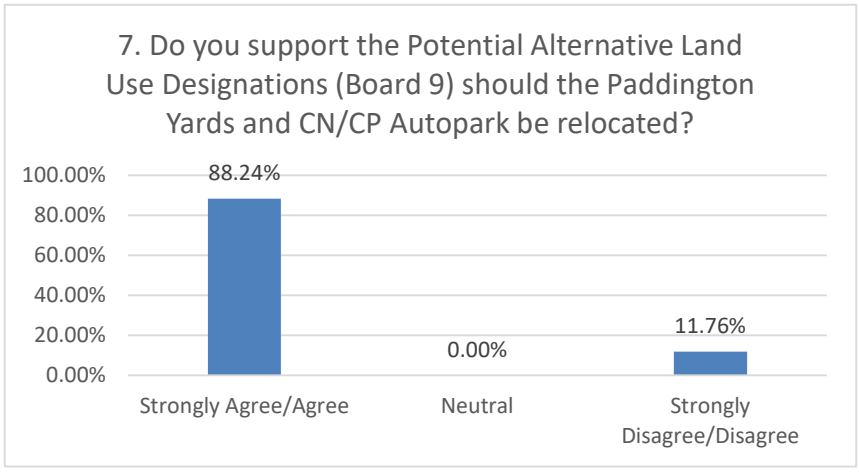
6. **Do you support the change from M3 Heavy Industrial to a mixture of uses including employment lands, office, commercial, multi-family residential and recreation?**

82.35% of respondents indicated they either Strongly Support or Support and 5.88% were Neutral and 11.76% disagreed or strongly disagreed.



7. **Do you support the Potential Alternative Land Use Designations (Board 9) should the Paddington Yards and the CN/CP Autopark be relocated?**

60.98% of respondents indicated they either Strongly Support or Support, 21.95% were Neutral and 17.07% disagreed or strongly disagreed.



8. **Please give reason why you AGREE or DISAGREE with Items 5-7?**

Please see attached comments sheet.

9. **Community Stakeholders participated in a workshop on October 30, 2018. Options for the Conceptual Site Plan were created as illustrated on Board #11a. Some of the ideas discussed are listed below. Please Circle a number to indicate the extent to which you agree or disagree with each idea.**

Charts of ideas are attached.

10. **Please give us reasons why you Agree or Disagree with items 9a.-9j. above.**

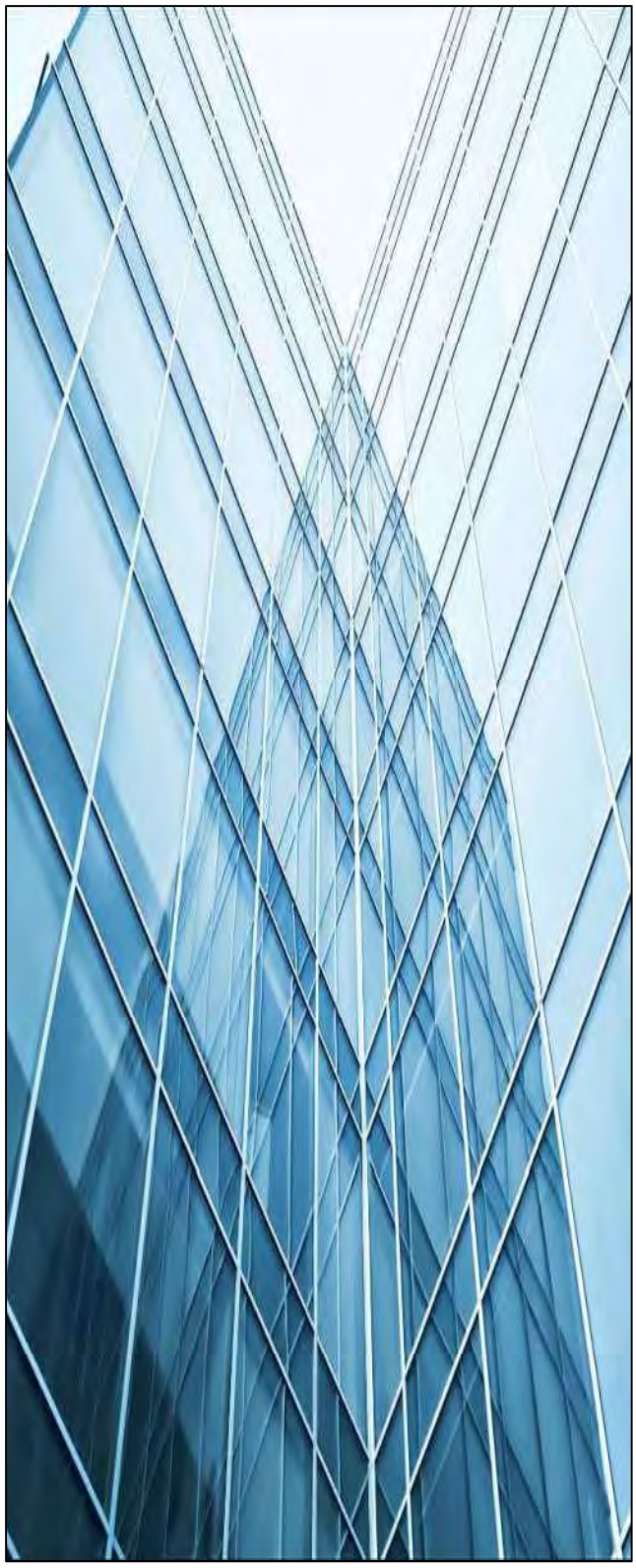
Charts of these results are attached.

11. **The Developer is investigating options for the name of the proposed Development. We would welcome your thoughts and ideas for names, potential names will be presented at the next Public Open House.**

Ideas are provided with the comments sheet attached.

12. **Was this meeting helpful?**

88.24% of respondents felt this meeting was helpful. 5.88% of respondents did not feel this meeting was helpful and 5.88% were non-responsive.



Market Analysis Examining the Need and Demand for New Mixed-Use Development – Public Markets Redevelopment Site, 660 & 780 Marion Street, Winnipeg, MB

As at October 2017

BWF File #17-9016

Prepared For: 7319828 Manitoba Ltd.

FERGUSON & ASSOCIATES LTD

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LIMITING CONDITIONS

EXECUTIVE SUMMARY

In the analysis carried out, we have examined factors that could guide the development planning of the Public Markets redevelopment site concept. We have examined the current state and metrics of the residential, commercial and industrial market sectors within the context of the conceptual plan.

In general, economic conditions at both the national and local scale favour the long-term development potential of the lands.

Population

Based on the 2016 Census results, the Conference Board of Canada estimates the 2016 population of the Winnipeg CMA at approximately 812,000, representing an increase of approximately 8.8 percent from the 2011 Census numbers, and an average annual population growth rate of 1.77 percent. The Winnipeg CMA population has grown at a rate not seen for decades due to increases in immigration and decreases in interprovincial out-migration.

Based on projected annual population increases of 1.3 percent in the medium term (to 2020) and 1.2 percent in the long term (2020 to 2035), the population of the Winnipeg CMA is projected to reach 1,008,006 by 2035.

Assuming a stable distribution of residents within the CMA, the 2035 population of the southeast quadrant is estimated at 164,769, representing a population increase for the study area of approximately 31,838 residents (24 percent increase from the estimated 2017 TM population).

Demographic Shift

Similar to demographic trending on a national scale, the aging of the baby-boom generation will be the most significant demographic development confronting Winnipeg in the long term.

Changes in the housing market will likely emanate from the changing demographic shift. To satisfy demographic requirements, housing starts are expected to increase further, coming in at about 5,000 units annually by 2035. It is also important to understand the likely structural adjustment that will result from the aging population. As most elderly people will opt to live in apartment buildings or retirement homes the demand for multi-family dwellings will increase, while the demand for single-family dwellings will start to fall off.

Target Market Profile

In 2017 it is estimated that 29.8 percent of the southeast target market population falls within the 55+ age cohort. By 2022, it is estimated that this percentage will increase to approximately 31.1 percent and by 2035 to approximately 35.0 percent .

Average household income is estimated at $101,061 within the southeast target market area, compared to $94,884 in the Winnipeg CMA.

Potential for New Multi-Family Housing – Southeast Quadrant

Long term projections support demand for an additional 13,266 housing units for the southeast quadrant of Winnipeg. The new units would account for all new housing starts, including single family dwellings.

Based on an estimated share of 55 percent of housing starts being multi-family units and accounting for current pipeline projects, it is then estimated that 6,773 multi-family units or 376 multi-family units per year to 2035, will be required to meet the projected population increases in the southeast quadrant.

A fair share of approximately 33.3 percent of the southeast quadrant new multi-family housing potential is projected, resulting in a potential average annual multi-family development for the Public Markets site at 125 units.

Unit Type	**Percentage of Development**	**Number of MF Units Developed Annually**	**Sub-markets potentials**
Apartments	75 percent	Total 699 units	• Market rental • Condominium apartments • Senior's Rental • Student Housing
Row-Townhouse	25 percent	Total 233 units	• Family Housing - Rental & Condo • 55+ Rental & Condo
Total Development	**100 percent**	**Total 932 units** **At 125 units per year, absorption period estimated at 7.5 years**	

Composition of Future Multi-Family Housing Units

After consideration of the current and forecast market factors that will affect development of the Public Markets redevelopment site project, the following recommendations for residential development are seen as appropriate.

MARKET RENTAL	Number of Units		CONDOMINIUM	Number of Units
General Market Rental Apartments	359 units (could include affordable housing)		**General Market Apartment Condo**	140 units
Seniors Housing				
55+ Rental	100 units			
Assisted Living	100 units (1 project)			
Row-Townhouse Rental	186 units		**Row-Townhouse Condos**	46 units
Student Housing	Dependent on transit connectivity (potential for 50 units)			
Recommended Total Rental Unit Development	**745 units (80% of Unit Development)**		**Recommended Total Condo Unit Development**	**186 units (20% of Unit Development)**

Potential for Commercial Development

Our research suggests that the proposed development will be well poised to capture a large percentage of the new commercial development in southeast Winnipeg, due to its strong locaiton, and lack of available and planned future supply of commercial land in the area.

As highlighted in the table below, the proposed development has a suggested annual absorption of 5,606 square feet of office property, and 27,000 of retail property. Based on the suggested buildout for the development the project should be able to fully built-out and absorb its office product in 12.94 years and its retail product in 5.13 years.

Commercial Development	Square Feet Absorbed per Year	Total Square Feet to be Developed (as per Concept Plan)	Projected Absorption of Development
Office	5,606 square feet	72,500 square feet	12.9 years
Retail	27,000 square feet	138,500 square feet	5.1 years
Total Development		**Total 211,000 square feet**	

Potential for Industrial Development

The subject property falls in a unique central location, with excellent access, which would bode well with light industrial development.

Our analysis suggests that the proposed development should be able to absorb 26,146 of purpose built light industrial space per year, which based on the recent average floor coverage ratio of 30% would equate to 2.00 acres of land per year. In addition to purpose built space the development should be able to sell 2.13 acres of light industrial land for owner developed property. Based on the annual absorption of 4.13 acres of light industrial land, and the overall project supply of 52 acres, we anticpate the project should be able to be fully developed and absorbed in 12.60 years.

Industrial Development	Square Feet Absorbed per Year	Building/Land Coverage Ratio	Acres Developed / Sold Annually	Project Acres	Projected Absorption of Development
Purpose Built	26,146 square feet	30 %	2.0 acres		26.0 years
Land Sales			2.13 acres		24.4 years
Total Development			**4.13 acres**	**52.0 acres**	**12.6 years**

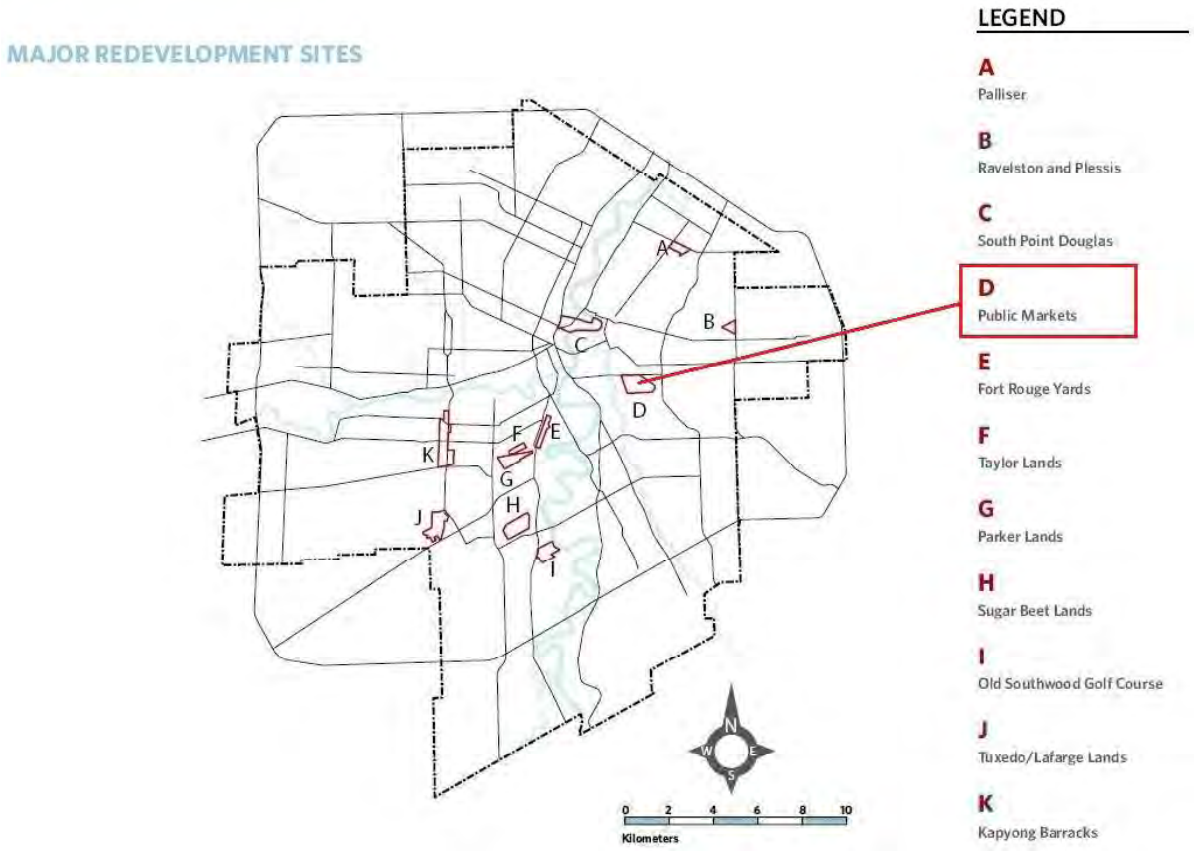
I - INTRODUCTION

Overview of the Public Markets (Public Yards) Development

The subject of this study relates to the planned redevelopment of a former industrial-use site within the southeast quadrant of the City of Winnipeg. The 165-acre site is located on the east side of Archibald Street, south of Marion Street. The site was formerly used for industrial purposes associated with the former Canada Packers plant that occupied the site until its demolition in 2001.

The site redevelopment is currently in the conceptual planning stage and is envisioned to become a mixed-use development that will include commercial, industrial, residential and recreational land uses.

The subject lands are recognized by the City of Winnipeg as a Major Redevelopment Site and as such are well suited for redevelopment with mixed use, medium density development[2].



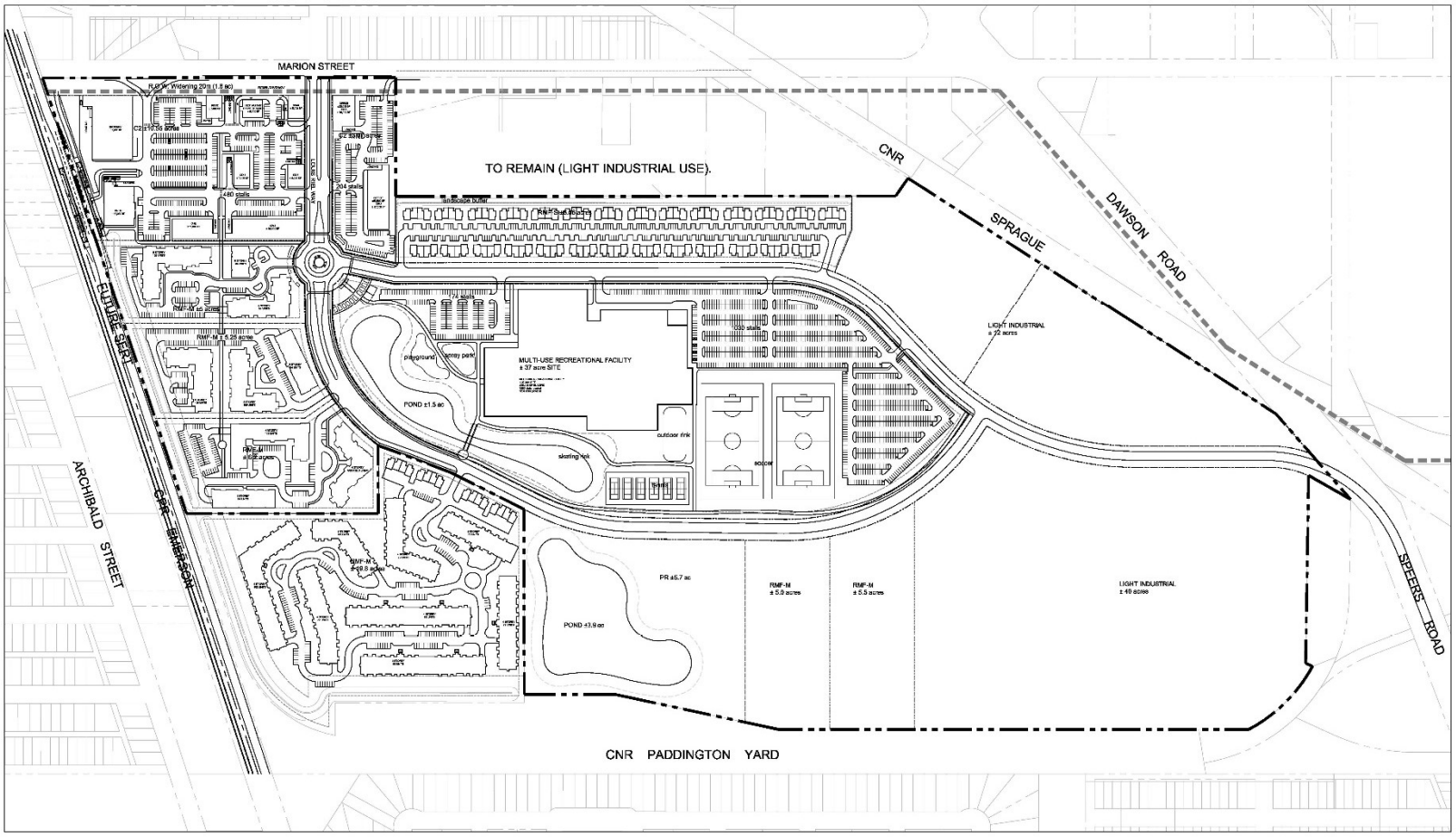
[2]Our Winnipeg - Complete Communities

The Public Markets redevelopment is envisioned as a pedestrian friendly, medium-density mixed-use development, to be integrated within and compatible with the existing surrounding neighbourhood. The conceptual plan (illustrated on the following page) includes components of low-to-medium density residential, commercial and light-industrial development. In addition a multi-use recreational development, featuring an indoor facility and outdoor fields and recreational areas, will be centrally located within the development and will offer enhanced recreational facilities to the region's residents.

The current conceptual plan envisions the following development components:

Land Use	Land Area (Acres)	Target Density	Concept Plan Development
Medium-Density Multi-Family Residential (RMF-M)	16.45 acres +/-	50.1 +/- units per acre	824+/- residential housing units
Medium-Density Multi-Family Residential (RMF-M)	10.5 acres +/-	TBD	
Low-Density Multi-Family Residential (RMF-S)	9.50 acres +/-	11.4 +/- units per acre	108 residential housing units
Commercial Use	13.62 acres +/-		138,500 square feet of CRU space 72,500 square feet of Office space 211,000 square feet Total commercial
Light Industrial / Business Park Use	52.0 acres +/-		
Recreational Use	37.0 acres +/-		325,000 square foot Multi-Use Recreational Facility
Road right-of-way, public reserve and onsite water retention	25.93 acres +/-		
Gross Site Area	**165.0 acres +/-**		**932 + residential housing units, 211,000 sf of commercial development and 325,000 sf Recreation space.**

The Public Markets redevelopment phasing will be contingent upon market demand but is expected to develop over a 5 – 10 year development horizon.



PUBLIC MARKETS (MRS D)

CONCEPTUAL DEVELOPMENT PLAN

OCTOBER 26, 2017
SCALE 1:2000

0 10 25 50 100 300m NORTH

Purpose of the Study

The purpose of this study is to focus on the potential residential, commercial and industrial development options for the neighbourhood design, analyze the supply and demand factors that impact upon the each of the options and identify market opportunities.

The function of the study is to provide necessary market information that can assist the client in the preliminary planning process of the new neighbourhood development.

Market Study Process Outline

In order to provide the client with the information necessary for decision-making, the following approach will be followed:

- Broad Market Overview- economic and demographic factors from a national, provincial and local perspective;
- Definition of the subject market area;
- Demographic and economic analysis of subject market area;
- Analysis of the supply and demand factors associated with the following market sectors,
    1) Multi-family development
        a. Market rental apartments
        b. Condominium apartments
        c. Seniors (55+) housing/apartments
        d. Affordable housing/apartments
    2) Commercial/retail development
    3) Light Industrial/Business Park development
- Conclusions and Recommendations

Our initial task will be to carry out a brief overview of the local economy and a review of economic and demographic trends that are pertinent to the study being undertaken.

The second step in our market study process is to define the primary or target market areas. These are the areas of primary draw of potential users/purchasers to a site. In general, target market areas would typically cover a five to ten kilometre diameter and are usually based on municipal or natural geographic boundaries. The target market area becomes the basis for comparative analysis and for general impact analysis.

Our third step will be to create an accurate demographic profile for the target market area, which will then be used in the following analysis of identification of market opportunities. The basis for the demographic analysis will be the Demostats database developed by Environics Analytics. Demostats is a database of estimates and projections for a comprehensive set of demographic and socioeconomic attributes about the Canadian population. Demostats provides estimates and projections for 2012, 2017, 2020 and 2022. The reference date is July 1, meaning that all statistics are estimates as of that date of the relevant year (consistent with the reference date used by Statistics Canada for their series of inter- and post-censal population estimates and projections). Demostats employs a variety of data sources, including the 2011 Census and National Household Survey (NHS), current economic indicators, post-censal estimates from federal and provincial governments, immigration statistics and economic data.

The fourth step is to analyze the factors that influence the need and demand for new development within each of the identified market sectors at the neighbourhood level, within the identified target market.

Finally, based on the results of the comparative analysis carried out, a summary of conclusions will be presented.

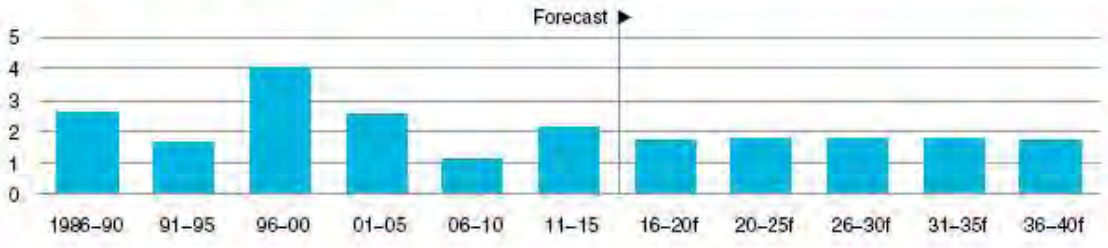
II - BROAD MARKET OVERVIEW

CANADIAN ECONOMIC OUTLOOK[3]

Between 2016 and 2040, the Conference Board of Canada (CBC) forecasts that potential output[4] will expand at an average annual pace of 1.7 percent, down an average of 0.1 percentage points from the previous long-term forecast. It is also down sharply from the pre-recession average of 2.7 percent during the period 2000 to 2007. The forecast for slow growth in potential output is being driven primarily by a deceleration in labour force growth.

Real GDP growth has been modest since the 2008-09 recession but has outpaced potential output growth in most years since 2010 and is forecast to continue to do so over the next several years. As a result, the economy is expected to reach its full potential by 2019. Beyond that, real GDP growth will be constrained by weakness in potential output, which will slow due to an aging population.

Real GDP Growth Will Average Less Than 2 Per Cent
(average compound rate of growth, per cent)



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Sources: The Conference Board of Canada; Statistics Canada.

Labour Force

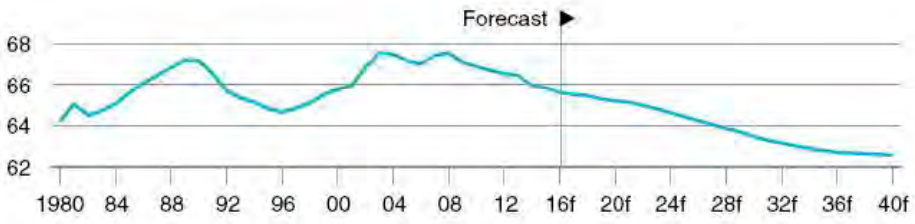
Labour force growth managed an average annual increase of 1.7 percent in the decade leading up to the recession but will average just 0.7 percent per year from 2019 to 2040.

Canada's labour market has been chronically weak over the past few years. Aside from the recession year of 2009, employment posted its weakest growth in over two decades in 2014. Growth accelerated only marginally in 2015, and 2016 has not been any better.

[3]The Conference Board of Canada – Canadian Outlook Long-Term Economic Forecast, 2017
[4] Potential output represents the highest level of real gross domestic product an economy is capable of attaining, given its potential labour supply, its current capital stock, and available technology.

On the bright side, employment growth has picked up in the second half of 2016, and the improving job prospects will encourage some workers to re-enter the labour force. But the impact on the participation rate of the cyclical re-entrance into the labour force will be offset by retiring baby boomers leaving the labour force. Overall, labour force growth is forecast to average 1 percent annually between 2016 and 2020 and then to slow gradually to just 0.7 percent over 2036–40.

Labour Participation Rate Faces Significant Decline
(share of total population in labour force, per cent)



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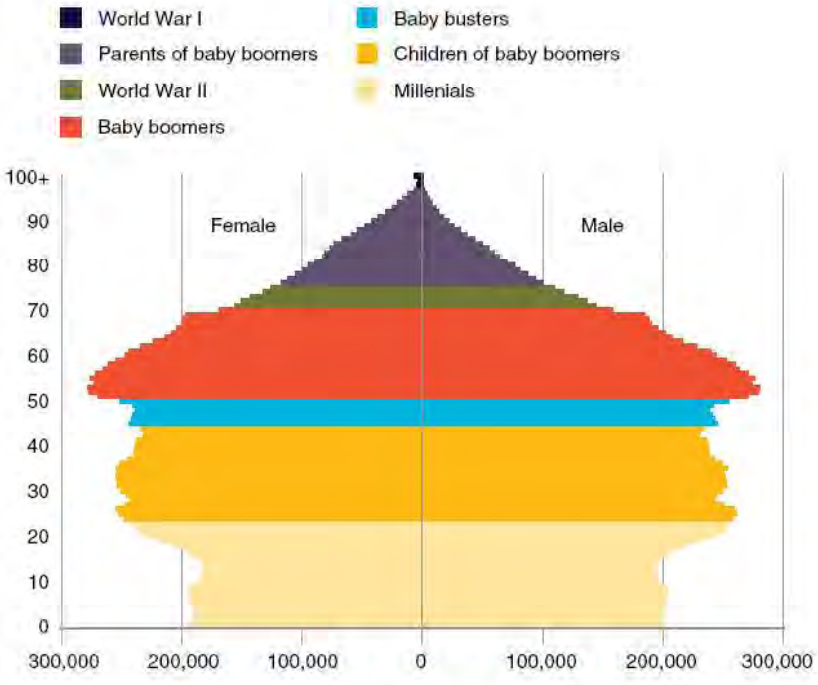
Sources: The Conference Board of Canada; Statistics Canada.

Canada is no exception to the aging trend occurring in many countries across the developed world. With the baby boomers—Canada's largest demographic cohort—beginning to enter their retirement years, measures to address population aging are becoming policy priorities.

Baby Boomers Starting to Retire
(population by single-age cohort, 2016)



Sources: The Conference Board of Canada; Statistics Canada.

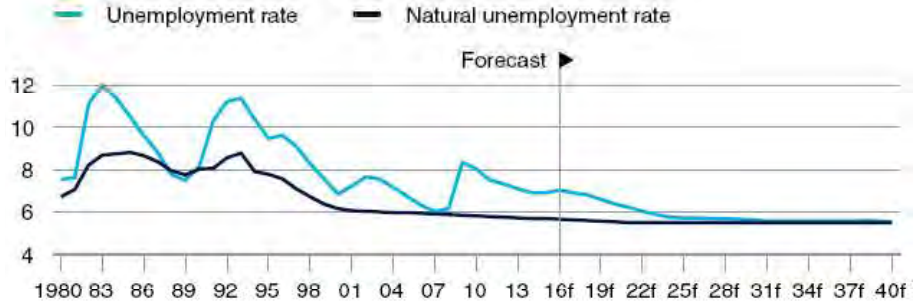
Demographic change will not only influence policy decisions, it will also be a key driver of Canada's economic growth potential over the next two decades. Estimating how the demographic composition of our population will change over the next few decades allows us to calculate its impact on our economic prospects.

Employment

The "natural rate of unemployment" represents the rate at which the economy is at full employment and the labour market is in equilibrium. In its most recent long term forecast, the Conference Board of Canada predicts that the natural rate will gradually decrease over the forecast period to 2040.

With the younger age cohorts accounting for a declining share of the total population, and given the expectation of further improvement in job-search technologies, the CBC outlook calls for a gradual decrease in the natural rate of unemployment over the long term. The downward trend will slow in the later years of the forecast, and the natural rate of unemployment is estimated to fall from 5.6 percent in 2016 to 5.5 percent in 2040. The gradual decline in the labour force participation rate over the forecast will also ensure that the unemployment rate converges to the natural rate by 2040.

Unemployment Rate to Gradually Converge to Natural Rate
(per cent)



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Sources: The Conference Board of Canada; Statistics Canada.

Aggregate Demand

Consumer spending has been the main driver of growth over the last few years in spite of dismal job gains and weak wage growth. However, high household debt levels, rising interest rates, and slowing labour force growth will constrain spending over the medium term. One factor that is expected to give a boost to economic growth next year is the increased funding for infrastructure as part of the federal stimulus program. However, some of this impact will be offset by provincial efforts to balance their books.

Changing demographics will again be a key factor influencing consumer spending over the long term. The exit of the baby-boom generation from the labour force will push up wages as businesses compete for skilled workers. In

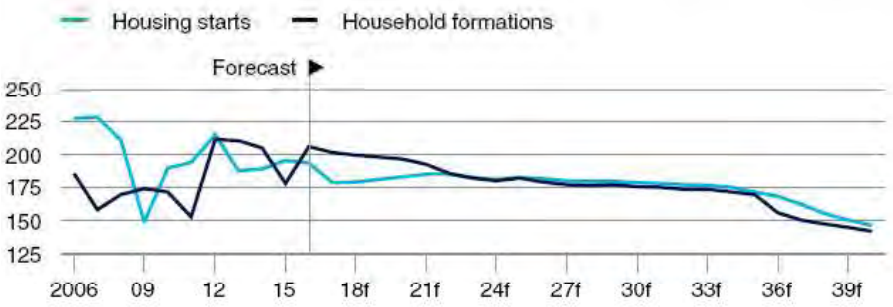
addition to positive wage pressures, government transfers will be substantial over the forecast. The new Canada Child Benefit, the rollback of the age of eligibility for Old Age Security to 65 from its planned increase to 67, and the recent changes to the Canada Pension Plan will all bolster household transfers. Overall, these factors will support solid gains in real disposable income and will help underpin growth in household spending over the long term.

Canada's housing market is forecast to cool over the coming years. Housing starts are estimated to fall to 178,600 units in 2017 down from an estimated 193,500 in 2016, due mainly to soft markets in resource-based areas and some overbuilding in the multi-family sector, and Vancouver's new 15 percent tax on foreign purchasers.

Canada's average resale house price climbed an estimated 14 percent in 2016, the fastest since 1988. In 2017, we expect a cooler 4.7 percent advance, which will bring the national average resale price to just above $528,000.

Over the long term, housing starts will be driven by demographic demand, as measured by household formation. Since its peak of 211,500 in 2012, annual household formation has been declining and, by 2025, household formation is projected to drop to 182,400 households and then fall to below 143,000 households by 2040. Housing starts will follow a similar trend, falling to 183,000 units by 2025 and hitting a low of roughly 147,000 units by 2040.

Housing Starts to Be Constrained by Slowing Household Formation
(000s)



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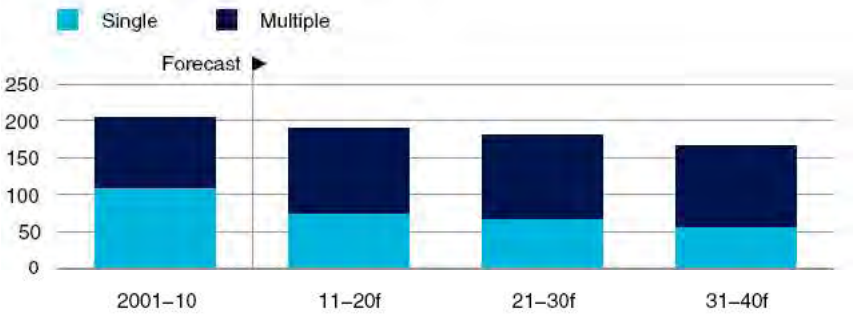
Sources: The Conference Board of Canada; Statistics Canada.

The composition of housing starts is also expected to shift. Multiples' share of new construction continues to increase. They accounted for 55 percent of housing starts during the 10 years to 2015, after making up only 41 percent of starts during the 1990s. But, by the final 10 years of our forecast, nearly two-thirds of new construction volumes will be multiples. The rising popularity of these units has many causes. These include a rising population of aging empty-nesters from the baby-boom generation (who seek low-maintenance dwellings), multiples' affordability advantage over single-detached homes, and multiples' typical proximity to urban cores.

This year, single-detached homes are expected to account for 40 percent of new construction; by 2040, that will fall to 33 percent as the share of multiple units increases from this year's 60 percent to 67 percent in 2040.

Housing Starts Will Continue to Fall
(average annual housing starts, units, 000s)



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Sources: The Conference Board of Canada; Statistics Canada.

The Conference Board expect the factors favouring multiples, starting with societal aging, to persist. More than a third of Canada's population is forecast to be at least 55 years old during the last five years of the current long-term forecast, up from less than a quarter during the first five years of this new millennium. Census data from 2011 shows that the likelihood of single-detached occupancy peaks around this age, so a rising proportion of those 55 or older favours multiples.

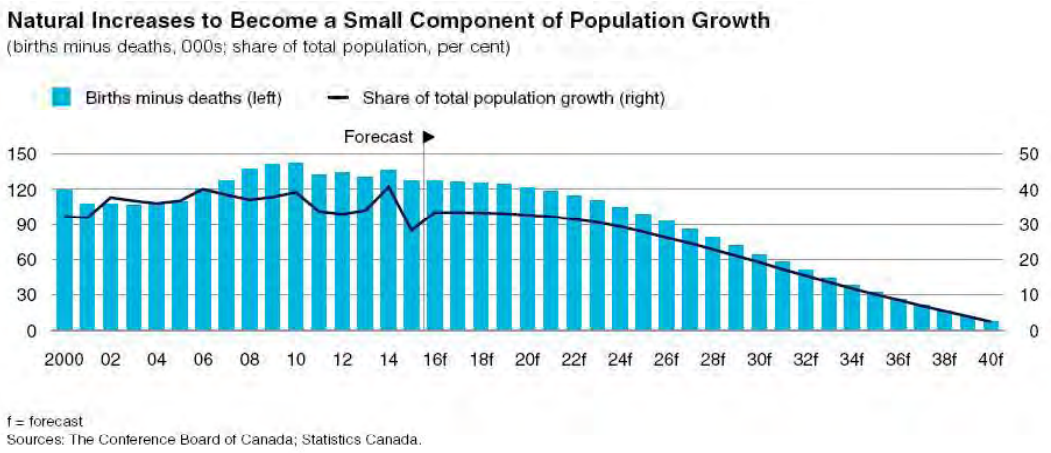
The outlook for non-residential building investment over the near term is also challenging, with spending expected to contract by 5.2 percent this year. Declines in commercial building investment have not been isolated to the natural resource sector; the trend has spread to almost all provinces and territories. Vacancy rates, as reported by the Bank of Canada, increased by 0.9 percentage points in the first two quarters of 2016 to reach a lofty 11.6 percent. Weak employment, coupled with rising vacancy rates (particularly for the commercial sector of the market), will put a ceiling on building construction as excess supply is gradually absorbed over the next five years.

In the long term, several factors will depress non-residential building spending. Corporate restructuring, downsizing office space, and the shift toward telecommuting will limit future construction. However, some of this downscaling could be offset by an increase in industrial non-residential building construction, as the growing popularity of e-commerce has put pressure on companies to expand their warehousing and storage facilities. Overall, between 2020 and 2040, business non-residential investment spending on buildings is forecast to expand by a meager 0.7 percent per year, much slower than overall GDP growth.

Components of Population Growth

There are two key factors to look at when examining the population growth of a country—natural increases and net immigration. The natural rate of increase is simply the number of births minus the number of deaths in any given year. Net immigration is the number of new residents minus the number of people that leave the country. This has been a key driver of Canada's population growth in recent years, and will continue to be so over the next 25 years.

The Conference Board predicts that the natural rate of increase (births minus deaths) in the population will decline steadily over the forecast due to the slowing birth rate and the rising death rate. The natural increase in the population is expected to account for 33.3 percent of total population growth in 2016, with the remainder being accounted for by immigration.



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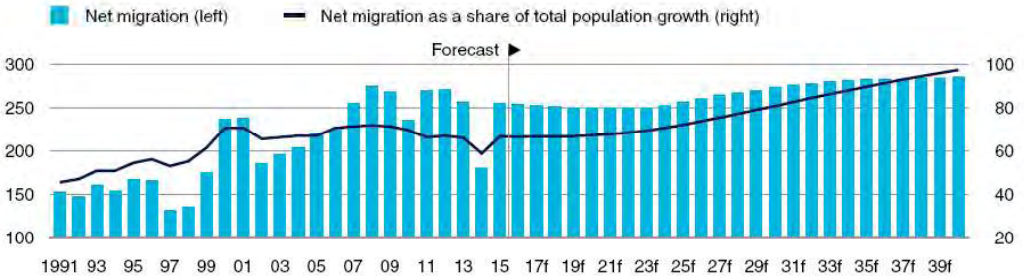
Sources: The Conference Board of Canada; Statistics Canada.

This is a significant change from the 1970s, when natural growth was responsible for more than two-thirds of total growth. The shrinking role of natural population growth will continue, and by 2040 the natural rate of increase will account for just 2.4 percent of total population growth, making immigration the source for the overwhelming majority of future increases in Canada's population.

Annual immigration to Canada has averaged just above 260,000 over the last 10 years, which translates into annual average growth in the population of around 0.7 percent. In the 2015–16 fiscal year (the most recent period for which data are available), the country welcomed 320,932 new Canadians.

The election of a new federal government last year has meant some significant changes in Canada's immigration policy. The previous government's targeted immigration levels ranged from 240,000 to 265,000, but the new federal government has upped this target substantially to 300,000 starting in 2017, and had even considered moving to a level of 450,000 a year. Although the large increase this year was the result of the special circumstances of the Syrian refugee crisis, the minister for Immigration, Refugees, and Citizenship, John McCallum, said the 2017 level would be the new base target going forward.

Immigration Will Be Key to Growing Canada's Population
(net migration, 000s; share of population growth, per cent)



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Sources: The Conference Board of Canada; Statistics Canada.

Baby Boom Generation

The most important generation shaping Canadian demographics is the baby-boom generation, made up of those born in the two decades following the Second World War. Fertility surged during this period, peaking in 1959 at four children per woman of reproductive age. In 2016, baby boomers numbered approximately 9.5 million, which accounted for 26 percent of Canada's total population. The older and wealthier baby boomers are now in or approaching their 60s and beginning the transition into retirement.

Due to the massive size and importance of the baby-boomer cohort, researchers have separated them into two subgroups: the older "front end" boomers, born between 1946 and 1955, and the "back end" boomers, born between 1956 and 1965. The front-end boomers, currently numbering 4.1 million, have higher incomes and wealth than the 5.4 million back-end boomers who followed them.

Generations in Canada

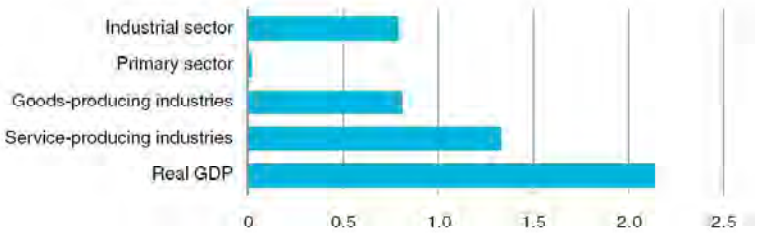
Generation name	Birth years	Size (millions)	Share of Canadian population (%)
1918 and before	1918 and before	0.02	<0.1
Parents of baby boomers	1919 to 1940	2.26	6.2
Second World War generation	1941 to 1945	1.35	3.7
Baby boomers	1946 to 1965	9.46	26.1
Baby busters	1966 to 1971	2.93	8.1
Children of baby boomers	1972 to 1992	10.35	28.5
Millenials	1993 to present	9.82	27.1

Sources: The Conference Board of Canada; Statistics Canada, 2011 Census of Population.

MANITOBA – ECONOMIC FORECAST[5]

The Conference Board of Canada forecasts that Manitoba's real GDP will increase strongly over 2016–17, thanks to growth across all key sectors of the economy. Healthy gains are expected in construction and agriculture, and will continue over the long term thanks to increasing global demand and greater access to global markets through free-trade agreements.

Contributions to Manitoba Real GDP Growth, 2017
(by industry/sector, percentage point; GDP, per cent)



Note: "Primary" is the sum of agriculture, forestry, fishing and trapping, and mining sectors. "Industrial" is the sum of manufacturing, construction, and utilities sectors.
Sources: The Conference Board of Canada; Statistics Canada.

Over the medium-to-long term, the CBC predicts growth in overall real GDP will gradually decline, expanding at an average annual pace of 2 percent between 2016 and 2035.

The gradual decline in economic growth over the long term is linked to the aging of the province's population. Population growth will slow, and the share of people aged 65 and over will increase. That will put additional pressure on the provincial government as it works to ensure that it can provide adequate health care services. As a result, government spending will rise. An aging population will also bring a shift in consumption patterns, especially toward the end of the outlook period, as households start to spend more on services, such as healthcare, and less on durable goods.

Labour force growth is determined by changes in the working-age population (that is, the number of people aged 15 and over) and movements in the participation rate. As the baby boomers continue to retire, their exit from the workforce will put downward pressure on the participation rate, which will fall to 65.8 percent by the end of the CBC forecast. As the participation rate declines, growth in the labour force will slow. The provincial labour force is forecast to increase at an average rate of 1 percent a year over the 2016–35 forecast period.

Due to significant investment in infrastructure, capital investment will increase strongly in 2016–17. The provincial government is investing heavily in infrastructure—$5.5 billion between 2014 and 2018—to build core infrastructure. The plan includes investments in roads and highways, including trade corridors to the United States and other provinces. The province is also investing in the North and other remote locations, as well as in bridges, flood protection and municipal infrastructure, water and wastewater treatment facilities, and Winnipeg's transit system.

Non-residential private investment in structures will be heavily influenced by start and end dates for hydroelectric projects. While growth rates are expected to be volatile over the next two decades, the trend will be weaker when

[5]Conference Board of Canada – 2016 Provincial Outlook: Manitoba, Long Term Economic Forecast

compared with the high growth rates that we will see over the near term. Annual growth for non-residential investment is expected to average out to 0.1 percent between 2016 and 2035.

Growth in private residential investment will be flat over the forecast period. Despite strong gains in international migration to Manitoba, the province won't be able to avoid the impact of an aging population. Growth in Manitoba's population will slow down from a gain of 1.2 percent in 2016 to slightly less than 1 percent by 2035.

Economic Indicators

(percentage change)

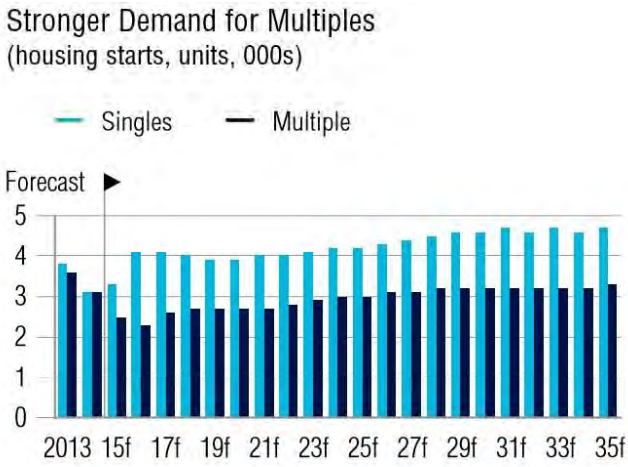
	2016	2017	2018
Real GDP	2.4	2.1	1.0
Consumer price index	1.3	1.4	2.2
Household disposable income	2.9	3.6	2.6
Employment	−0.5	1.0	0.4
Unemployment rate (level)	6.1	5.8	5.6
Retail sales	4.2	0.2	0.0
Wages and salaries per employee	2.3	1.9	2.5
Population	1.6	1.6	1.5

Shaded area represents forecast data.
Sources: The Conference Board of Canada; Statistics Canada.

Housing Outlook - Manitoba

The Conference Board of Canada forecasts that total provincial housing starts will increase from 6,425 units in 2016 to 7,922 units in 2035.

Despite strong gains in international migration to Manitoba, the CBC predicts that the province won't be able to avoid the impact of an aging population. Strong employment growth over the next two years is expected to stimulate household consumption, prompting housing starts to pick up. After 2017, growth in housing starts will moderate through to 2035.



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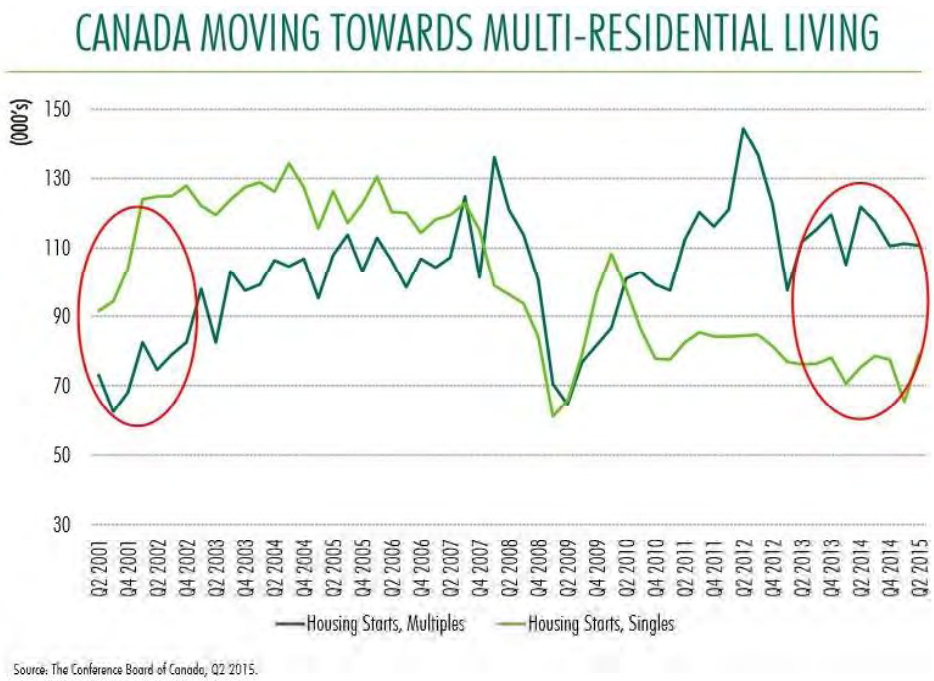
Sources: The Conference Board of Canada; Statistics Canada.

A structural change will also take place within the housing sector over the forecast period. Most elderly people opt to live in apartment buildings, condominiums, or retirement homes; and as the province's population ages, the demand for multi-family dwellings will increase, while the demand for single-family dwellings will decline. Because of this, a greater proportion of total housing starts will be of multi-family dwellings. By 2035, multi-family dwellings are expected to account for 41 percent of total housing starts in Manitoba, compared with 36 percent in 2016.

The shift in housing unit composition is reflective of the trend recognized Canada-wide since 2010.



CITY OF WINNIPEG – ECONOMIC OUTLOOK[6]

The Conference Board of Canada expects Winnipeg's economy to grow by 2.2 percent in 2017 and 2.3 percent in 2018, following average annual advances of 2.4 percent in the seven years prior.

The manufacturing sector rebounded in 2016 and will continue to grow at an even faster pace this year. Meanwhile, output growth in the transportation and warehousing sector will remain healthy, thanks to healthy tourism activity, a decent U.S. economy, and a weak Canadian dollar. These factors, along with decent job growth, are expected to bolster growth in wholesale and retail trade and in personal services.

The decent economy has continued to attract newcomers; net in-migration soared to 14,000 people in 2016, allowing population growth hit a record 2.2 percent. While net in-migration is expected to back off to 10,400 people this year, population growth is expected to remain strong at 2.0 percent. The Conference Board forecasts a 1.7 percent population increase for 2018.

Economic Indicators

	2014	2015	2016	2017	2018	2019	2020	2021
Real GDP at basic prices (2007 $ millions)	35,572	36,514	37,382	38,211	39,101	39,969	40,765	41,659
	2.6	*2.6*	*2.4*	*2.2*	*2.3*	*2.2*	*2.0*	*2.2*
Total employment (000s)	411	425	425	429	436	442	449	456
	–0.2	*3.3*	*0.1*	*1.0*	*1.5*	*1.4*	*1.5*	*1.6*
Unemployment rate (per cent)	5.8	6.1	6.5	6.4	6.2	6.0	6.0	6.0
Personal income per capita ($)	42,245	43,418	44,191	44,804	45,876	46,886	47,918	49,023
	0.8	*2.8*	*1.8*	*1.4*	*2.4*	*2.2*	*2.2*	*2.3*
Population (000s)	783	795	812	828	842	856	870	883
	1.6	*1.5*	*2.2*	*2.0*	*1.7*	*1.7*	*1.6*	*1.6*
Total housing starts	4,248	4,400	4,054	3,890	4,050	4,160	4,270	4,380
Retail sales ($ millions)	11,024	11,139	11,808	11,991	12,261	12,525	12,767	13,023
	4.0	*1.0*	*6.0*	*1.5*	*2.2*	*2.2*	*1.9*	*2.0*
CPI (2002 = 1.000)	1.249	1.266	1.281	1.303	1.333	1.362	1.389	1.418
	1.9	*1.3*	*1.3*	*1.7*	*2.3*	*2.2*	*2.0*	*2.0*

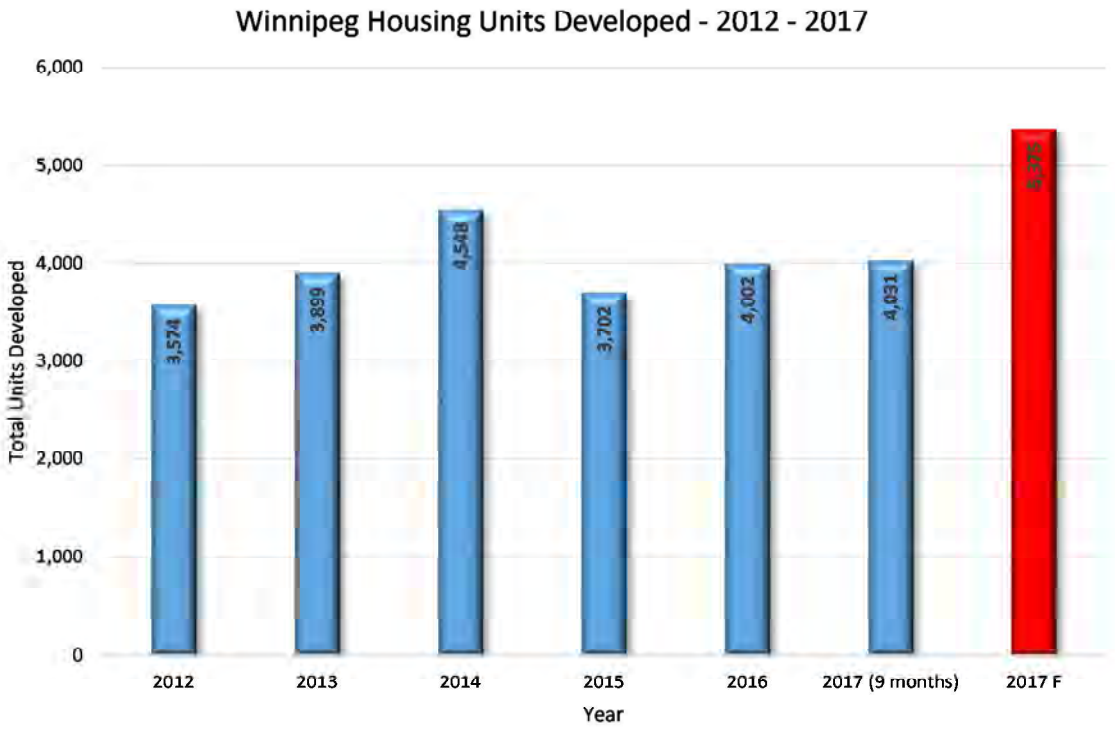
Shaded area represents forecast data.
For each indicator, the first line is the level and the second line is the percentage change from the previous year; *italics indicate percentage change.*
Sources: The Conference Board of Canada; Statistics Canada; CMHC Housing Time Series Database.

Strong population growth in recent years boosted developer confidence, and housing starts surged, reaching a 26-year high of 4,705 units in 2013. But with inventories rising, builders began walking away from the market in 2014. In fact, housing starts declined by an annual average of 4.8 percent between 2014 and 2016, including a 7.9 percent fall last year. Unfortunately, further weakness is in sight for 2017, as a drop in multiple-family starts will trim total starts another 4.1 percent to only 3,890 units—their lowest level in six years—despite a13.6 percent rise in single-detached construction. However, housing starts are forecast to trend higher over the rest of the forecast, starting with a 4.1 percent increase next year.

[6] Conference Board of Canada – Winnipeg: Metropolitan Outlook, Spring 2017

Housing Outlook - Winnipeg

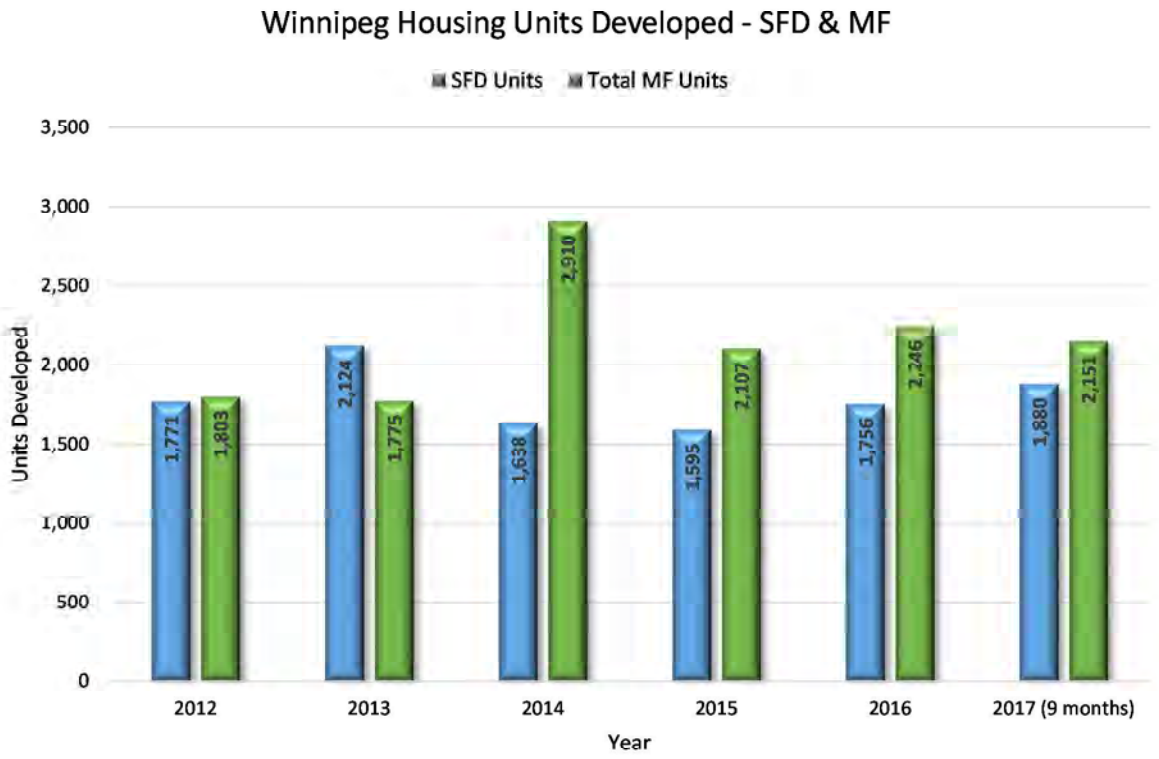
The Winnipeg housing new housing market has posted strong numbers since the end of the 2008–09 recession. In fact, housing starts averaged nearly 4,000 units annually from 2010 to 2016, compared with an average of just under 2,600 units per year in the six years prior to 2008.



New residential construction exceeded 4,000 units last year. The upswing has been fuelled by elevated levels of multi-family construction, which grew at double-digit rates in recent years, reaching 2,910 units in 2014—the most since 1987. But hints of overbuilding have led to a pullback in multiple starts to 2,107 units in 2015 and 2,246 in 2016.

To the end of September 2017, the City of Winnipeg reported permit activity supporting 2,151 new multi-family units. Projected to year-end, the 2017 multi-family activity would represent 2,868 units, second only to the production in 2014.

When recent construction starts are examined, it can be seen that within the Winnipeg CMA, in each of the past three years, multi-family housing starts have exceeded 50 percent of the total annual housing starts.



It is interesting to note that the makeup of multi-family starts is also projected to change in the long run. The Conference Board of Canada predicts that by 2035, more and more retirees will continue to downsize to an apartment. For that reason, the demand for multi-family apartment units will escalate further in the long run. At the same time, higher quality row housing and townhouse type buildings are expected to boost the number of row units. In fact, apartment complexes and row housing are expected to account for about 97 percent of all multiple starts in Winnipeg by 2035, with projected annual construction of 2,400 new apartment units and nearly 475 new row units.

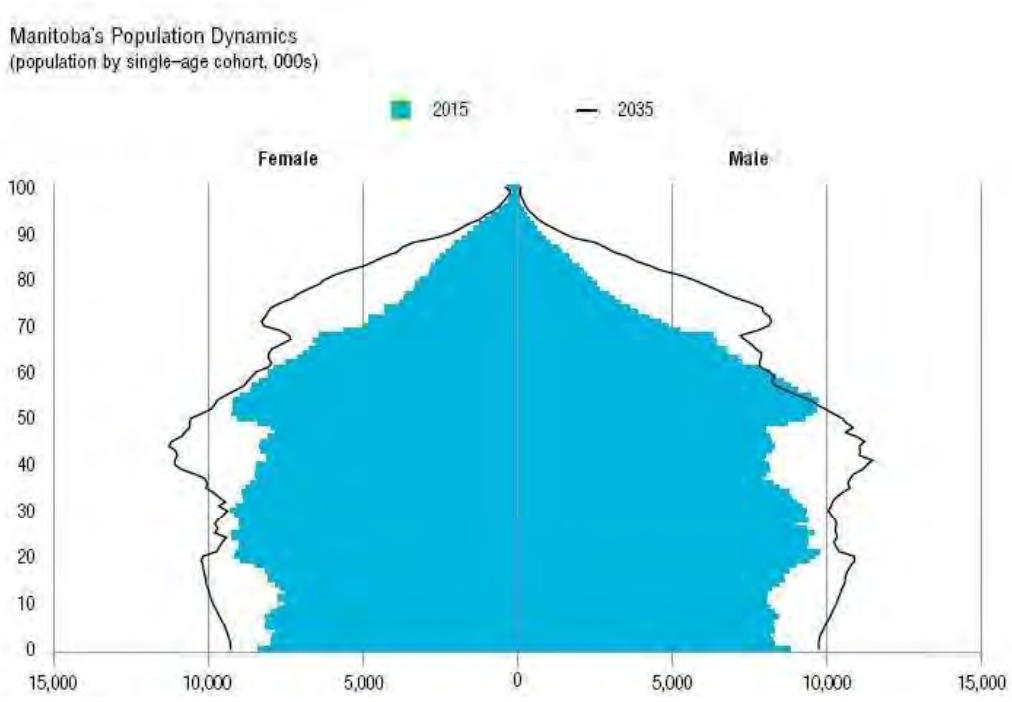
POPULATION - MANITOBA & WINNIPEG MARKETS

Manitoba – Provincial Outlook

According to the recently released demographic information from Statistics Canada and the Conference Board of Canada (CBC), the population of Manitoba is estimated at 1,323,958. The CBC forecasts annual population growth of 1.2 percent from 2016 through 2023, then slowing to a rate of 1.1 percent annually from 2024 to 2029, and 1.0 percent from 2030 to 2035.

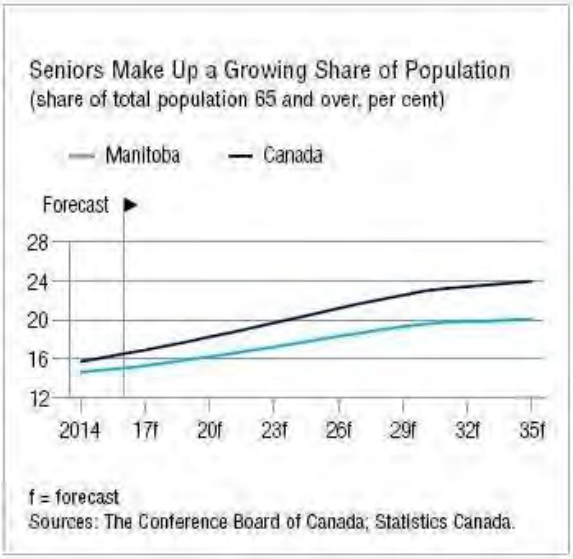
In their long term forecasts, the CBC estimates that strong international migration will continue to fuel Manitoba's population growth moving forward, while low fertility rates are to somewhat hinder the maximum potential of this growth. Net international migration will remain at a high level over the forecast, averaging 12,433 new immigrants per year from 2016 to 2035. The number of international immigrants to Manitoba will more than offset the outflow of interprovincial migrants over the long term.

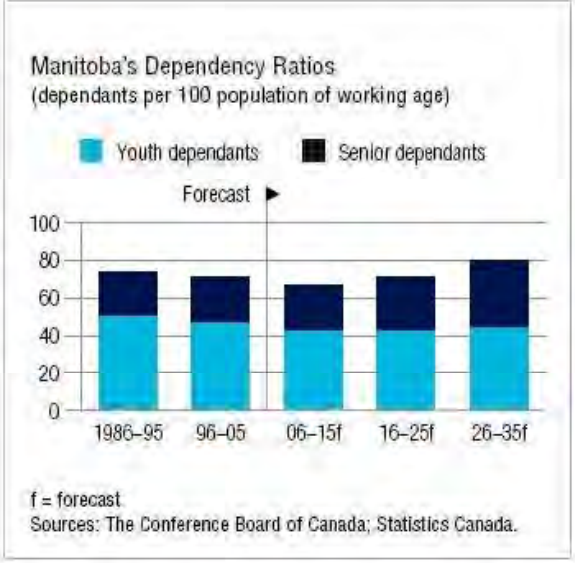
The province can expect to gain an average of 8,538 people per year on a net basis from 2016 to 2035. This positive net migration will help offset the gradual slowing of the natural rate of increase, resulting in solid population growth throughout the forecast period. As such, the population is expected to grow at an average annual rate of 1.1 percent from 2016 to 2035 - second only to Alberta over the long term. Strong growth is forecast to raise Manitoba's population from 1,315,571 in 2016 to 1,617,636 by 2035.



Sources: The Conference Board of Canada; Statistics Canada.

The share of people aged 65 years and over will increase by five percentage points between now and 2035, rising from 15.1 percent in 2016 to 20.1 percent in 2035. The dependency ratio (the number of people younger than 20 years old and over 65 years old relative to the population between 20 and 64 years old) is also expected to rise. The share of seniors will increase at a much faster pace than the share of the young. The key demographic factor behind this phenomenon is the baby-boom generation. By the end of the forecast, almost all of the boomers will be in their retirement years, resulting in a higher seniors dependency ratio.





City of Winnipeg

Based on the 2016 Census results, the Conference Board of Canada estimates the 2016 population of the Winnipeg CMA at approximately 812,000, representing an increase of approximately 8.8 percent from the 2011 Census numbers, and an average annual population growth rate of 1.77 percent. The Winnipeg CMA population has grown at a rate not seen for decades due to increases in immigration and decreases in interprovincial out-migration.

Alternatively, a demographic profile generated by Environics estimates a 2017 population for the Winnipeg CMA of 810,825. For the City of Winnipeg (not including those rural municipalities included within the CMA), the estimated current population is 736,028, representing an increase of approximately 7.1 percent from 2012, an average annual population growth rate of 1.41 percent.

2017 Demographic Snapshot	Winnipeg CMA		City of Winnipeg		Manitoba		Canada	
		%		%		%		%
Total Population								
2012 estimated	756,724		687,463		1,247,983		34,722,177	
2017 estimated	810,825		736,028		1,320,382		36,527,473	
2022 Projected	864,321		784,692		1,396,303		38,325,042	
% Pop. Change (2012-2017)	7.1%		7.1%		5.8%		5.2%	
% Pop. Change (2017-2022)	6.6%		6.6%		5.7%		4.9%	
2017 Total Population by Age	**810,825**		**736,028**		**1,320,382**		**36,527,473**	
0 to 4 years	45,239	5.6%	41,214	5.6%	83,325	6.3%	1,965,110	5.4%
5 to 19 years	137,302	16.9%	122,595	16.7%	246,601	18.7%	5,902,112	16.2%
20 to 24 years	56,515	7.0%	51,251	7.0%	91,706	6.9%	2,397,261	6.6%
25 to 34 years	124,074	15.3%	116,012	15.8%	186,177	14.1%	5,074,377	13.9%
35 to 44 years	110,952	13.7%	101,894	13.8%	168,353	12.8%	4,832,859	13.2%
45 to 54 years	108,688	13.4%	97,105	13.2%	170,710	12.9%	5,064,798	13.9%
55 to 64 years	104,516	12.9%	92,959	12.6%	169,827	12.9%	5,085,262	13.9%
65 to 74 years	70,345	8.7%	63,422	8.6%	115,705	8.8%	3,537,001	9.7%
75 years & over	53,194	7%	49,576	7%	87,978	7%	2,668,693	7%
Median Age	38.7		38.5		38.0		40.9	

The aging of the baby-boom generation will be the most significant demographic development confronting Winnipeg in the long term. The accompanying change in the age structure of the population is best illustrated by the comparative charts included on the following page.

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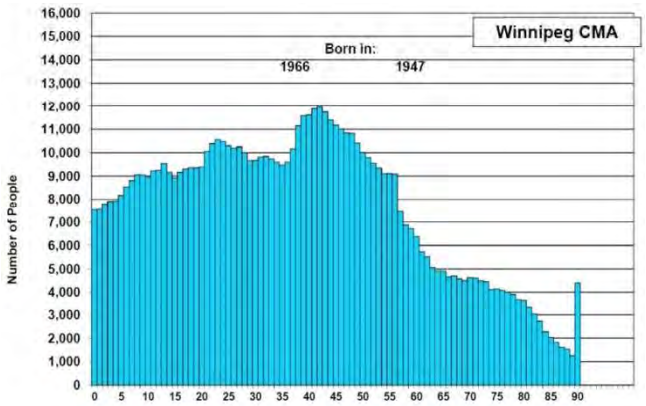
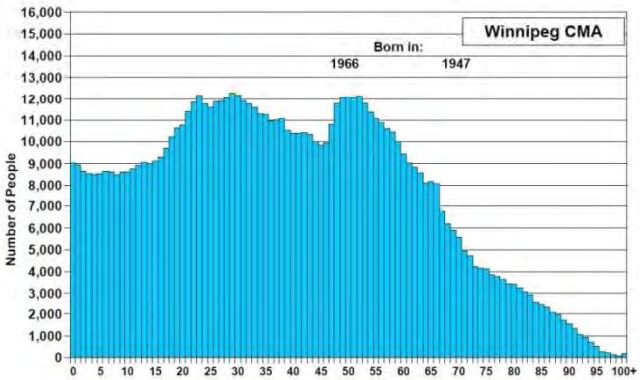
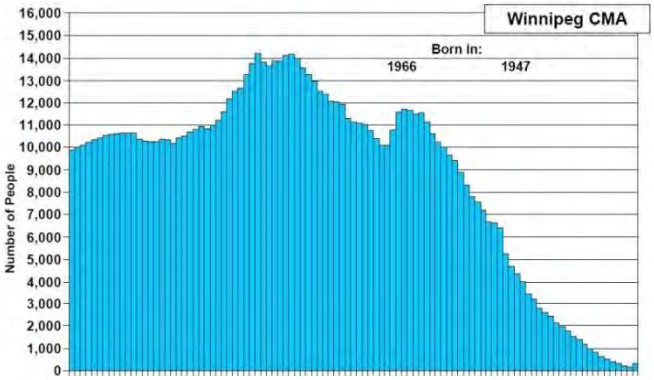
2003 Population Distribution - Winnipeg CMA



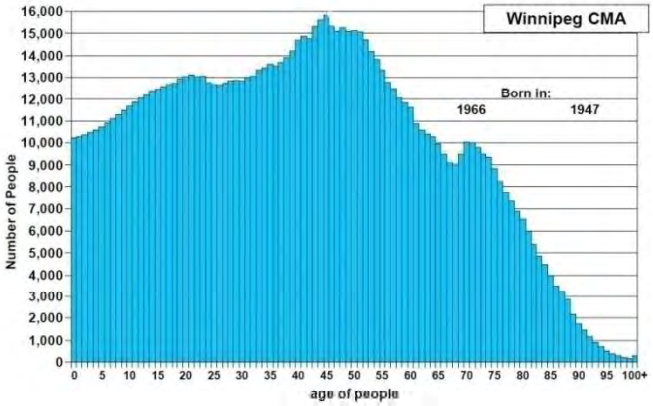
2013 Population Distribution



2023 Projected Population Distribution



2035 Projected Population Distribution



If the current 2017 Environics population estimates are combined with the Conference Board of Canada's Long Term population forecast for the Winnipeg CMA, population estimates to 2035 can be derived.

Based on projected annual population increases of 1.3 percent in the medium term (to 2020) and 1.2 percent in the long term (2020 to 2035), the population of the Winnipeg CMA is projected to reach 1,008,006 by 2035.

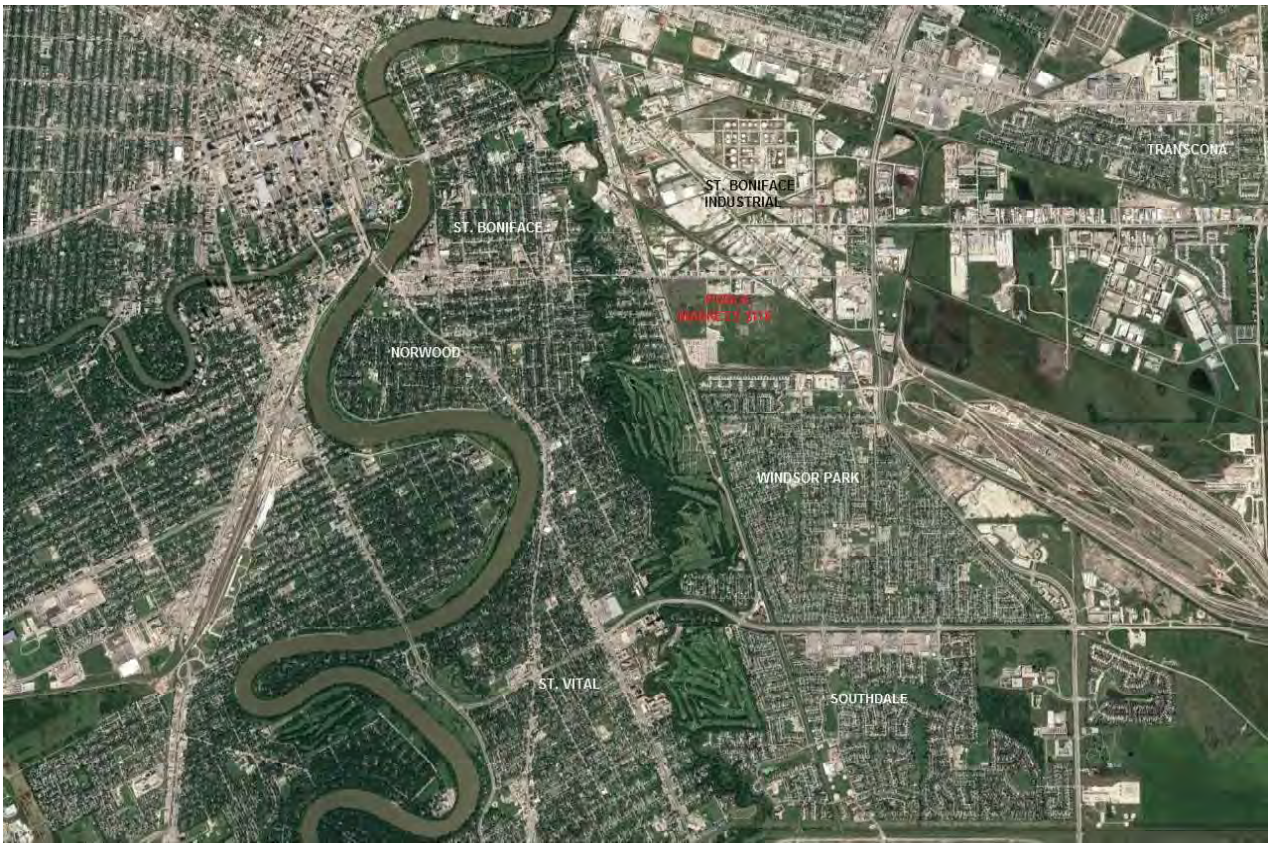
Winnipeg Long Term Population Projection (based on CBC Long Term Forecast)							
Long Term Annual Increase			**1.2%**				
Medium Term Annual Increase			**1.3%**				
YEAR	**2017**	**2018**	**2019**	**2020**	**2025**	**2030**	**2035**
POPULATION - WINNIPEG CMA	810,825	821,366	832,043	842,860	894,660	949,643	1,008,006

III - TARGET MARKET AREA DELINEATION

Community areas and neighbourhoods can be defined using different criteria. For the purpose of setting our target market area, and considering the purpose of the analysis, it is most appropriate to recognize the natural quadrants within the city as the four general target market areas. The boundaries for these quadrants correspond nicely with both geographic boundaries of neighbourhoods throughout Winnipeg and Statistics Canada data sources utilized in our analysis.

Residents of Winnipeg typically exhibit "territorial" propensity in defining their neighbourhood or city areas. These preferences or location biases carry over into movement patterns of residences within geographic areas. Winnipeg residents typically exhibit a tendency to favour the quadrant of the city in which they were raised or have resided in. It is important to recognize this tendency when establishing target market areas, since it is generally from within the local market area that residential or commercial developments are dependent upon for success.

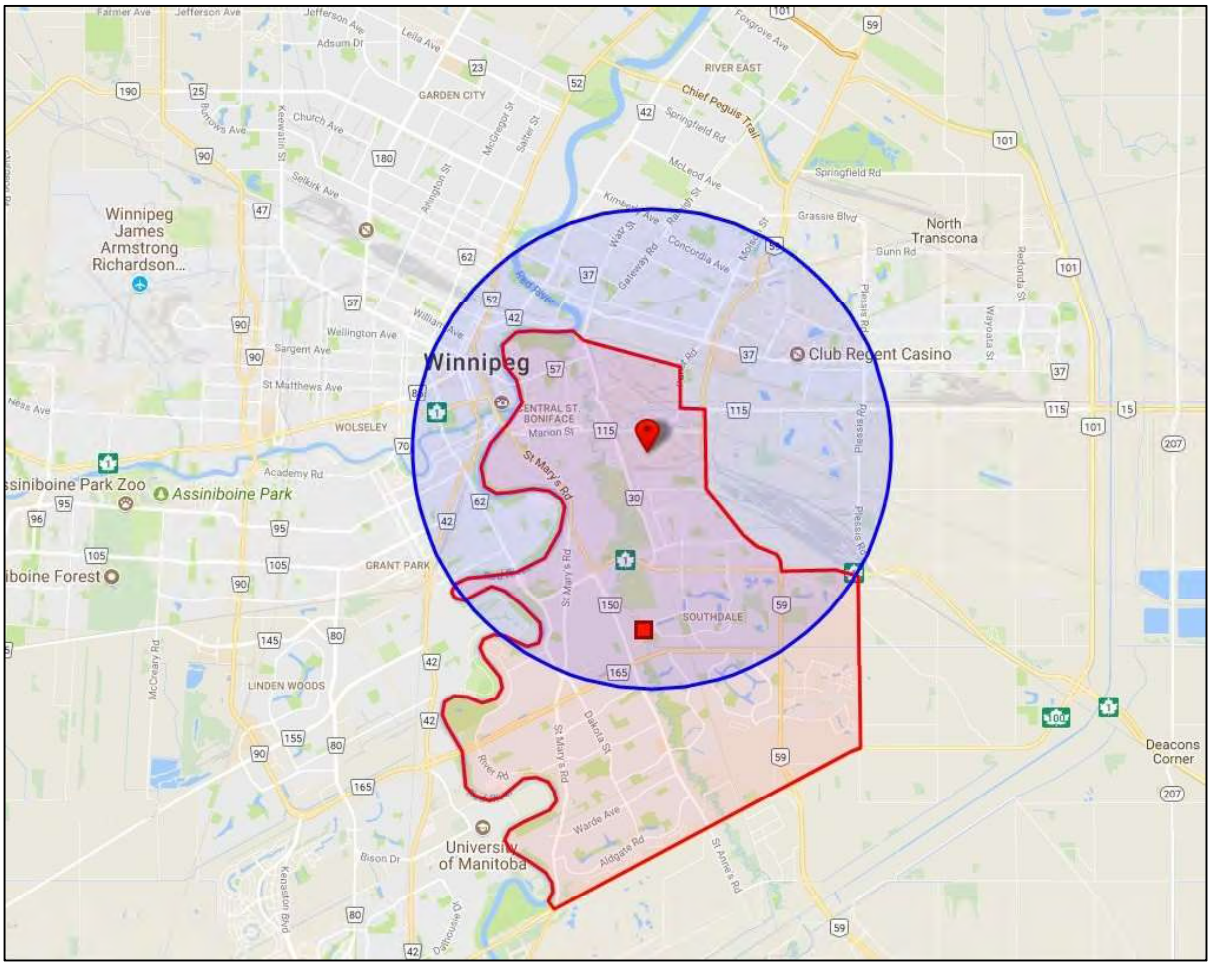
The subject property is located in the southeast quadrant of the city, within the greater St. Boniface neighbourhood cluster.



Typically a target market area for residential purposes is distinguished by a 5-10 kilometer radius surrounding the subject site and is typically defined by well-defined geographic features, natural or community boundaries. In this instance, a market area comprising either the 5 km radius area or the entire southeast quadrant could be envisioned.

In our opinion, given the characteristics and identity of the southeast quadrant, it is preferable to include the St. Boniface and St. Vital community areas in their entirety. To determine a demographic cross-section that typifies the potential for the new neighbourhood, it is preferable to focus on surrounding community areas that have similar new development or comparable demographic and economic compositions.

Study Area – 5.0 kilometre Radius (Blue) and Southeast Quadrant (Red) Boundaries



The southeast quadrant is well defined, bounded by the Red River to the west, the CNR mainline corridor to the north,Lagimodiere Boulevard to the east (with the exception of the outlying Sage Creek neighbourhood) and PTH 100 (Perimeter Highway) to the south.

With respect to the Public Markets site redevelopment,the immediate primary target market area would include the following community areas.

Target Market Area	Neighbourhood Cluster Areas included within Target Market
Southeast Quadrant Area	Central St. Boniface East
	North St. Boniface
	Tissot
	Dufresne
	Norwood
	Archwood
	Maginot / Windsor Park
	Niakwa Park
	Southdale
	RoyalWood
	Island Lakes
	Southland Park
	Sage Creek
	Old St. Vital
	Glenwood
	Dakota Crossing
	Normand Park
	River Park South
	Meadowwood

IV - DEMOGRAPHIC ANALYSIS – STUDY AREA

Population – 2017Projections[7] based upon 2011 Census

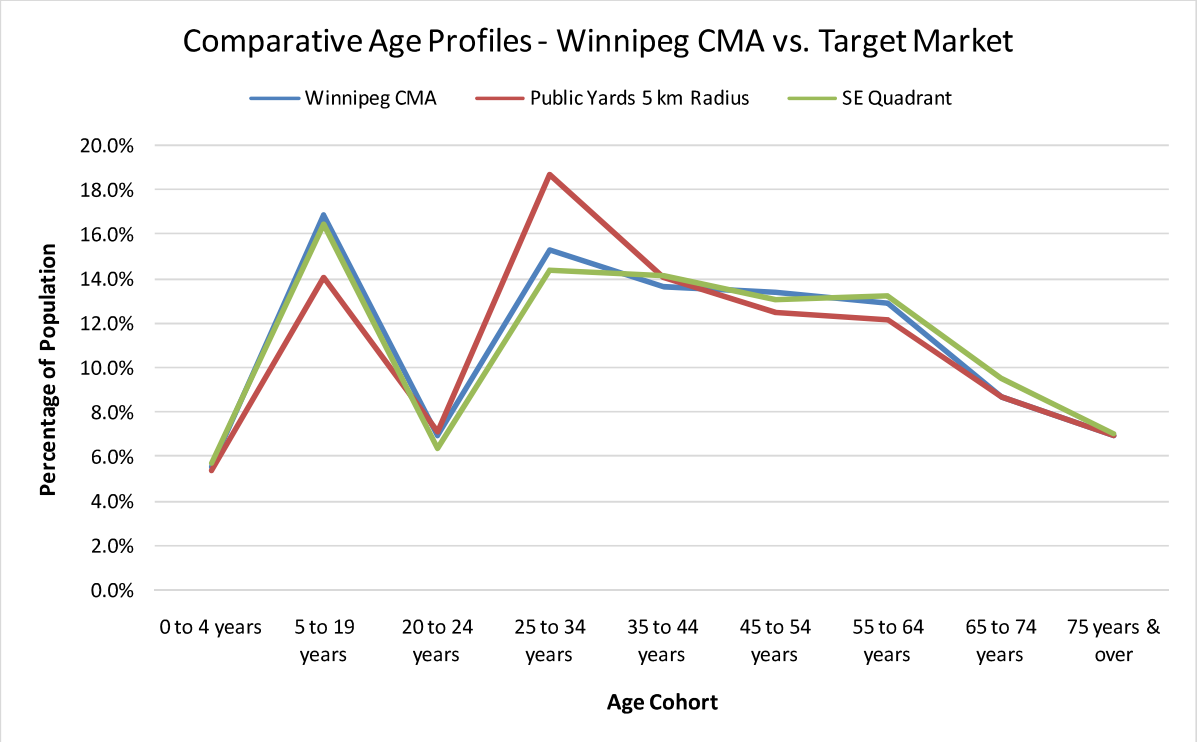
2017 Demographic Snapshot	SE Quadrant		Public Yards 5 km Radius		Winnipeg CMA	
		%		%		%
Total Population						
2017 estimated	132,931		169,186		810,825	
2022 Projected	142,280		178,367		864,321	
% Pop. Change (2012-2017)	8.4%		5.9%		7.1%	
% Pop. Change (2017-2022)	7.0%		5.4%		6.6%	
2017 Total Population by Age	**132,931**		**169,186**		**810,825**	
0 to 4 years	7,559	5.7%	9,182	5.4%	45,239	5.6%
5 to 19 years	21,927	16.5%	23,869	14.1%	137,302	16.9%
20 to 24 years	8,453	6.4%	12,053	7.1%	56,515	7.0%
25 to 34 years	19,145	14.4%	31,704	18.7%	124,074	15.3%
35 to 44 years	18,871	14.2%	23,863	14.1%	110,952	13.7%
45 to 54 years	17,366	13.1%	21,198	12.5%	108,688	13.4%
55 to 64 years	17,639	13.3%	20,608	12.2%	104,516	12.9%
65 to 74 years	12,636	9.5%	14,673	8.7%	70,345	8.7%
75 years & over	9,334	7.0%	12,036	7.0%	53,194	7.0%
% Pop'n 55+		29.8%		27.9%		28.6%
Median Age	39.9		38.0		38.7	

[7] Environics demographic projections

Age Profiles

Age profiles are examined in an effort to identify neighbourhoods or market areas with a resident base that offers potential from which to draw new residents or consumers. Statistics derived from the 2016 Census indicate the population age distributions as indicated below.

If the population distribution by age is examined for the Winnipeg CMA and southeast quadrant, the distributions are very closely aligned. In the 5.0 kilometer radius market area however, it can be seen that there is proportionally less population within the 5-19 and 45-55 age cohorts, and proportionally more population within the 25-35 cohorts.



The market segment that falls within the age grouping of 25 to 34 typically captures first-time homebuyers or renters. The 35 to 54 segment may or may not be represented by family units, and may or may not be represented by second time homebuyers. However, this segment typically has job stability, a less transient lifestyle and increased earning potential. With children, and as families mature, a need for increased living space becomes a necessity. It is the members from this age grouping that drives the new house market in Winnipeg.

The 55 to 64 cohort represents a segment of the population that is typically financially secure and looking towards retirement years. This age cohort still typically owns real estate but may consider down-sizing as children leave home and may consider alternate forms of housing such as condominiums or rental.

The remaining market segment, which has become much more active in recent years, is the “65+” age grouping. The retired couples or empty nesters that typify this age grouping can provide a demand for specific products that meet their changing housing needs. Demand for alternative housing products such as luxury condominiums or senior’s rental projects have increased in recent years due to demand from this market segment.

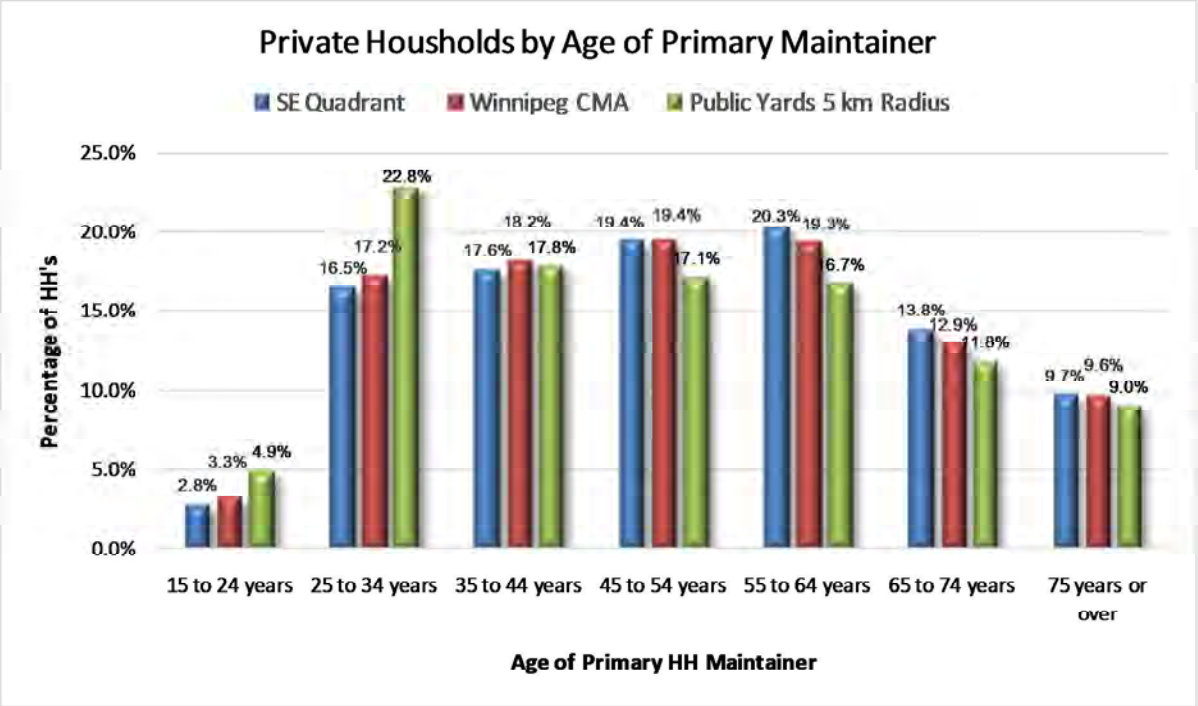
Household Profiles

Household statistics are gathered to further identify and classify market area potentials. We have found in similar studies that the three- to five-person household carries the greatest potential in the homebuyer market. In turn, the one and two-person households identify potential opportunities (e.g. empty nesters) for rental or condominium markets.

2017 Estimates Households and Dwellings	SE Quadrant		Public Yards 5 km Radius		Winnipeg CMA	
		%		%		%
2017 Households by Size of Household	**52,358**	**%base**	**75,402**	**%base**	**314,031**	**%base**
1 person	14,954	28.6%	30,405	40.3%	91,732	29.2%
2 persons	17,263	33.0%	23,950	31.8%	100,818	32.1%
3 persons	8,119	15.5%	9,505	12.6%	48,076	15.3%
4 persons	8,144	15.6%	7,289	9.7%	45,620	14.5%
5 persons	2,672	5.1%	2,701	3.6%	17,610	5.6%
6 or more persons	1,206	2.3%	1,553	2.1%	10,175	3.2%
2017 Persons in Households	130,358		164,136		794,414	
Persons per household	2.49		2.18		2.53	

In the City of Winnipeg, there are an estimated 314,031 private households reported; 75,402 within the 5 kilometer radius surrounding the subject site and 52,358 within the southeast quadrant.

The average household size in the Winnipeg CMA is 2.53 persons, versus 2.18 for the 5 kilometer radius area that includes a large portion of inner-city neighbourhoods. As would be expected, the highest average household numbers are found within suburban and newly developed market areas.



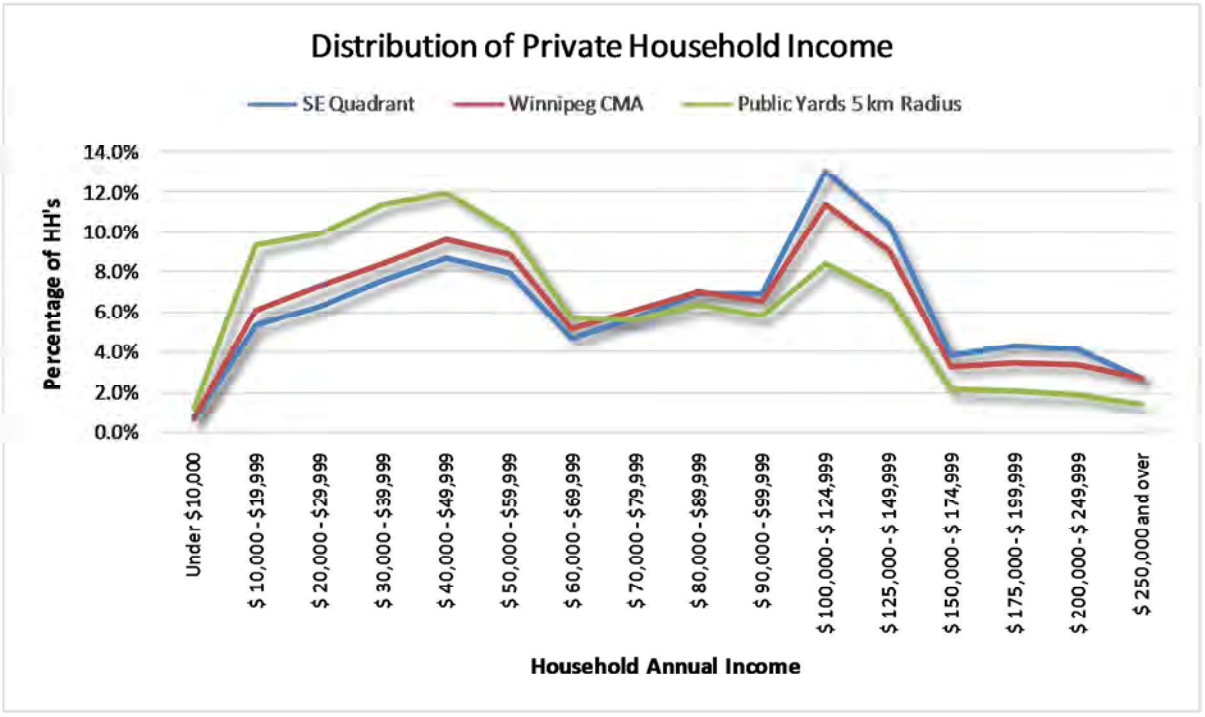
It can also be seen that if households are considered by the age of the primary maintainer, the southeast quadrant has a marginally larger number of households within the 55+ age cohorts than the City overall. Conversely, the 5 kilometer radius area is notable in having a significantly higher percentage within the 25-34 cohort, which bodes well for prospects within the new home ownership markets.

Income Profiles

Within the Winnipeg CMA, the average Household Income is estimated at $94,884 for 2017. The southeast quadrant and 5 kilometer radius market areas show significantly different income profiles. With the inclusion of inner-city neighbourhoods within the 5 kilometer ring, the $75,114 average income for the area falls well below the $101,061 exhibited by the southeast quadrant area.

2017 Estimates Household Income	SE Quadrant		Public Yards 5 km Radius		Winnipeg CMA	
		%		%		%
2017 Households by Income (Current Year $)	**52,358**	**%base**	**75,402**	**%base**	**314,031**	**%base**
Under $10,000	344	0.7%	982	1.3%	2,614	0.8%
$ 10,000 - $19,999	2,808	5.4%	7,009	9.3%	19,188	6.1%
$ 20,000 - $29,999	3,292	6.3%	7,489	9.9%	22,933	7.3%
$ 30,000 - $39,999	3,981	7.6%	8,595	11.4%	26,806	8.5%
$ 40,000 - $49,999	4,614	8.8%	9,050	12.0%	30,582	9.7%
$ 50,000 - $59,999	4,195	8.0%	7,584	10.1%	27,870	8.9%
$ 60,000 - $69,999	2,453	4.7%	4,313	5.7%	16,485	5.2%
$ 70,000 - $79,999	3,042	5.8%	4,230	5.6%	19,006	6.1%
$ 80,000 - $89,999	3,642	7.0%	4,783	6.3%	22,174	7.1%
$ 90,000 - $99,999	3,642	7.0%	4,341	5.8%	20,674	6.6%
$ 100,000 - $ 124,999	6,916	13.2%	6,332	8.4%	36,238	11.5%
$ 125,000 - $ 149,999	5,459	10.4%	5,130	6.8%	28,565	9.1%
$ 150,000 - $ 174,999	2,029	3.9%	1,550	2.1%	10,282	3.3%
$ 175,000 - $ 199,999	2,282	4.4%	1,540	2.0%	11,112	3.5%
$ 200,000 - $ 249,999	2,204	4.2%	1,436	1.9%	10,714	3.4%
$ 250,000 and over	1,455	2.8%	1,038	1.4%	8,788	2.8%
% of HH Income > $60k		63.4%		46.0%		58.6%
Average income	$ 101,061		$ 75,114		$ 94,884	
Median Income	$ 83,980		$ 56,033		$ 75,544	

The graphic representation of income distributions presented on the following page illustrates the variances within the defined areas.



When Household Income[8] statistics are observed, it can be seen that the average incomes reported within the southeast quadrant area have both a lesser composition of low-income (<$50k) households and a higher composition of middle-income households ($90,000 - $150,000).

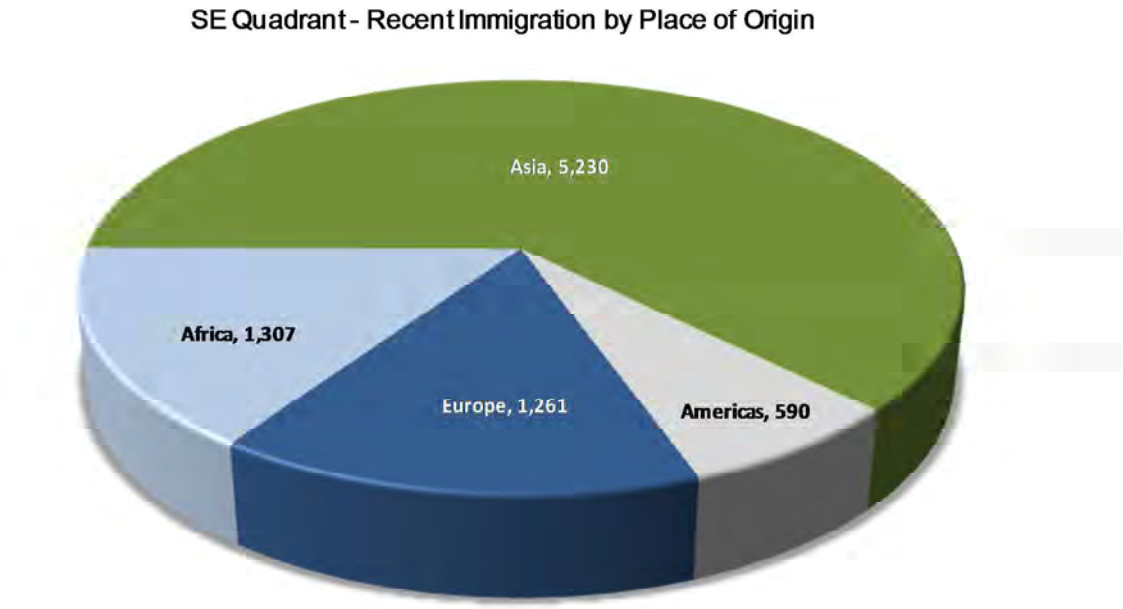
[8]Household total income - The total income of a household is the sum of the total incomes of all members of that household. Total income refers to monetary receipts from certain sources before income taxes and deductions during calendar year

Neighbourhood Ethnic Composition

The total immigrant population comprises 20.4 percent of the population base within the southeast quadrant and 21.8 percent within the 5 kilometer ring area. In comparison, the Winnipeg CMA which has an immigrant population of approximately 24.9 percent.

2017 Estimates Immigration	SE Quadrant		Public Yards 5 km Radius		Winnipeg CMA	
		%		%		%
2017 Household Population by Immigrant Status and Place of Birth	**130,358**	**%base**	**164,136**	**%base**	**794,414**	**%base**
Non-immigrant population	102,458	78.6%	125,496	76.5%	586,237	73.8%
Born in province of residence	86,974	66.7%	104,292	63.5%	493,247	62.1%
Born outside province of residence	15,484	11.9%	21,203	12.9%	92,990	11.7%
Immigrant population	26,635	20.4%	35,827	21.8%	198,132	24.9%
North America	628	0.5%	838	0.5%	4,833	0.6%
Central America	703	0.5%	1,190	0.7%	3,983	0.5%
Caribbean and Bahamas	1,005	0.8%	915	0.6%	4,267	0.5%
South America	697	0.5%	712	0.4%	5,319	0.7%
Western Europe	1,421	1.1%	1,751	1.1%	8,298	1.0%
Eastern Europe	1,875	1.4%	2,336	1.4%	13,581	1.7%
Northern Europe	1,691	1.3%	2,143	1.3%	9,065	1.1%
Southern Europe	1,436	1.1%	1,823	1.1%	11,053	1.4%
Western Africa	596	0.5%	485	0.3%	2,111	0.3%
Eastern Africa	1,493	1.1%	2,875	1.8%	7,547	1.0%
Northern Africa	1,328	1.0%	2,011	1.2%	5,198	0.7%
Central Africa	476	0.4%	601	0.4%	1,961	0.2%
Southern Africa	94	0.1%	99	0.1%	634	0.1%
West Central Asia and Middle East	1,007	0.8%	1,006	0.6%	4,986	0.6%
Eastern Asia	2,796	2.1%	2,706	1.6%	13,955	1.8%
Southeastern Asia	5,127	3.9%	10,234	6.2%	76,342	9.6%
Southern Asia	4,171	3.2%	3,985	2.4%	24,397	3.1%
Pacific Ocean and Other	92	0.1%	118	0.1%	602	0.1%
Non-Permanent Residents	1,264	1.0%	2,813	1.7%	10,045	1.3%

The distribution of the total immigrant population within the southeaast quadrant area is indicated in the chart below,by region of origin. Approximately 10 percent of the total immigrant base would be classed as recent immigrants, or those arriving over the past ten years.



The overwhelming majority of recent immigrants in both the City and target market are arriving from Asian countries. In addition, the composition of immigrants within the City and target market are quite similar.

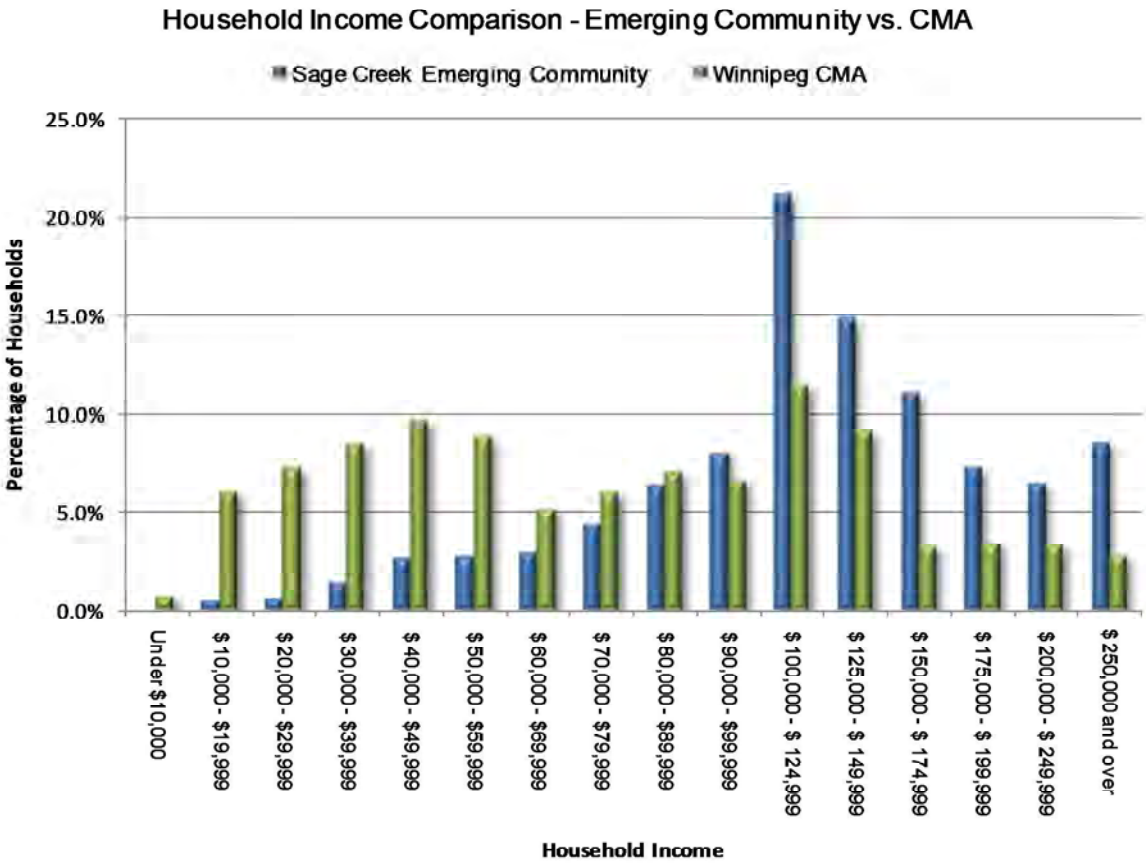
Emerging Neighbourhood Demographic Profile (Sage Creek Community)

In order to provide a clearer understanding of the demographic composition to expect within an emerging community, we have examined a demographic snapshot for a sample emerging neighbourhood. In this case we have selected the developing Sage Creek neighbourhood, situated within the southeast quadrant of Winnipeg.

It is intuitive and hardly surprising that the statistics support the notion that the resident base within newly developing neighbourhoods are generally younger and wealthier than the population at large.

Household Income - Emerging Community

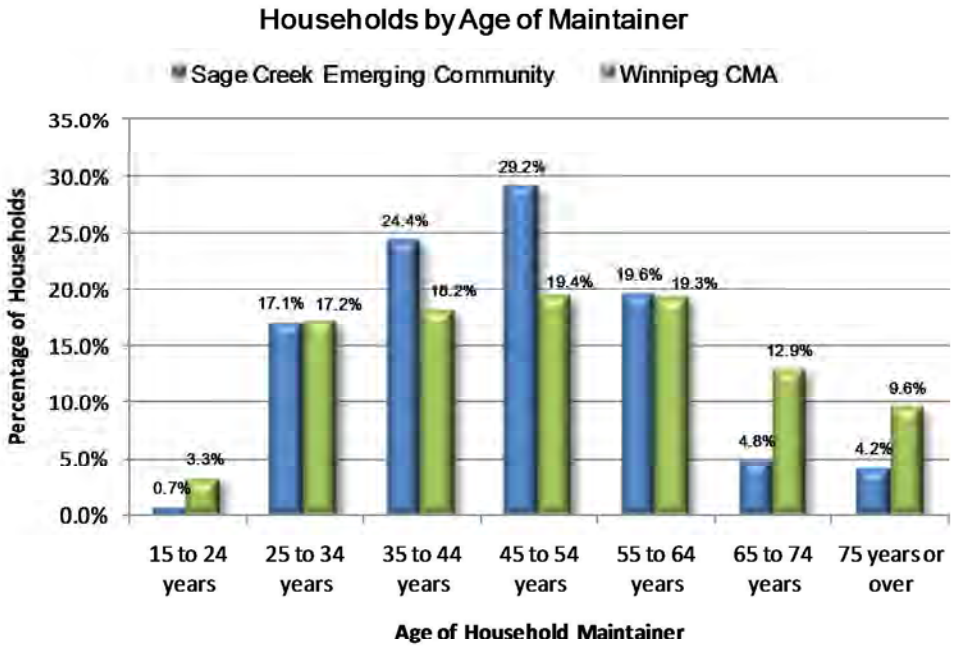
Households in the Sage Creek neighbourhood have significantly higher average household incomes than the Winnipeg CMA. 33.5 percent of households in the Sage Creek neighbourhood have household incomes in excess of $150.000 annually, compared to 13.0 percent in the CMA.



Household Characteristics - Emerging Community

The average household size in Sage Creek is 3.30 persons per household, versus 2.53 persons in the Winnipeg CMA.

As would be expected for an emerging neighbourhood, the average household (as measured by the age of the primary household maintainer) is noticeably younger in the Sage Creek neighbourhood, compared to the CMA. 71.4 percent of households in Sage Creek have primary maintainers under 55 years old, compared to 58.1 percent in the CMA.



V – HOUSING MARKET ANALYSIS - MULTI-FAMILY

Our analysis of residential development options is focussed upon low to medium density neighbourhood development, or the multi-family sector. Within this sector the development options may include general market apartment units, student apartment units, senior's apartments and apartment condominiums. This section will quantify the supply and demand metrics for these various development options.

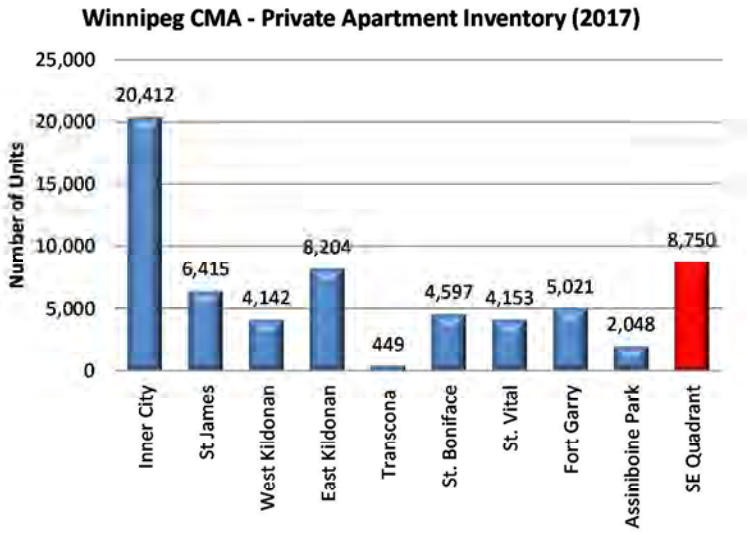
In our analysis of the local rental market, data has been collected from Canada Mortgage and Housing's 2016 Year-End Rental Market Report, as well as the June 2017 Seniors Housing Report. In addition, we have supplemented with data drawn from the records of BW Ferguson & Associates and other various sources.

Winnipeg CMA Rental Market Overview

Rental Apartment Inventories

The supply of rental units in the Winnipeg CMA market has been on the rise since 2013.

Most significantly, 1,401 apartments were added to Winnipeg's rental market from October 2014 to October 2015. The 2016 year-end inventory reported by CMHC stood at 55,561 apartment unts.

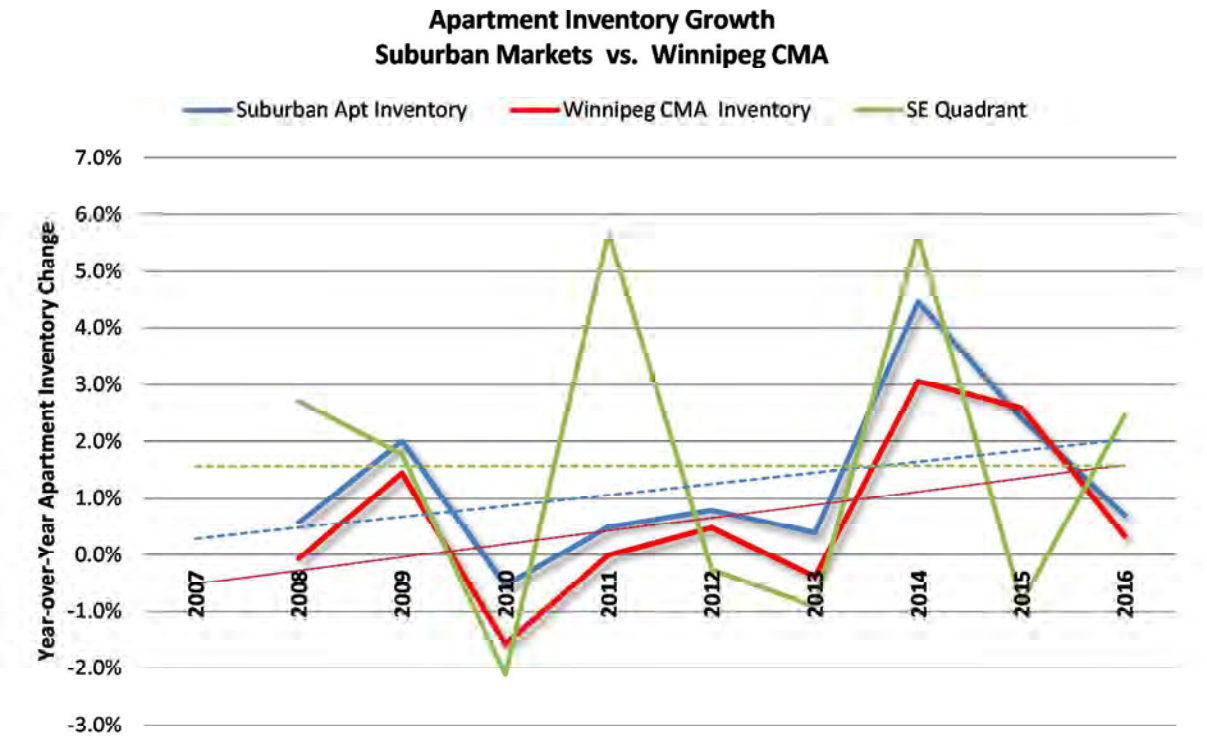


Both the CMA and Suburban markets have experienced significant increases in their rental apartment universe in recent years. CMHC reported that year-to-date multi-family starts were up 64.7 percent in August, compared to the same time period in 2016, largely due to more than triple the number of condominium starts.

In terms of comparative inventory growth, the graph on the following page indicates the trend of year-over-year increasing inventories for both the CMA and Suburban markets, in addition to the target market southeast area.

Over a 10-year period the average annual growth in apartment inventories was 0.7 percent at the CMA level and 1.6 percent for both the suburban and southeast quadrants.

Alternatively over the past five years the average annual growth in the southeast quadrant has matched the CMA growth of 1.2 percent, approximately half of the 2.3 percent average for the suburban markets.



Private Apartment Inventory - Vacancy & Inventory Metrics

Year	Suburban Apt Inventory	Suburban Inventory Change Y/Y	Suburban Apt Vacancy	SE Target Mkt Apt Inventory	SE Target Mkt Inventory Change Y/Y	SE Target Mkt Vacancy	Winnipeg CMA Inventory	Winnipeg CMA Inventory Change Y/Y
2007	31,332		1.4%	7,627		1.3%	52,430	
2008	31,513	0.6%	0.7%	7,834	2.7%	1.3%	52,399	-0.1%
2009	32,144	2.0%	0.8%	7,973	1.8%	1.4%	53,154	1.4%
2010	31,975	-0.5%	0.6%	7,805	-2.1%	0.8%	52,319	-1.6%
2011	32,132	0.5%	0.9%	8,248	5.7%	1.4%	52,319	0.0%
2012	32,387	0.8%	1.6%	8,227	-0.3%	2.3%	52,569	0.5%
2013	32,514	0.4%	2.3%	8,152	-0.9%	2.0%	52,371	-0.4%
2014	33,966	4.5%	2.3%	8,612	5.6%	2.2%	53,975	3.1%
2015	34,784	2.4%	2.8%	8,540	-0.8%	2.1%	55,376	2.6%
2016	35,029	0.7%	2.6%	8,750	2.5%	2.5%	55,561	0.3%
10 Year Average			1.6%		1.6%			0.7%
5 Year Average			2.3%		1.2%			1.2%

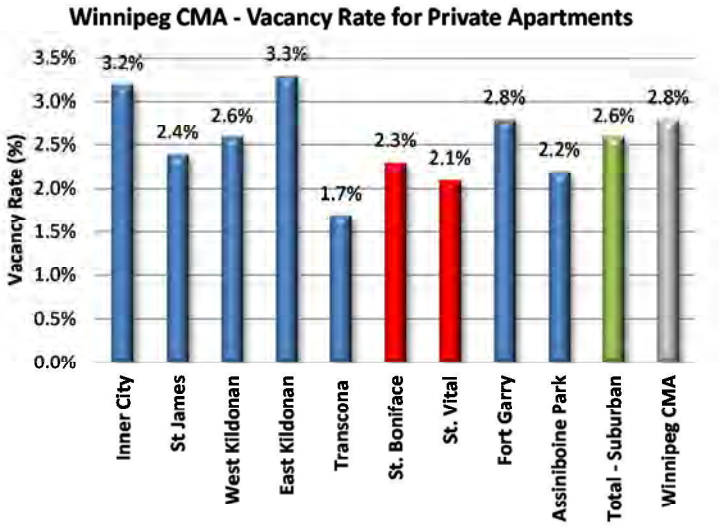
Vacancy

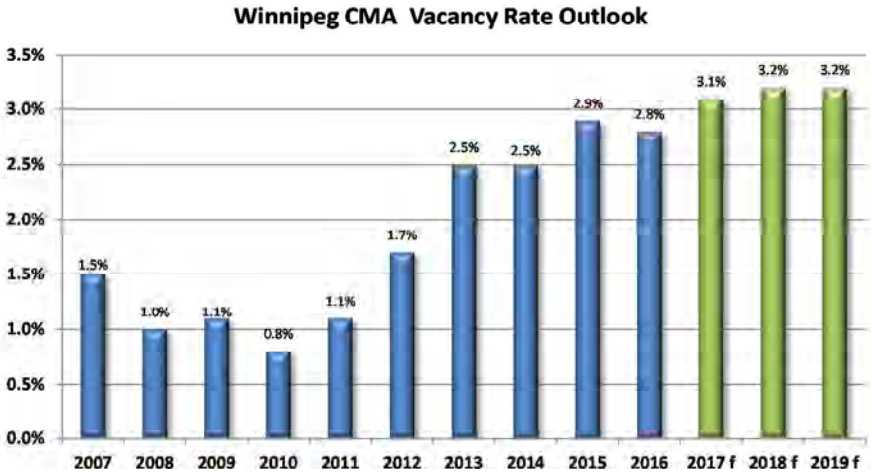
According to the Fall 2016 Rental Market Survey released by CMHC, the average vacancy rate for primary purpose-built apartments in the Winnipeg CMA was 2.8 percent in October 2015, down marginally from 2.9 percent in October 2015.

Within the Winnipeg CMA the vacancy rate in suburban areas ranged from 1.7 percent in Transcona to 3.3 percent in East Kildonan.

Apartments in the suburban zones (which include the target market area) posted an overall vacancy rate of 2.6 percent in October 2016, compared to 2.8 percent in the same month of 2015.

In general, the trend of slight decrease in vacancy rates within the CMA can be attributed to continued inmigration, combined with modest net increases in new rental supply stock.





In reviewing vacancy rates by rent range, it is not surprising to find higher vacancy rates within units commanding the highest rents. Apartments which were renting for more than $1,300 per month reported an average vacancy rate of 5.4 percent in the October 2016 survey. Surprisingly, the lowest vacancy rates were reported in units renting between $1,100 and $1,299, with a reported rate of 1.9 percent.

We would speculate that the $1,300 - $1400 rental rate represents a threshold of sorts, representing the point where some tenants view home ownership as an alternative in the local market.

Moving forward, CMHC predicts modest increases in the CMA vacancy rate to 3.1 percent in 2017 and 3.2 percent in both 2018 and 2019. Factors contributing to the forecasted increases include the large number of completed new rental units at the end of 2016 and continued strong new unit construction through 2017 and 2018 that will increase the rental supply.

While softening rental demand may be expected due to CMHC's prediction for increased vacancy and supply, the effect on the rental market may be mitigated somewhat with expected increases in mortgage rates and the

corresponding effect on opportunities for first-time homebuyers. The Conference Board of Canada forecasts that average residential mortgage rates will rise moderately from current levels to 4.55 percent in 2018, 5.25 in 2020 and 5.74 by 2024.

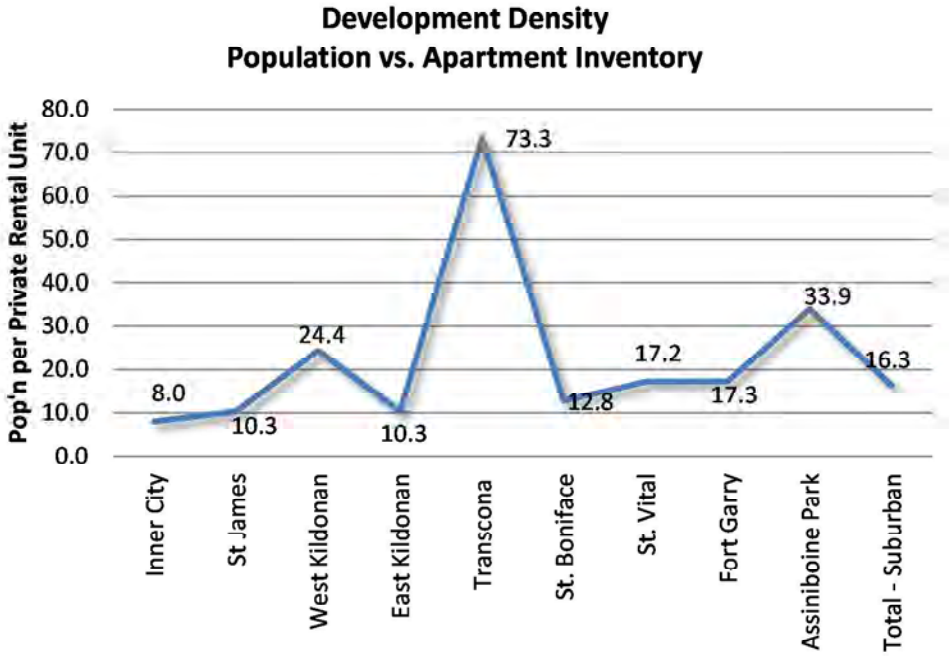
Southeast Quadrant Rental Market

The inventory of private apartments within the southeast quadrant (defined by CMHC as the St. Boniface and St. Vital sectors) measures 8,750 units or approximately 25 percent of the total suburban inventory (excluding central or core areas). The St. Boniface and St. Vital community areas have a total of 4,597 and 4,153 units respectively.

In the overall Winnipeg CMA, the ratio of population to available privately-initiated apartment units is approximately 15:1. In essence this means that within the Winnipeg marketplace, for every 15 persons within the city, there is one rental apartment unit developed and available to rent.

In comparison, within the Southeast quadrant area the ratio of population to available privately-initiated apartment units is also approximately 15:1. Therefore the rental market within the southeast quadrant appears to be adequately served if compared to the CMA.

Excluding the Transcona zone (which has a ratio of 73:1), the ratio of population to rental units ranges from 10:1 (St. James) to 34:1 (Assiniboine Park).

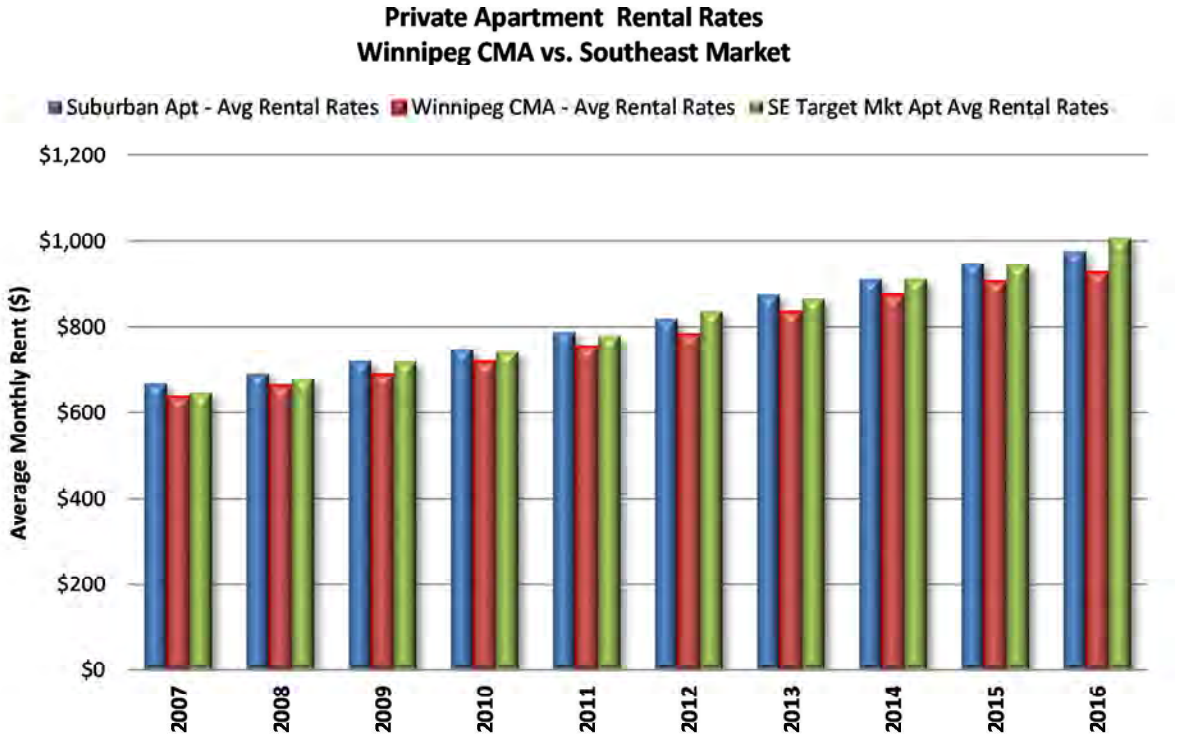


The average ratio indicated by the seven suburban zones (excluding Transcona) is approximately 15:1. If this ratio is applied to the estimated current population of the southeast quadrant (130,121) a potential apartment inventory of 8,675 units results, which falls below the current inventory of 8,750 units. Alternatively if the lowest ratio of approximately 10:1 is used, a potential inventory of 13,012 apartment units is indicated for the southeast quadrant, which would support the addition of 4,262 new apartment units.

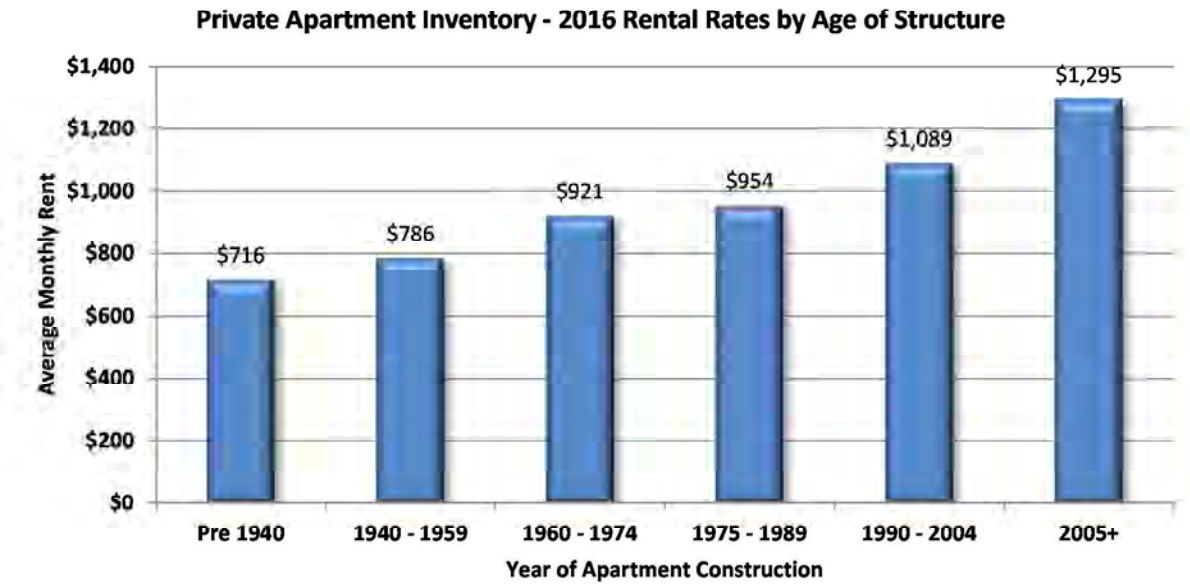
Apartment Rental Rates

Accounting for both new and existing structures, the average rent for an apartment unit in the Winnipeg CMA at the end of 2016 was $927, up 2.3 percent from $906 in 2015.

Average rents ranged from $634 for bachelor apartments, to $836 for one bedroom and $1,068 for two bedroom units. Three+ bedroom units exhibited average rents of $1,327.



When the inventory is examined by period of construction, it can be seen that newer apartments within the marketplace rent at significantly higher rental rates than the older units. Intuitively this is not surprising, but the spread in the rates and relative movement of rates between the sub-markets are important to understand when considering development of new units.



Private Apartment Inventory - Rental Rates by Age of Structure (Oct 2016)

Year of Construction	Bachelor	1 BR	2 BR	3 BR+	TOTAL
Pre 1940	$538	$693	$828	$1,123	$716
1940 - 1959	$634	$753	$961	$1,107	$786
1960 - 1974	$681	$854	$1,037	$1,363	$921
1975 - 1989	$732	$861	$1,040	$1,252	$954
1990 - 2004	na	$925	$1,150	na	$1,089
2005+	na	$1,157	$1,323	$1,436	$1,295
TOTAL	$634	$836	$1,068	$1,327	$927

For apartment structures built after 2005, average rents indicated by the CMHC survey were estimated at $1,157 for one bedroom apartments, $1,323 for two bedroom units and $1,436 for three+ bedrooms.

Although these newer units are not affected by rent controls, there may be inherent controls in the form of affordability, increased vacancy rates in newer units and competition from homeownership.

Although it appears to be a very limited sample in the CMHC survey, rental condominium apartments are indicated to command average rents ranging from $998 for one bedroom condominium apartments, to $1,300 for two bedroom condominium apartments.

A survey of new or newer suburban rental apartments (presented on following page) has been carried out in an effort to provide greater insight into rental rates and ranges within new(er) buildings.

Market Rent for New and Newer Apartment Units – City of Winnipeg

In order to define and accurately reflect market rental rates in newly developed apartment projects, we have collected the following data for the newest market rental apartment projects in the City.

Project Name	Unit Type	2016 Rental Rates	Unit Sizes	Rent psf	Target Market	Amenities
Prairie Landing Apts. 20 Cal Gardner Drive	1 BR 2 BR	$1395 $1800	786 sf 1119 sf	$1.77 $1.61	55+	55+ market apartments opened 2016. 5 Appliances, utilities included. All suites with balconies. Parking $50.
The Spot 2799 Pembina Hwy	1 BR 2 BR 3 BR	$1268 $1499-1708 $1998	639 sf 899-912 sf 1273 sf	$1.98 $1.67 - $1.87 $1.57	Market	Built 2015. Suites have 4 appliances, utilities included, balcony. Parking extra – u/g and surface available.
The Enclave Ph II 2000 St. Mary's Road	1BR 2BR	$1350-1380 $1575-1945	777 sf 938-1135 sf	$1.74 - $1.78 $1.68 - $1.71	Market – 50+	Newer building. 2012/2013 construction. 9' ceilings, concrete balconies, elec fireplaces, ensuite laundry. Utlities included. Granite countertops, stainless steel appliances. Gym. Security.
Tamack Pointe 336 Warde Avenue	1BR 2BR	$1225 $1425	647 sf 910 sf	$1.89 $1.56	Market	New construction in 2013 - luxury apartments. Utilities included. South St. Vital. Granite counters, stainless steel appliances, insuite laundry.
Seasons 590 Sterling Lyon Parkway	1BR 2BR 3BR	$1248 $1308-1408 $1448	670-693 sf 859-954 sf 971 sf	$1.80 – $1.86 $1.48 - $1.52 $1.49	Market	New construction in 2015 - Broadstreet wood frame apartments. Utilities included. standard appliances, insuite laundry.
Kildonan Green Apartments 45 Kildonan Green Drive	1BR 2BR	$1317 $1388-1640	906 sf 906-1132sf	$1.45 $1.45 - $1.53	55+	55+ market apartments opened 2011. 5 Appliances, utilities included. All suites with balconies. Parking $50.
The Mosaic Bison Drive & Shore Street	1BR 2BR	$1050 $1210	724 sf 902 sf	$1.45 $1.34	Market	Built 2009. Outdoor parking included, heated u/g parking extra. 5 Appliances, tenant pays utilities. All suites with balconies. 9' ceilings and open concept design.
Bridgewater Heights 225 North Town Road	1BR 2BR 3 BR	$1158 $1318-1348 $1398	604-676 sf 859-971 sf 971 sf	$1.71 – $1.92 $1.39 - $1.53 $1.44	Market	New construction in 2015 - Broadstreet wood frame apartments. Utilities included. standard appliances, in suite laundry.
Spot on the Park 785 Sterling Lyon Parkway	1 BR 2BR 3 BR	$1245 $1645 $2140	NA 914 sf 1146 sf	NA $1.80 $1.87	Market & 55+	Built 2014 – 60 luxury apartments. All suites with balconies. Heated underground parking (extra). 5 appliances, tenant pays utilities.
						(continued next page)

Grand Lyon Terrace 100 Paget Street	1 BR 2 BR	$1185-1390 $1750-2135	789 – 918 sf 1064-1460 sf	$1.50-$1.51 $1.46-$1.64	Market	Luxury apartment located just off of Sterling Lyon Parkway. New building (2012). Modern interior finishes. Private covered balconies. Heated underground parking. Tenant pays utilities.
Marquis Village 30 De La Seigneurie Blvd	2 BR	$1395	846-954 sf	$1.46-$1.65	Market	Island Lakes location. Developed as condos but converted to rental. Modern finishes. Two bed units have two baths. Outdoor parking available. Tenant pays utilities.
Murano Gardens Condos 1044 Wilkes Avenue	2 BR	$1,395-1495	840 sf	$1.66-$1.78	Market	New luxury condo developed in Linden Woods neighbourhood area. Ensuite laundry, nine foot ceilings, modern finishes. Utilities extra. UG Parking extra.
Average Rents	**1 BR** **2 BR** **3 BR**	**$1,268** **$1,547** **$1,746**		$1.72 psf $1.59 psf $1.59 psf		

The sample of 12 newer apartment projects indicates one bedroom rates ranging from $1,050 - $1,380 (average $1,268), two bedroom rates ranging from $1,210 - $2,135 (average $1,547) and three bedroom rates ranging from $1,398 - $2,140 (average $1,746).

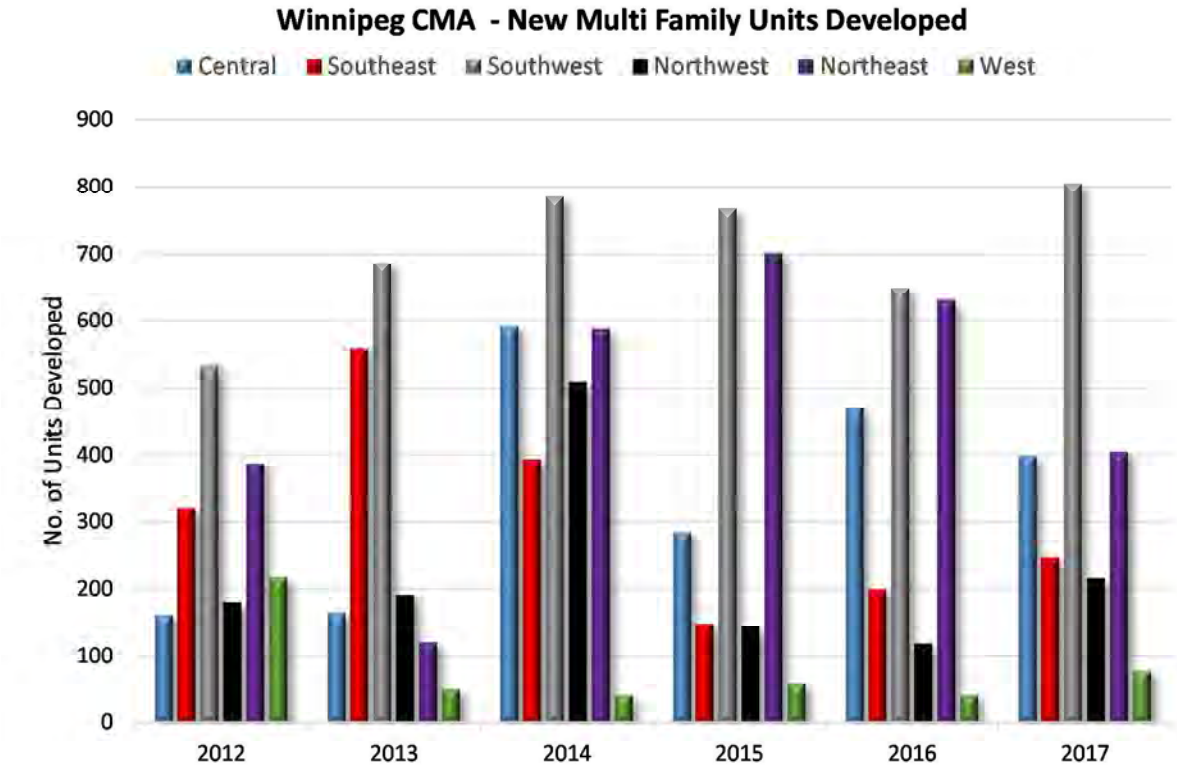
If unit sizes are examined the rental rates suggest a range of $1.45 - $1.98 per square foot, per month for one bedroom units (average $1.72 psf per month), $1.34 - $1.87 per square foot, per month for two bedroom units (average $1.59 psf per month) and $1.44 - $1.87 per square foot, per month for three bedroom units (average $1.59 psf per month).

New Multi-Family Construction – Winnipeg CMA

In examining new construction trends for the overall apartment market, we have sourced and analyzed construction permit data from the City of Winnipeg from 2012 to 2017 YTD (10 months Jan-October).

The multi-family units constructed add to the overall marketplace inventory and may consist of either rental units or condominium. The data has been sorted based on geographic region, and is presented below.

Winnipeg - New Multi-Family Units Developed						
	2012	2013	2014	2015	2016	2017
Total Square Feet	2,255,684	2,087,321	3,819,761	2,368,103	2,290,687	2,533,537
Total Units	1,803	1,775	2,910	2,107	2,113	2,151
Geography:						
Central	162	165	592	285	471	399
Southeast	322	559	394	149	200	248
Southwest	534	687	785	768	649	805
Northwest	180	192	509	144	119	216
Northeast	388	121	588	702	632	405
West	217	51	42	59	42	78



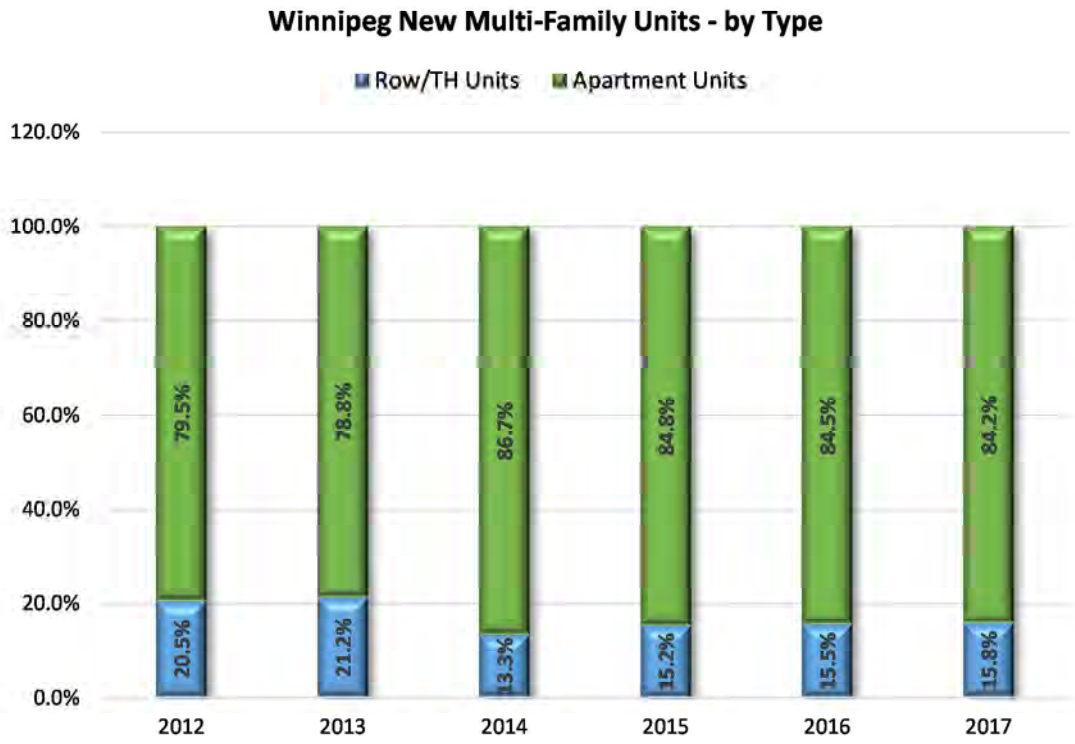
If the 2017 statistics are prorated to year-end 2,581 units comprised of 3,040,537 square feet of development would be projected.

The 2014 year represented the peak point of multi-family construction in recent years with 2,910 units constructed. In 2015, construction declined to 2,107 units, followed by 2,113 units in 2016. If the 2017 projections are accurate, the current year's multi-family volumes will represent the second highest construction volume in the decade.

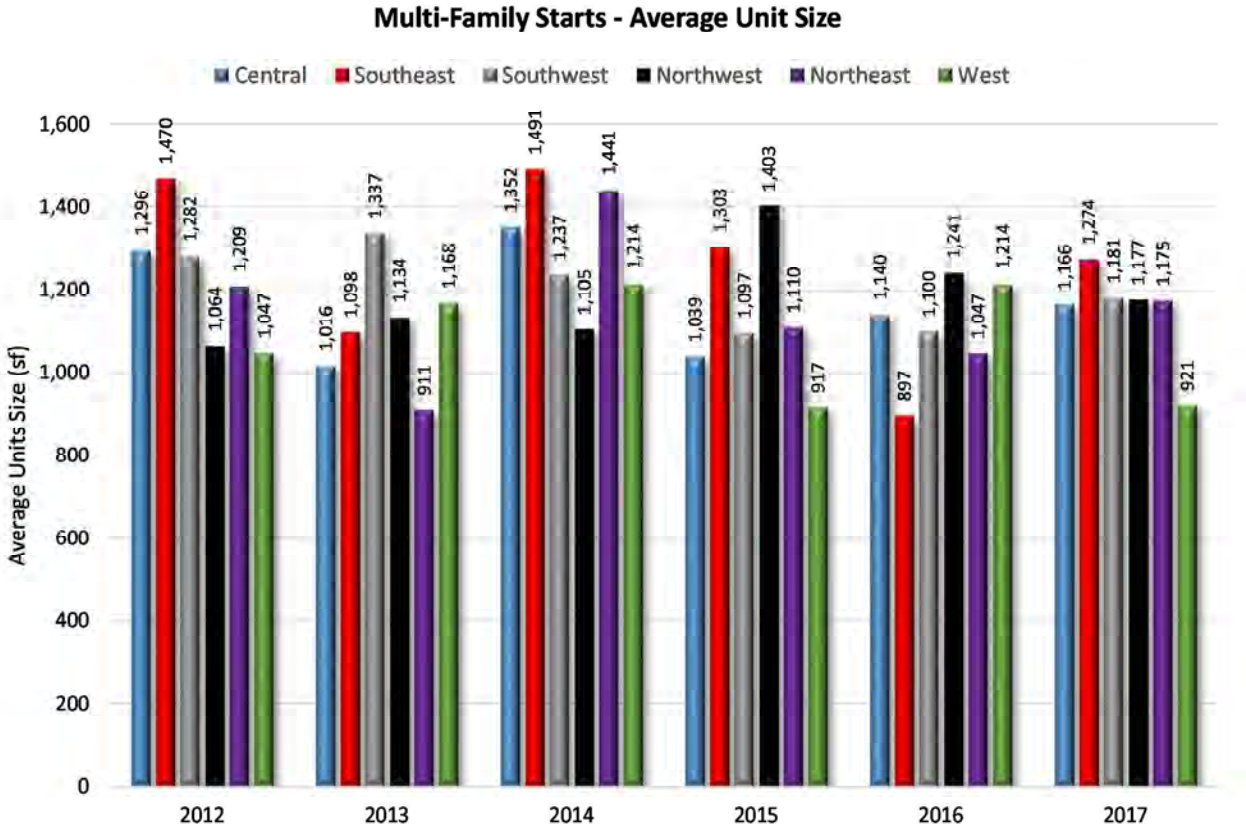
The past five years have been especially strong for new multi-family construction, with an average of 2,142 units added annually over this time period. The Southwest quadrant of the city has seen the most activity with an average of 685 units added annually over this period. The southeast quadrant, represented by the St. Vital and St. Boniface communities, has contributed an average of 325 units annually over this same period.

New Multi-Family Composition

Winnipeg New Multi-Family Starts - by Unit Type						
	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Row/TH Units	370	377	387	320	327	339
% of Total	20.5%	21.2%	13.3%	15.2%	15.5%	15.8%
Apartment Units	1,433	1,398	2,523	1,787	1,786	1,812
% of Total	79.5%	78.8%	86.7%	84.8%	84.5%	84.2%
Total	**1,803**	**1,775**	**2,910**	**2,107**	**2,113**	**2,151**



Winnipeg Multi-Family Starts - Average Unit Size						
	2012	2013	2014	2015	2016	2017
Central	1,296	1,016	1,352	1,039	1,140	1,166
Southeast	1,470	1,098	1,491	1,303	897	1,274
Southwest	1,282	1,337	1,237	1,097	1,100	1,181
Northwest	1,064	1,134	1,105	1,403	1,241	1,177
Northeast	1,209	911	1,441	1,110	1,047	1,175
West	1,047	1,168	1,214	917	1,214	921



Southeast Quadrant and Target Market New Construction

Within the southeast quadrant we have identified approximately 523 new multi-family units that have been either newly-constructed, under construction, or in the planning or conceptual stage. Many of the projects currently in the pipeline are small 4 – 8 unit developments. The larger, more significant projects are summarized below.

Project Details	Number of Units to be developed	Project Status
30 Chesterfield Avenue – Kinsmen Place – Affordsable Seniors Housing – Non-Profit	215 apartment units	Complete - leasing
130 Sage Creek Blvd – Sage Creek 55+ Apartments	102 apartment units	Under construction – 2018 completion
1936 St. Mary's Road – Riverstone Terrace Condominium (Phase 2)	43 apartment condos	Under construction
2008 – 2010 St. Mary's Road – The Enclave Phase 5 & 6	167 apartment units	Complete - leasing
Bluestem Condominiums – Sage Creek	75 townhouse units	>50% sold, Second phase under construction.
Total Units – Planned, Under Construction and Conceptual	**523 units**	

SENIORS RENTAL MARKET

In the Winnipeg market, senior's rental housing options include market 55+ apartment projects, subsidized apartment projects, co-operative housing, life lease, assisted living and personal care facilities. Each of the types of projects has its own particular characteristics that define its market niche.

Within this analysis we will recognize that the market for rental housing for seniors can generally be defined by four broad categories, 1) 55+ Rental projects, 2) Independent townhouse units Living projects, 3) Assisted Living projects, and 4) Personal Care projects. It is the first three categories, excluding government-licensed personal care facilities, that is the focus of our analysis.

55+ Rental

Rental units targeted for seniors include private seniors-market apartments and non-profit and co-operative government-subsidized housing projects. In general, subsidized rental units operate on a non-profit basis, where rents are subsidized based on the income of tenants. Although typically promoted as "55+" rental accommodations, the reality is that most tenants in this type of rental accommodation would be in excess of 65 years of age. In the Winnipeg market the privately initiated and "for profit" seniors projects are typically newer projects and command greater than average rental rates when compared to the general marketplace.

Independent and Assisted Living (Retirement Residences)

Independent living accommodations are targeted at seniors who are able to continue living at home but with a minimum of assistance. The independent living model typically would include additional services not offered in traditional rental structures such as meal service, housekeeping and laundry. This model has become very popular in recent years, resulting in a current inventory of approximately 3,100 residential units in 24 projects.

Construction within this sector flourished since 2000, with the inventory of units increasing by more than 300 percent in the Winnipeg marketplace. However over the past few years, in response to rising vacancy rates (particularly in the southwest quadrant) and a perceived market saturation, we have seen development within the sector slow considerably. New development in recent years include the River Ridge II Retirement Residence (180 suites), constructed in 2012/13, Kinsmen Place non-profit assisted living project (45 suites), developed in 2017 and the Bright Water Senior Living complex (133 units) which is currently under construction on Sterling Lyon Parkway.

It is expected that the slowdown in development within this sector is temporary and should resume as existing projects stabilize and more baby boomers enter their 70's and see retirement residences as a housing choice.

Vacancy – Independent Living Projects

Canada Mortgage and Housing Corporation (CMHC) conducts a senior's housing survey mid-year, annually. In ts most recent 2017 survey,[9] the vacancy rate in senior's rental apartments in the province of Manitoba stood at 4.0 percent, up from 2.7 percent observed in 2016. The survey considered the majority of retirement residence projects within the city, but excluded non-market/subsidy units, respite units, and units where an extra charge is paid for Heavy-care (1½ hours or more of care). The total number of such structures surveyed was 42, 33 situated within the City of Winnipeg and 9 located outside the Winnipeg CMA.

Within these structures there were 3,800 spaces located in the CMA and 595 in the rest of Manitoba bringing the total number of spaces in the provincial universe to 4,395, an increase of 5.3 percent from the 2016 survey.

These current inventory houses 4,751 residents, which represents a capture rate[10] equivalent to 5.4 percent of Manitoba's estimated population over 75 years of age. In 2016 the Manitoba capture rate was reported by CMHC at 5.2 percent, significantly lower than the national capture rate of 9.1 percent.

2.3 Universe, Number of Spaces, Number of Residents living in Universe and Capture Rate by Province

	Number of Residences	Number of Spaces	Number of Residents	Estimated Population Aged 75+[1,2]	Capture Rate[3] (%)
Newfoundland and Labrador	69	3,645	3,265	38,100	8.6
Prince Edward Island	28	1,210	1,150	13,916	8.3
Nova Scotia	37	1,544	1,545	77,200	2.0
New Brunswick	36	1,771	1,670	62,100	2.7
Quebec	1,263	114,117	118,324	641,764	18.4
Ontario	694	56,301	54,280	1,010,639	5.4
Manitoba	39	4,174	4,515	86,600	5.2
Saskatchewan	177	6,900	6,751	79,200	8.5
Alberta	112	12,211	12,261	213,200	5.8
British Columbia	357	30,605	31,228	361,678	8.6
Canada	**2,812**	**232,478**	**234,989**	**2,584,397**	**9.1**

[1]Due to the different sources of population estimates, figures do not sum to the Canada total.

New Construction 55+ Rental Projects

Since 2000, the majority of new construction projects focussed on the 55+ market segment have traditionally consisted of condominium, assisted living and life lease unit development. However, in recent years we have seen a trend begin for development of conventional rental projects targetted for the 55+ age cohort. Prairie Landing (Transcona), 130 Sage Creek Boulevard (Sage Creek) and The Parkway-Phase II (Lindenwoods) represent recently completed 55+ apartment rental projects that fit this profile. Both are associated with existing assisted living projects and are seen within the senior's housing industry as a move towards offering the full continuum of care (rental/assisted living/personal care) in a single location.

[9]CMHC Senior's Housing Report - Manitoba, 2017
[10]The capture rate is the proportion of the population aged 75 and over, living in the survey universe.

The Sage Creek project, scheduled for completion in 2018 and currently in the lease-up phase, will add another 102 units to the 55+ apartment rental universe.

The majority of newer market rental projects have not been targeted specifically at the seniors market, but rather the larger general marketplace.

Locational Analysis for Placement of Seniors Rental Apartment Units

The matrix presented in the table below presents a summary ranking of Winnipeg's four quadrants based on total populations, senior's populations and current inventories of rental units. It should be noted that the inner city neighbourhood apartment inventories are included in the Winnipeg CMA totals but not included within the quadrant areas.

	SW Quadrant	SE Quadrant	NW Quadrant	NE Quadrant	Winnipeg CMA
Total Population	156,449	130,121	167,553	117,409	810,825
Rank	2	3	1	4	
Total Population 65+ Cohort	25,717	20,606	25,677	19,439	123,539
Rank	1	3	2	4	
Total Population 55+ Cohort	45,975	37,852	47,034	34,728	217,597
Rank	2	3	1	4	
Independent Living Units	1,368	726	860	514	3,468
Rank	1	3	2	4	
IL Units per 1,000 population 55+	29.8	19.2	18.3	14.8	15.9
Rank	1	2	3	4	
Market Apartment Units	7,069	8,750	10,557	8,653	55,441
Rank	4	2	1	3	
Total Apt Rental Units (Mkt & IL)	8,437	9,476	11,417	9,167	58,909
Rental Units per 1000 pop'n 55+ Cohort	183.5	250.3	242.7	264.0	270.7
Rank	4	2	3	1	

The results of the analysis presented above suggest that in the Winnipeg marketplace there currently exist approximately 271 apartment units (market apartments and independent living or retirement residence apartments) per 1,000 of the 55+ cohort population.

The southeast quadrant (target market area) has the second highest ratio of rental units per 1,000 55+ cohort population, falling below the ratio exhibited by both the CMA and the Northeast quadrant.

At a ratio of 250 units per 1,000 55+ cohort, it appears that there could be some opportunity for development of new senior's housing units within the target market.

It should also be recognized that the southeast quadrant is comprised of two neighbourhood community areas – St. Boniface (where the subject site is located) and St. Vital.

The following table illustrates the distribution of apartment units within these southeast market neighbourhoods and clearly indicates the higher density of apartment units within the St. Boniface neighbourhood area. On a comparative basis, the St. Vital community appears to have better potential for development of new apartment rental housing units available for the senior's market segment.

	St. Boniface	St. Vital	SE Quadrant Total
Total Population	58,617	71,504	130,121
Total Population 65+ Cohort	8,148	12,459	20,607
Total Population 55+ Cohort	15,352	22,500	37,852
Independent Living Units	242	484	726
IL Units per 1000 population 55+	15.8	21.5	19.2
Market Apartment Units	4,597	4,153	8,750
Mkt Apt Units per 1,000 pop'n 55+ Cohort	299.4	184.6	231.2
Total Apt Rental Units (Mkt & IL)	4,839	4,637	9,476
Rental Units per 1,000 pop'n 55+ Cohort	315.2	206.1	250.3

Based on the existing inventories and population estimates within the southeast quadrant, it is suggested that there may be a current opportunity for development of additional assisted living or independent living units within the quadrant in general, but certainly within the St. Boniface neighbourhood area.

It should be noted however, that although the need and demand for this housing sector may be met temporarily within certain sectors of the city, demographic forecasting supports significant opportunities for development over the longer term.

It is also noted that seniors are most effectively housed in suburban low-rise structures with ample grounds for recreation. There is (some may say, a well-founded) perceived safety factor in the inner-city areas that would likely be an impediment for development within central neighbourhoods. Also it should be recognized that it would be very challenging, and likely not successful, to combine seniors with market housing tenants in any new development.

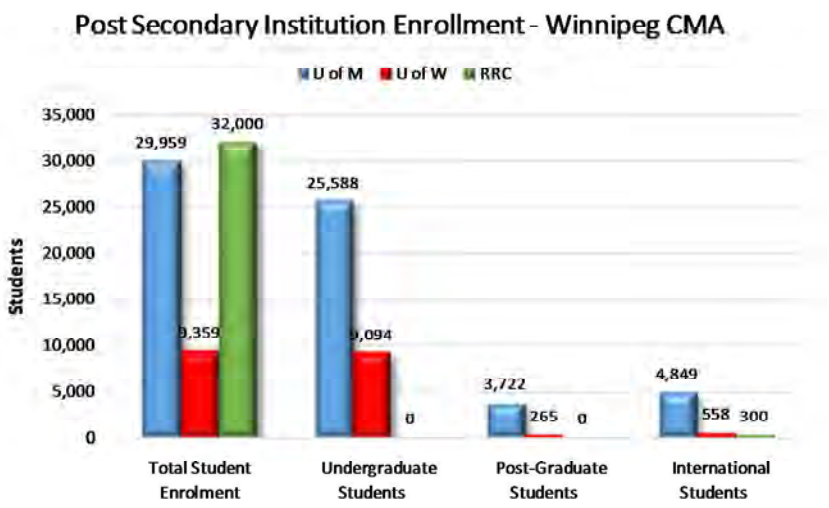
STUDENT HOUSING

Student housing in Canada is a growing market, but it is at least 10 years behind the US with respect to its relative size and available offerings. In fact, the US has 10 times the number of student housing units on a per capita basis. According to CMHC research, most post-secondary institutions have very low vacancy rates, and some housing options are filled to capacity. Even though enrolment is increasing year to year, many post-secondary institutions have no immediate plans to increase the number of student housing units. This means that there is a lot of room for growth and opportunities for private developers and property managers.

Today's college and university students have many housing options available to them, including renting a unit in purpose-built student housing. These properties are very similar to apartment buildings, but they are aimed at housing students. The buildings are typically located on or near college and university campuses, and are often part of a larger community of student residences. Student housing is designed with the students' interests in mind, and includes amenities geared to them, such as access to public transportation, study rooms, exercise and entertainment areas, Wi-Fi, staffing and security. The current UWCommons development being constructed by the University of Winnipeg, fits this model and offers a mix of "affordable" and "market" units.

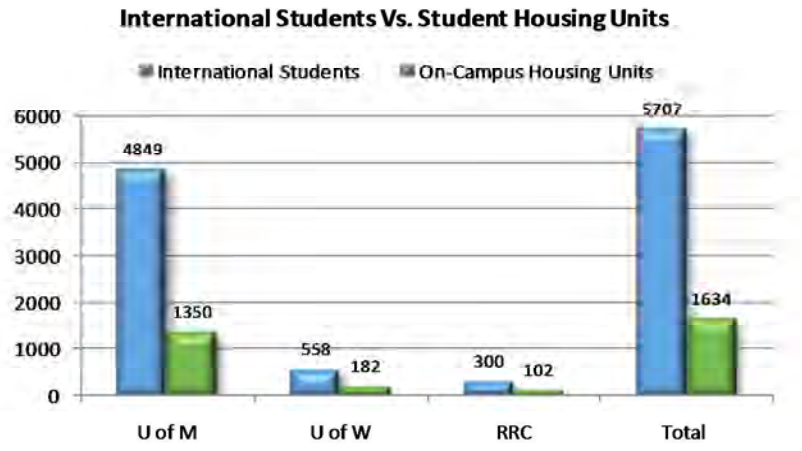
In the southwest, with close proximity to the University of Manitoba, housing for foreign students has been a significant factor in occupancy of both condominium units and rental housing.

There are three major post-secondary education institutions located within the Winnipeg CMA; The University of Manitoba (U of M), The University of Winnipeg (U of W) and Red River College (RRC).



Red River College has the largest student enrollment with 32,000 students in 2015, the majority of which are local students and many of which are considered to be part-time. The U of M has a total enrollment of 29,959 in 2015, while the U of W has a total enrollment of 9,359 students. RRC is a technical college offering diploma and certificate programs, while the U of M and U of W are well recognized Canadian Universities offering a vast array of undergraduate and graduate degree programs.

Of particular interest to our analysis is the amount of international students at each institution, as they are most likely to require accommodations while they are attending school. International students are the fastest growing student population demographic in Winnipeg, with international student populations increasing at a rate of 8.0 percent per year. It is also recognized that some local students may also require housing options, especially if they come from an area outside of the Winnipeg CMA. The U of M has the highest number of international students at 4,849, while the U of W and RRC enroll 558 and 300 each respectively for a total of 5,707 international students between these institutions.



On-campus student housing options are relatively limited at all three institutions. The U of M has the inventory to accommodate 1,350 students in on-campus residence. These spaces are spread out between four primary residence buildings, all located at the U of M's Fort Garry campus. Examining only at international students, this would leave approximately 4,357 students looking towards the general market for accommodations.

With regards to the U of W, the current student housing inventory is estimated to be approximately 70 to 80 units. These units are spread out between the newly constructed McFeetors Hall, Lions Manor and a set of four houses on Balmoral Street, just south of St. Mary Avenue. The arrangements within Lions Manor and the Balmoral Street houses are less than ideal for student living as they are aging and are a fair distance from the campus and its learning resources. As a response to their less than ideal student housing arrangements, the U of W recently broke ground on a new 14-storey, 102 unit apartment development at 320 Colony Street adjacent to the U of W's Buhler Centre. Of these 102 units, 46 of them will be geared towards affordable student housing. Of those 46 units, 32 will have the rental rates geared towards income levels. The remaining 56 units will be available to the community as general market apartment units. The building is slated for occupancy in the fall of 2016.

Red River College has not traditionally offered student accommodations in the past, but as their international and out of Province population continues to rise, RRC recently decided to add a student residence component to their expanding downtown campus in the Exchange District. Recently, RRC added a student housing option within its Paterson Global Foods Institute (former Union Bank Tower) at 504 Main Street. The student residences consist of 102 units occupied mostly by "out-of-town" students. Of these out-of-town students, it is estimated that 1/3 (or 34 units) are occupied by international students.

A business case could be explored further looking into the economics of student housing viability. However, certain challenges exist within the student housing model, including the terms of rental agreements with students typically only attending class eight months of the year. In addition, many students are living away from home for the first time, and they might not have much experience with living in a rental property. They must learn to co-exist with

virtual strangers in a relatively small living space. People and personalities can conflict, and that can lead to difficult situations, which can have an impact on the property. Also, students are often living in their first real home away from home, so it becomes a learning experience for everyone involved.

Based on the observations of inventories and student demographics, it appears to be a market that is underserved. In addition, this is a market that has grown at a rate of approximately 8.0 percent annually over the past five years, and is projected to continue to grow. It appears as though an opportunity exists to capitalize on this uniquely underserved market in the form of rental accommodations.

Buildings designed specifically for student housing have different layouts and amenities than most apartment buildings. One key difference is the bed-bath ratio. A typical two- or three-bedroom rental unit might have one or two bathrooms. However, a newer student housing unit would likely be built with one bathroom for every bedroom to achieve bed-bath parity, and some units could include five bedrooms. Kitchens are typically smaller and designed to be used by more people than would occur in an apartment unit.

Student housing units also tend to have smaller bedrooms, so the cost per unit is lower compared to a typical apartment unit based on bedroom sizes. However, student housing buildings will also have more amenity-focused spaces, such as movie theatres, soundproof music rooms, gyms, games rooms and lounges, study and meeting rooms. They also have less available parking per unit, so there is less space allocated for vehicles in student housing.

There is a growing trend in some markets to provide more upscale student housing options with more available amenities. Units are becoming more lavish, with higher end finishes in kitchens and bathrooms, granite countertops, hardwood floors and other features. Bed-bath parity is becoming practically mandatory, as well as bike storage, fully wired or wireless buildings, attractive landscaping and more.

Millenials, or young adults born between 1981 and 2000, represent approximately 30 percent of the Canadian population and are expected to comprise approximately 75 percent of the workforce within the next 15 years. More than 60 percent of those aged 25 to 34 currently rent their living accommodations, with a significant percentage of millennials opting to rent in high-demand urban neighbourhoods rather than more traditional housing options in the suburbs.

Two important factors need to be considered in determining the potential for student-based housing development:

a) The proximity of the site to campus
b) The proximity and development of the City's Rapid Transit System

If a direct rapid transit link to downtown and the U of M is created(at the time of writing, the Eastern BRT corridor alignment was in the planning stage), the subject site could possibly be a viable option for market apartment development catering to the student lifestyle. It is recommended that a business case should be explored further looking into the economics of student housing viability. Certain challenges exist within the student housing model, including the terms of rental agreements with students typically only attending class eight months of the year. Based on the observations of inventories and student demographics, it appears to be a market that is underserved.

In addition, this is a market that has grown at a rate of approximately 8.0% annually over the past five years, and is projected to continue to grow. It appears as though an opportunity may exist to capitalize on this uniquely underserved market in the form of rental accommodations.

VI – CONDOMINIUM MARKET ANALYSIS

In recent years the average price of a condominium unit in the Winnipeg marketplace has escalated from $222,105 in 2012 to $247,204 at the end of October 2017. The average annual price increase for condominiums over the past five years has been approximately 3.6 percent.



After more than a decade of year-over-year price increases, the Winnipeg market exhibited a decrease in average condo prices in 2015. The average price for a condominium unit declined 2.0 percent, from $243,255 in 2014 to $238,236 in 2015. In the ensuing period, the average condominium price has rebounded by 1.0 percent in 2016, followed by an increase of 2.8 percent to October 2017.

Winnipeg Condominium Sales (2007 - 2017 YTD) - All Condo Units					at November 9 2017	
	2012	2013	2014	2015	2016	2017 (Jan-Oct)
Average Sale Price	$222,105	$236,255	$243,096	$238,236	$240,544	$247,204
Year/Year % Change	*10.0%*	*6.4%*	*2.9%*	*-2.0%*	*1.0%*	*2.8%*
Average Size (sf)	1,026	1,026	1,058	1,050	1,065	1,068
Average DOM	30	16	24	47	45	40
Number of Sales	1,387	1,589	1,627	1,490	1,562	1,398
Year/Year % Change	*-7.0%*	*14.6%*	*2.4%*	*-8.4%*	*4.8%*	*-10.5%*
Avg SP/sf	$216.44	$230.27	$229.77	$226.89	$225.86	$231.46

Condo sales activity (i.e. the number of units sold on MLS) also declined in 2015, decreasing from 1,627 units in 2014 (representing the peak of condo activity in recent history) to 1,490 units in 2015. However, sales activity rebounded to 1,562 units in 2016 and if sales are prorated to year-end, should exceed 1,650 units is 2017.

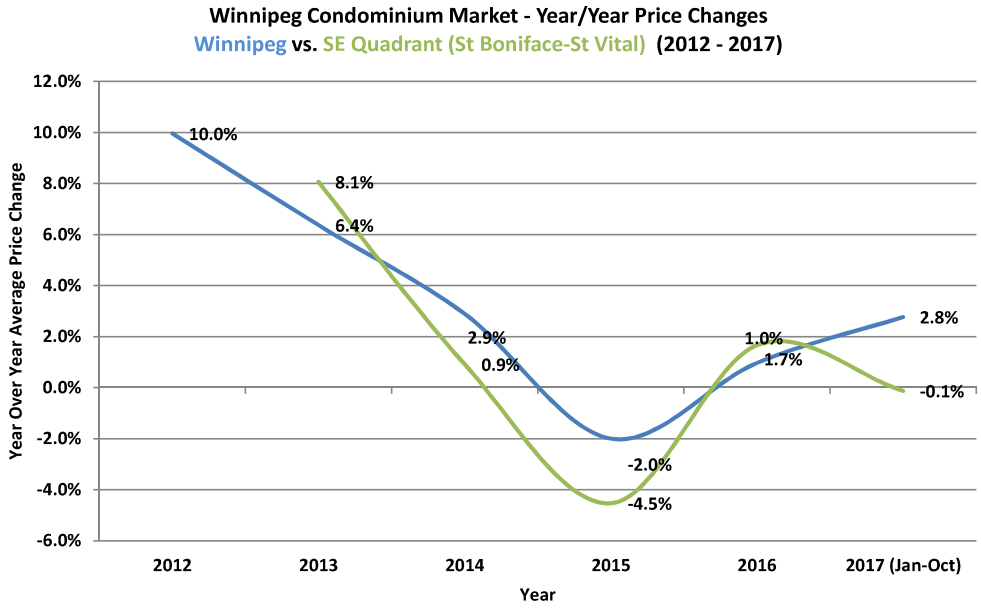
Over the same five year period, marketing periods (measured by days on market or DOM statistics) have averaged 32 days for the Winnipeg marketplace. However, they have fluctuated more dramatically in recent years. In 2012, the average condominium sold after 30 days on the market. In 2013, this was reduced to a low of 16 days on the market. 2014 saw the number rise to 24 days on the market. In 2015 and 2016, marketing periods increased to 47 and 45 days respectively. To the end of October 2017, the average marketing period has been 40 days.

These trends confirm the cooling off after 2014, but also the rebound in 2016/17. Listings are sitting on the market for longer periods of time, and average sale prices are increasing at more moderate rates. In light of these factors, the continued strength in sales volumes suggests that lower priced suburban units may be making up a larger portion of condo market activity.

While all areas have exhibited increases in condominium sales prices over the past five years, the two suburban south quadrants (SE and SW) in particular, have seen consistently strong price increases and considerably higher increases in absolute price growth. Within the target southeast quadrant, average sale prices over the past five years have been approximately 11.5 percent higher that the corresponding overall City market averages.



The chart below depicts year-over-year average price movement trends for both the City overall and the southeast quadrant. As can be seen from the graph, the city-wide market experienced a significantly greater downturn that the southeast quadrant in 2014 and 2015.



Southeast Quadrant Condominium Market

Condominium sales[11] in the southeast marketplace have averaged 331 units per year over the past five years. Historically, the condo sales activity within the southeast market represents approximately 21 percent of the sales activity within the Winnipeg marketplace.

SE Quadrant Condominium Sales 2012 - 2017 YTD - All Condo Units				*(MLS Areas 2A-2M)*			
		2012	**2013**	**2014**	**2015**	**2016**	**2017 (10 mos.)**
Average Sale Price		$249,696	$269,841	$272,315	$259,976	$264,286	$263,942
Year/Year % Change			*8.1%*	*0.9%*	*-4.5%*	*1.7%*	*-0.1%*
Avg SP per sq.ft.		$229.71	$244.64	$240.14	$233.16	$232.24	$232.34
Average Size (sf)		1,087	1,103	1,134	1,115	1,138	1,136
Average DOM		31	27	40	46	43	46
Number of Sales		266	392	385	320	293	245
Year/Year % Change			*47.4%*	*-1.8%*	*-16.9%*	*-8.4%*	*-16.4%*
Sales% of City Activity		*19.2%*	*24.7%*	*23.7%*	*21.5%*	*18.8%*	*17.5%*
Price Spread: SE Quadrant/City		12.42%	14.22%	12.02%	9.13%	9.87%	6.77%

These statistics represent sales of all condominium units and includes both new and existing units, as well as apartment, townhouse and semi-detached units.

Based on average sale prices in 2017 YTD, the average condominium unit in the southeast marketplace sold for approximately 6.8 percent more than the average condominium unit in the greater Winnipeg market. As indicated on the previous page, over the past five years this spread has been closer to 11.5 percent.

Based on selling prices per square foot, southeast quadrant condominium units typically sell at higher rates than those in the greater Winnipeg market. The five year average sale price per square foot for the southeast quadrant is $235.98, compared to $225.46 for the overall Winnipeg marketplace.

[11] Based on Winnipeg Real Estate Board MLS Statistics

New Apartment Condominium Sales

To the end of October 2017, 159 new apartment condominium units were sold on MLS in the City of Winnipeg. Projected to year-end, the estimate for 2017 could reach approximately 190 new units. The total number of projected sales represents a decrease of approximately 17 percent from 2016 (229 sales).

New Apartment Condominium Sales (2015 - 2017)						Source: WREB MLS	
	2015		2016		2017 (Jan-Oct)		
	Winnipeg	SE Quadrant	Winnipeg	SE Quadrant	Winnipeg	SE Quadrant	
Average Sale Price	$282,687	$298,134	$306,047	$347,366	$301,727	$319,756	
Average Size (sf)	988	1,031	1,042	1,227	1,029	1,152	
Average DOM	69	75	46	46	58	86	
Average SP/sf	$286.12	$289.17	$293.71	$283.10	$293.22	$277.57	
Number of Sales	200	52	229	35	159	24	
% of City Overall Condo Sales	13.4%	3.5%	14.7%	2.2%	11.4%	1.7%	
% of City New Apt Condo Sales		26.0%		15.3%		15.1%	
	Winnipeg	SE Quadrant	Winnipeg	SE Quadrant	Winnipeg	SE Quadrant	
Overall MF Construction (units)	2,107	149	2,113	200	2,151	248	
Market Share - New Condo Apartment Units		7.1%		9.5%		11.5%	

Within the target southeast quadrant, projections to year-end 2017 estimate a total of 29 new apartment condo sales, representing a decrease of approximately 17 percent over 2016 levels. In 2015 and 2016, new apartment condo units sold in the southeast represented 26 and 15 percent respectively, of the overall market activity for Winnipeg.

In 2016 the average price for a new apartment condominium unit in the southeast marketplace was $347,366 compared to $306,047 in the overall Winnipeg market. However, based on price per square foot, the southeast sales actually sold for a slightly lower rate ($283 vs. $293 per square foot). Over the first ten months of 2017, the spread still exists - $278 per square foot in the southeast, versus $293 for the city overall.

The majority of 2016 and 2017 new apartment condo sales within the southeast quadrant are situated within the south St. Vital neighbourhoods.



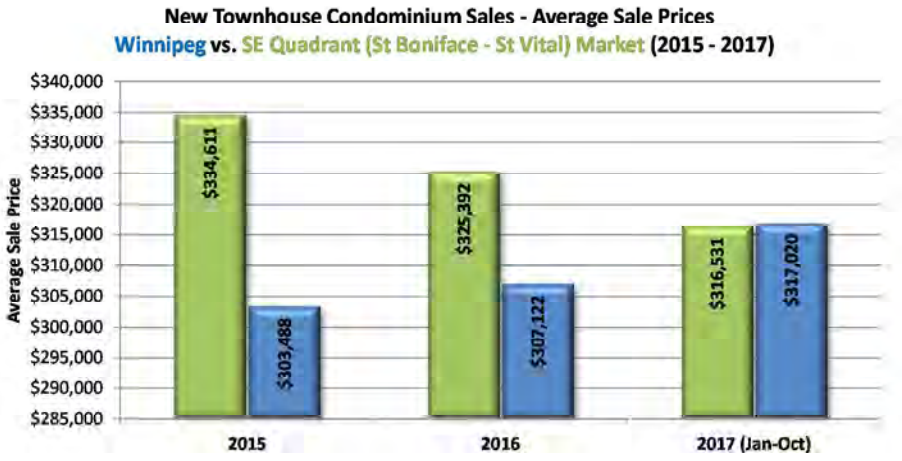
New Townhouse Condominium Sales

In addition to the new apartment condominiums that have been developed, there is an active and growing market for townhouse style condominium units which are typified by larger livable floor areas and present affordable alternatives for family housing in new or emerging neighbourhoods.

New Townhouse Condominium Sales (2015 - 2017)								Source: WLTO
	2015			2016		2017 (Jan-Oct)		
	Winnipeg	SE Quadrant		Winnipeg	SE Quadrant		Winnipeg	SE Quadrant
Average Sale Price	$303,488	$334,611		$307,122	$325,392		$317,020	$316,531
Average Size (sf)	1,296	1,516		1,323	1,429		1,297	1,433
Average DOM	72	14		61	31		48	69
Average SP/sf	$234.17	$220.72		$232.14	$227.71		$244.43	$220.89
Number of New TH Condo Sales	71	17		68	8		74	4
% of City Overall Condo Sales	4.8%	1.1%		4.4%	0.5%		5.3%	0.3%
% of City New TH Sales Activity		23.9%			11.8%			5.4%

Over the first ten months of 2017, 74 new townhouse-style condominium units were sold on MLS in the City of Winnipeg, with 4 of the sales (5.4 percent) situated in the southeast quadrant. In 2015 and 2016 the market share for the southeast quadrant for new townhouse sales was 23.9 percent (17 sales) and 11.8 percent (8 sales) respectively.

In 2017 the average price for a new townhouse condominium unit in the southeast marketplace was $316,531 compared to $317,020 in the overall Winnipeg market.



In 2017 the majority of new townhouse sales in the southeast quadrant are located within the Riverstone Terrace project situated at 1926-36 St. Mary's Road and The Woods at Creekbend at 89 Creekbend Road, both situated in south St. Vital.

VII –CONCLUSIONS – RESIDENTIAL MARKET

At the initiation of this study we identified the purpose of the study as focussing on the potential development opportunities and options for the Public Markets site redevelopment concept.

In the analysis carried out, we have examined factors that could guide the development planning of the Public Markets residential site concept. We have examined the current state and metrics of those market sectors considered to hold the potential for low to medium density multi-family residential development within the context of the Public Markets site redevelopment conceptual plan.

In general, economic conditions at both the national and local scale favour the long-term development potential of the site.

Based on the analysis carried out in previous sections of this report we will develop a set of conclusions that should assist in identifying the market sectors that should comprise the planned residential development. The "depth" of each market sector or sub-market will be considered and discussed, with a final recommended distribution of potential housing units developed in the process.

Population - Primary Factor Affecting Demand

The Conference Board expects Winnipeg to absorb about 9,000 international immigrants per year between 2017 and 2035. All in all, total population growth is set to average 1.2 to 1.3 percent per year over the long term, a rate faster than the 1 percent expected for Canada as a whole.

Based on the CBC forecast, the population in 2035 for the Winnipeg CMA is estimated at 1,001,942. Assuming a stable distribution of residents within the CMA, the 2035 population of the southeast quadrant is estimated at 164,769, representing a population increase for the study area of approximately 31,838 residents (24 percent increase from the estimated 2017 TM population).

In 2017 the average household size within the CMA is estimated at 2.53 persons per household. Within the southeast quadrant, the average household size is estimated at 2.49 persons per household.

The Conference Board forecasts that by 2035 the average household size in the Winnipeg CMA will decrease to 2.36 persons per household.

For the southeast quadrant an average household size of 2.4 will be projected for 2035. Within the Public Markets redevelopment concept, acknowledging the higher expected density of development, projection of an average household size of 2.20 persons per household is considered reasonable for the purpose of this study.

Potential for New Multi-Family Housing - Rental Market

With respect to the development potential for apartment units in the Winnipeg marketplace in general, we would recommend that the developer consider the long-term trends for housing as forecast by the Conference Board of Canada. Acknowledging that residential investment is expected to stay healthy in the long run and that housing starts are expected to increase further, exceeding 5,000 units by 2035, it is also important to understand the likely structural adjustment that will result from the aging population. As most elderly people will opt to live in apartment buildings or retirement homes the demand for multi-family dwellings will increase, while the demand for single-family dwellings will start to fall off. The CBC predicts that before the end of 2026, the number of new multiple starts is expected to surpass the number of new single starts.

Although the CBC projects multiple starts to make up 52 percent of total housing starts in Winnipeg by the end of the forecast, actual multi-family starts have exceeded 50 percent in each year since 2012, save for 2013 (45.5 percent). During the past five years (2012 – 2016), multi-family construction has comprised an average of 54.4 percent of housing unit starts citywide and 50.8 percent of housing starts within the southeast quadrant.

Over the first nine months of 2017, multi-family construction has comprised an average of 53.3 percent of housing unit starts citywide and 59.0 percent of housing starts within the southeast quadrant.

Southeast Quadrant - Study Area

Based solely on the forecasted net population increase within the southeast quadrant (31,838 added to 2035), and assuming an average suburban household size of 2.4 persons per household, demand for an additional 13,266 housing units would be forecast over the 18-year period. The new units would account for all new housing starts, including single and multi-family dwellings.

Therefore the long term average annual dwelling unit demand for the southeast quadrant is estimated at approximately 737 new housing units per year.

Based on an estimated share of 55 percent of housing starts being for multi-family, it is then estimated that 7,296 multi-family units or 405 multi-family units per year, over the next 18 years, will be required to meet the projected population increases in the southeast quadrant.

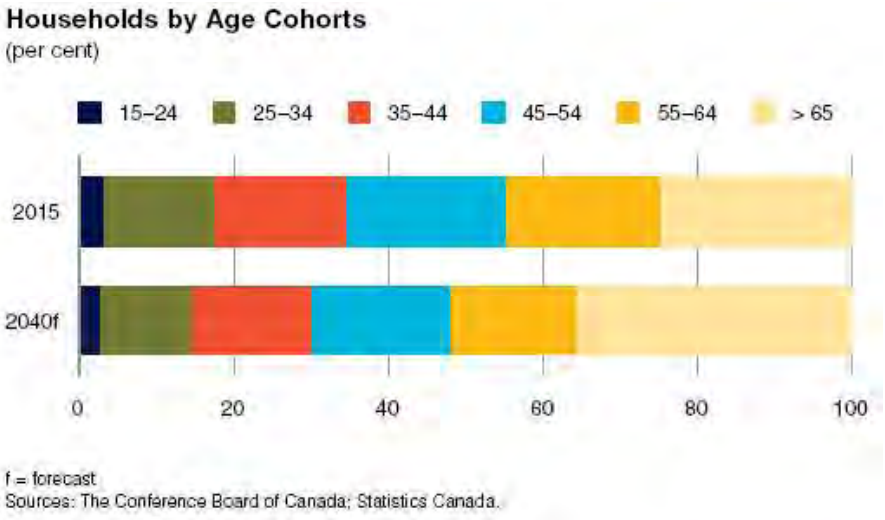
If the current inventory of 523 new and planned multi-family units is considered and long-term demand is adjusted accordingly, the long-term demand for an additional 6,773 multi-family units, or 376 units per year, is projected.

Total new housing construction within the southeast quadrant has averaged approximately 21 percent of total new construction in the Winnipeg CMA over the past five years, equating to 710 new units per year. The 13,266 units forecast from population increases translates to an annual new housing of 737 units per year to 2035. Therefore the forecast strongly correlates to recent building activity observed. Although housing starts over the past five years have been “booming” by historic standards, the forecast is generally supported by the CBC forecast for housing, which calls for annual housing starts within the CMA to increase to approximately 5,000 units by 2035. The CBC rationalizes the increase in new housing will be needed to satisfy demographic requirements.

55+ Housing Demand – Target Market

In 2017 it is estimated that 29.8 percent of the southeast target market population falls within the 55+ age cohort. By 2022, it is estimated that this percentage will increase to approximately 31.1 percent and by 2035 to approximately 35.0 percent .

Within the target market, the median age of primary household maintainers is 51.8 years. There are currently 22,905 households within the target market that have the primary maintainer age 55 or greater. This represents 43.7 percent of the total households within the market. This number is projected to increase to 45.6 percent, or 25,428 households by 2022, and further to approximately 47.0 percent or 32,267 households by 2035 .



Also, if we examine 2017 estimated income characteristics for the target market population, it is found that approximately 63 percent of households have incomes in excess of $60,000 [12]. It would be expected that the 55+ cohort would typically have home equity and savings that would supplement their reported income levels. Making the assumption that going forward, new household formation within the target market area will be comprised of higher earning individuals, we will project 75 percent of new 55+ households having the ability to rent new apartment units.

Therefore the long term (to 2035) 55+ dwelling unit demand from new residents to the target market is estimated as follows:

Potential Demand for 55+ Housing Units from TM Population Increase (2035 Forecast)

(6,773 potential new households x 35% 55+ mkt share) x 75 percent affordability = 1,778 MF units

Over the long-term forecast period an average annual demand for new 55+ multi-family units is estimated at approximately 99 units.

The demand will be met by development of new rental apartments, condominiums apartments, townhouses, etc.

[12]Assuming an average rent for new units of $1500 monthly and a Total Debt Service Ratio of 32%, an annual income of approximately $56,250 would be required to attain affordability.

Composition of Future Multi-Family Housing Units

With respect to the composition of development within the planned subdivision we would recommend that the developer again consider the long-term trends for housing as forecast by the Conference Board of Canada. Acknowledging that residential investment is expected to stay healthy in the long run and that housing starts are expected to increase further, coming in at about 5,000 units annually by 2035, it is also important to understand the likely structural adjustment that will result from the aging population. As most elderly people will opt to live in apartment buildings or retirement homes the demand for multi-family dwellings will increase, while the demand for single-family dwellings will start to fall off. Increased levels of immigration will also fuel the ongoing demand for rental units within the CMA.

Over the past five years (2013-2017 YTD), apartment units have comprised 82.3 percent of multi-family unit construction in the City of Winnipeg and 70.4 percent within the southeast quadrant. Apartment units would be considered a generic classification that would include primarily market rental apartments, seniors rental units and apartment condominium units.

During the same five year period, row-townhouse units have comprised 24.2 percent of multi-family unit construction in Winnipeg and 29.6 percent within the southeast quadrant.

The Public Markets redevelopment concept includes 932 new multi-family units to be developed over a five to ten year development period, suggesting an average of 93 - 186 new units annually over the development period. It has been illustrated that, based on an analysis of market metric projections, that the long term demand within the southeast quadrant should support development of 376 new multi-family units per year to 2035.

Acknowledging that new multi-family development is ongoing in the Sage Creek neighbourhood and will be a significant component of the new BoniVista neighbourhood in the southeast quadrant, it is reasonable to assume that the Public Markets site should be able to command a fair share of approximately 33.3 percent of the southeast quadrant potential over the development period. Therefore we project potential average annual multi-family development for the Public Markets site at 125 units.

Based upon our analysis of both current and projected market metrics, the recommended projection of development should be based upon the following general distribution:

Unit Type	Percentage of Development	Number of MF Units Developed Annually	Sub-markets potentials
Apartments	75 percent	Total 699 units	• Market rental • Condominium apartments • Senior's Rental • Student Housing
Row-Townhouse	25 percent	Total 233 units	• Family Housing - Rental & Condo • 55+ Rental & Condo
Total Development	**100 percent**	**Total 932 units** **At 125 units per year, absorption period estimated at 7.5 years**	

Tenure of Development - Rental versus Ownership (condominium)

An examination of City of Winnipeg building permit data suggests that apartment and row-style condominiums have historically made up approximately 35 percent of the city's multi-family development. 2017 permits over the first three quarters generally lend support to the trend with approximately 37.7 percent of new units permitted being condominium tenure.

Based on City of Winnipeg building permits, condominium development has averaged approximately 742 units annually since January 2014, or approximately 37.5 percent of multi-family units permitted/developed.

Within the southeast quadrant, condo development has been erratic in recent years but tends to favour the development of rental units. In 2016, 94.3 percent of the multi-family units developed were within rental projects. At the end of Q3 2017, 80.2 percent of multi-family units developed were rental.

In a low to medium density development such as the Public Market concept, in recognition of both market trends and longer-term projections regarding market demand, we would suggest a tenure distribution of approximately 80 percent rental and 20 percent ownership (condominium).

Sub-market Housing Type Distribution

Considering that the Public Markets site redevelopment project is currently in the conceptual stage, the longer term forecast may be of greater significance than a more imminent or near-term project. When considering the multi-family rental market in comparison to other development options (i.e. condominium), it may be reasonable to be more aggressive in planning for multi-family development comprised of market rental units.

Specific potential exists with apartment projects geared towards affordable units, seniors rental (without services) and general market rental units. The first category is challenging for new development without government assistance but can be achieved through development of smaller sized rental units.

Seniors housing demand can be met through development of either condominium apartments or rental apartments geared towards the 55+ demographic. The general market rental apartments can serve all age cohorts and are especially appealing to young families and seniors who are not able or interested in entering the housing market.

After consideration of the current and forecast market factors that will affect development of the Public Markets site redevelopment project, the table presented on the following page is presented as a recommended distribution of development options and is considered appropriate based on the conceptualized multi-family development potential of 932 residential units.

MARKET RENTAL	Number of Units		CONDOMINIUM	Number of Units
General Market Rental Apartments	359 units (could include affordable housing)		**General Market Apartment Condo**	140 units
Seniors Housing				
55+ Rental	100 units			
Assisted Living	100 units (1 project)			
Row-Townhouse Rental	186 units		**Row-Townhouse Condos**	46 units
Student Housing	Dependent on transit connectivity (potential for 50 units)			
Recommended Total Rental Unit Development	**745 units (80% of Unit Development)**		**Recommended Total Condo Unit Development**	**186 units (20% of Unit Development)**

Although it is expected that the typical purchaser within the Public Markets redevelopment site will be affluent (almost 60 percent will have annual household incomes in excess of $100,000), the age cohorts are expected to be greatly influenced by seniors and will likely be quite a different profile than that found in a typical residential subdivision. Likewise for household sizes, where the low to medium density development and predominance of apartments will likely result in an average household size falling at or around 2.20 persons per household. Furthermore, approximately 25 percent of the neighbourhood would be expected to represent visible minorities, with Asian origins likely comprising the largest composition.

VI – COMMERCIAL PROPERTY

The Public Markets conceptual plan proposes approximately 13.62 acres of C2 land to be developed for commercial uses. Accordingly we have carried out an analysis of the current and predicted future supply and demand for C2 land, and the commercial uses which will occupy it.

Commercial property will be broadly broken down into two categories in this report, office, and consumer focused or "retail" property (consisting of retail, restaurant, and professional service).

Our analysis will examine the existing supply of commercial property, the rate at which the market is able to absorb commercial property, anticipated future supply and competition for the subject property, and finally the expected rate at which the commercial property for the proposed development should be absorbed into the marketplace.

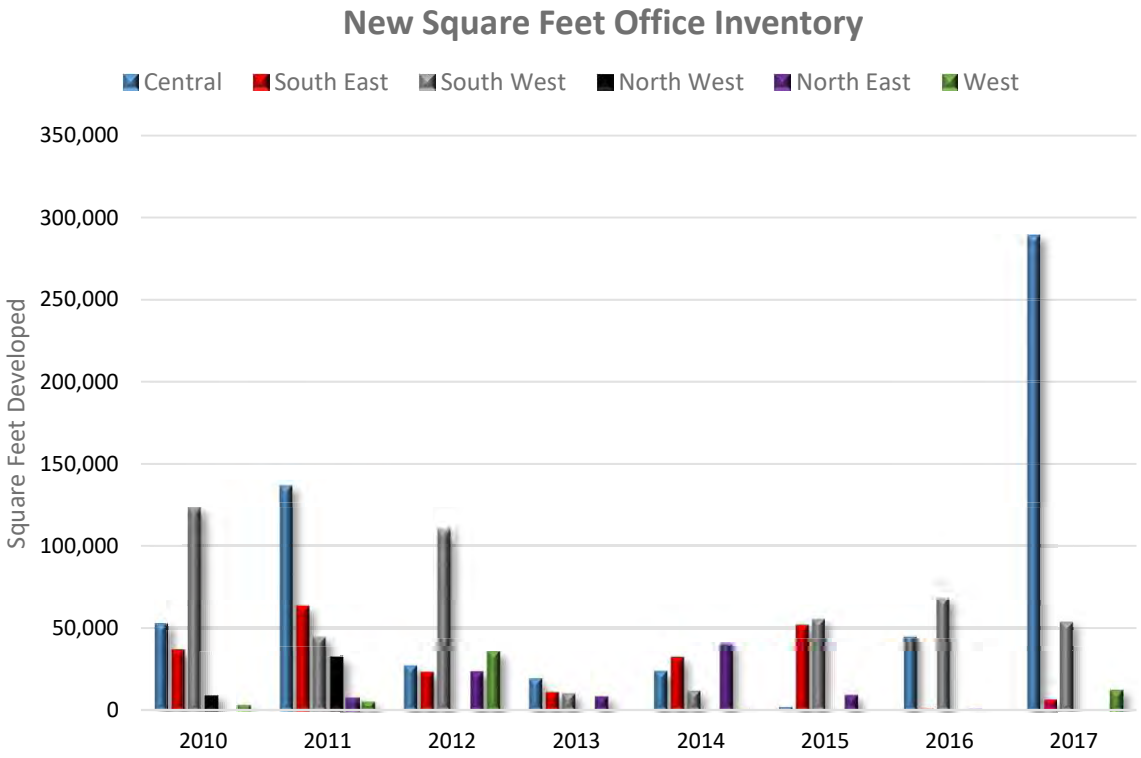
OFFICE PROPERTY

Historically Winnipeg's office inventory has been located primarily downtown, and while the vast majority of Winnipeg's office space is still in the downtown area recent years have seen increases in the percentage of leasable office space in suburban locations.

As shown in the chart on the following page, Winnipeg's downtown has had two very substantial years of development. However on an overall basis in recent years, southwest Winnipeg has been accountable for slightly more new inventory than downtown, with the southwest providing 34% of the City's new office inventory over the last 8 years compared to the downtown's 33%. The southeast quadrant falls in line as the 4th most active area in terms of new office development, having provided 16% of Winnipeg's new inventory.

Of particular interest with Winnipeg's new office inventory in suburban locations, is the percentage of new development versus percentage of overall development. Southwest Winnipeg has contributed 34% of the new office stock on average since 2008, yet it only makes up 16% of Winnipeg's commercial market overall. The same can be said for the subject property's area of southeast Winnipeg, having provided 18% of Winnipeg's new office inventory on average since 2010 whereas it only accounts for 11.5% of Winnipeg's overall commercial space.

Two massive projects in CentrePoint and True North Square will help to resupply the downtown market with office space, however Suburban Winnipeg should be expected to continue to punch above its weight, producing and absorbing more than it has historically proved capable for the office market.



Winnipeg New Office Development

	2010	2011	2012	2013	2014	2015	2016	2017
Central	52,995	137,151	27,092	19,373	23,854	2,056	45,207	289,371.00
South East	36,816	63,688	23,166	10,990	31,967	52,044	805	7,158.00
South West	123,165	44,962	109,344	10,198	11,806	55,746	68,213	54,321.00
North West	9,397	32,375	0	0	0	0	0	0.00
North East	0	8,203	23,405	8,482	40,341	9,303	946	0.00
West	3,281	5,081	35,456	0	700	0	0	12,668.00
Total	**225,654**	**291,460**	**218,463**	**49,043**	**108,668**	**119,149**	**115,171**	**363,518.00**

With an understanding of the creation of new office stock we are better prepared to identify total supply of office space, and the ability for the market to absorb it, as indicated in the table on the following page.

Winnipeg Office Market Absorption								
	2010	2011	2012	2013	2014	2015	2016	2017
Starting SF	17,052,774	17,278,428	17,569,888	17,788,351	17,837,394	17,946,062	18,065,211	18,180,382
New Inventory	225,654	291,460	218,463	49,043	108,668	119,149	115,171	363,518
Total SF	17,278,428	17,569,888	17,788,351	17,837,394	17,946,062	18,065,211	18,180,382	18,543,900
Vacant SF	885,020	1,214,073	1,105,077	1,258,039	1,368,788	1,433,932	1,246,152	1,506,845
SF Absorbed		**-37,593**	**327,459**	**-103,919**	**-2,081**	**54,005**	**302,951**	**102,825**
Vacancy Rate		**6.91%**	**6.21%**	**7.05%**	**7.63%**	**7.94%**	**6.85%**	**8.13%**

The table above identifies known inventories and vacant square footage of the overall Winnipeg office market, to arrive at Winnipeg's overall ability to absorb office space. Winnipeg has seen a fairly consistent office vacancy rate falling between 6.21% and 8.13% which is indicative of a strong market, however years have seen a substantial variance in actual square feet of space absorbed into the market.

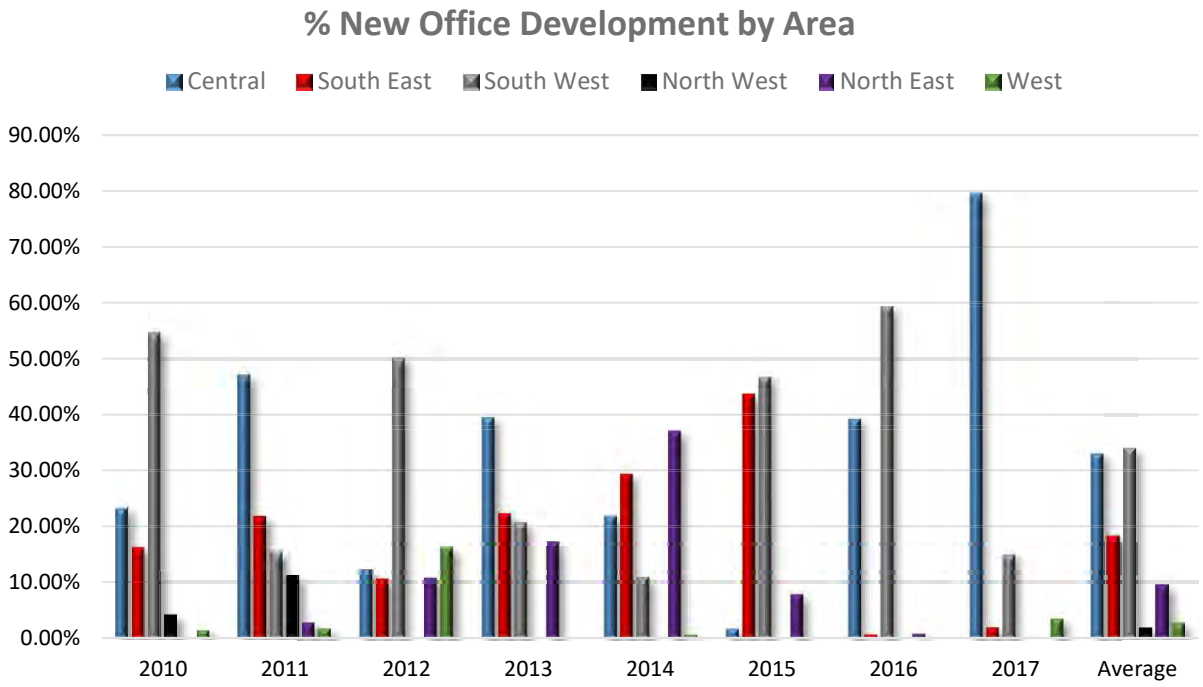
Of the total new inventory of office space in the Winnipeg market, 26% can be attributed to 2 individual projects, Centre Point and True North Square. When Centre Point was developed it secured Stantec Consulting as it's primary tenant. Stantec relocated from its suburban south-west office leaving a large vacancy. A similar situation occurred when Manitoba Hydro purpose built a large downtown tower which it consolidated many of its existing suburban offices into, leaving substantial vacancies in its wake. True North Square has provided 19% of the total new office space inventory for Winnipeg over the 2010-2017 period.

As indicated in section II of this report, Winnipeg has an overall aging population which will see an increase the percentage of population who are not active in the workforce. A large percentage of Winnipeg's new workforce is coming from recent immigrants. Based on information provided by Stats Canada, 54% of new immigrants to Canada falling within the workforce age groups hold relevant post-secondary education. A study completed by the Downtown Winnipeg Biz suggests that 78.5% of Winnipeg's downtown office workforce hold relevant post-secondary education. As a growing percentage of Winnipeg's existing population exit the workforce, and the new workforce replacing them are on average less qualified to meet the requirements of existing office jobs, it is expected that the office market will show a reduced requirement for additional office space for existing businesses.

For new large scale office space such as True North Square to lease out space, they will rely at least in part on luring tenants from existing office space in Winnipeg. Whether these existing tenants are centrally located or in the suburbs, new vacancies will be created which the market has to absorb. With this in mind our analysis shows that office space absorption in the near to mid future should slow down from the currently suggested absorption of 91,950 square feet per year, to an estimated 75,000 square feet per year.

Our analysis indicates that Winnipeg should be able to continue to absorb 75,000 square feet of office space per year.

Of the overall office space to be absorbed by the City, we must now determine the percentage which would be attributed to Winnipeg's south-east, the quadrant of the subject property. South-east Winnipeg makes ups 11.43% of Winnipeg's overall commercial market. As it relates to Office space suburban Winnipeg makes up 30% of the Winnipeg office market , of that 30% southeast Winnipeg makes up 20% of the suburban office market (or 6% of the total market). These area historical numbers which are quickly changing as is evidenced by the chart on the following page which gives a clearer picture of the percentage of office space being built throughout the City.



% New Office Development by Area

	2010	2011	2012	2013	2014	2015	2016	2017	Average
Central	23.49%	47.06%	12.40%	39.50%	21.95%	1.73%	39.25%	79.60%	33.12%
South East	16.32%	21.85%	10.60%	22.41%	29.42%	43.68%	0.70%	1.97%	18.37%
South West	54.58%	15.43%	50.05%	20.79%	10.86%	46.79%	59.23%	14.94%	34.08%
North West	4.16%	11.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.91%
North East	0.00%	2.81%	10.71%	17.30%	37.12%	7.81%	0.82%	0.00%	9.57%
West	1.45%	1.74%	16.23%	0.00%	0.64%	0.00%	0.00%	3.48%	2.94%

Winnipeg's existing inventory of office space has been slowly trending towards suburban growth for years, and while the total inventory is still predominantly central (70% central -30% suburban) the growth has become an inverse with 33% of development being central 67% being suburban. Of the new development suburban locations have been better able to absorb the new inventory than central Winnipeg as evidenced by the June 2017 overall office vacancy rates of 7.6% for central Winnipeg, and only 4% for suburban office.

When analyzed we find that of the office space developed in suburban Winnipeg in recent years, a large percentage of it can be attributed to medical office, bank and purpose built non-profit office (such as Access Winnipeg's large builds in south-east and south-west Winnipeg). Success in the development of suburban office space is greatly impacted by the ability to source tenants for purpose built space. We anticipate that the market has become fairly saturated with these forms of development, and that the market will start to move away from the historical 70-30 split of central to suburban office space at a slower pace. Short and mid term abosrbtion for southeast Winnipeg office space should be in line with the overall southeast makeup of the commercial market, or 11.5%

We anticipate that Winnipeg's southeast quadrant will be able to continue to absorb 11.50% of the new office space created in the City, in line with the average overall percentage of commercial development for southeast Winnipeg.

The proposed development would be able to provide office space in an uncompetitive southeast market, with little existing and planned development which would capture a portion of the total office development for southeast Winnipeg. For existing development the only substantial area with an existing area of land planned for commercial development is the Sage Creek master planned community. In this community the majority of commercial land has been developed, and of this commercial land the majority has been developed with retail, restaurant, or commercial services, and this is expected to be the continued use for Sage Creek's commercial property.

For future competition the only known development which will provide a substantial future supply of commercial land is the Dawson Trial neighbourhood located on Fermor Avenue between the Perimeter Hwy. and Lagimodier Blvd. This project will be expected to have a small portion of its inventory geared towards office however this project is not expected to move forward with saleable or leasable land for quite some time.

Southeast Winnipeg has seen some infill development of office space, however the square feet of office space for infill has not been substantial, and has been seen the market reacting the lack of available office space in the area. If the proposed development was able to provide zoned space for office development, redevelopment of infill property would be less appealing and expected to slow down.

Based on our analysis of the office development that has happened since 2010, the existing supply of office space in southeast Winnipeg, and the predicted future supply and competition for the proposed development, we feel that the subject property should be able to absorb 65% of the south east's total new office development.

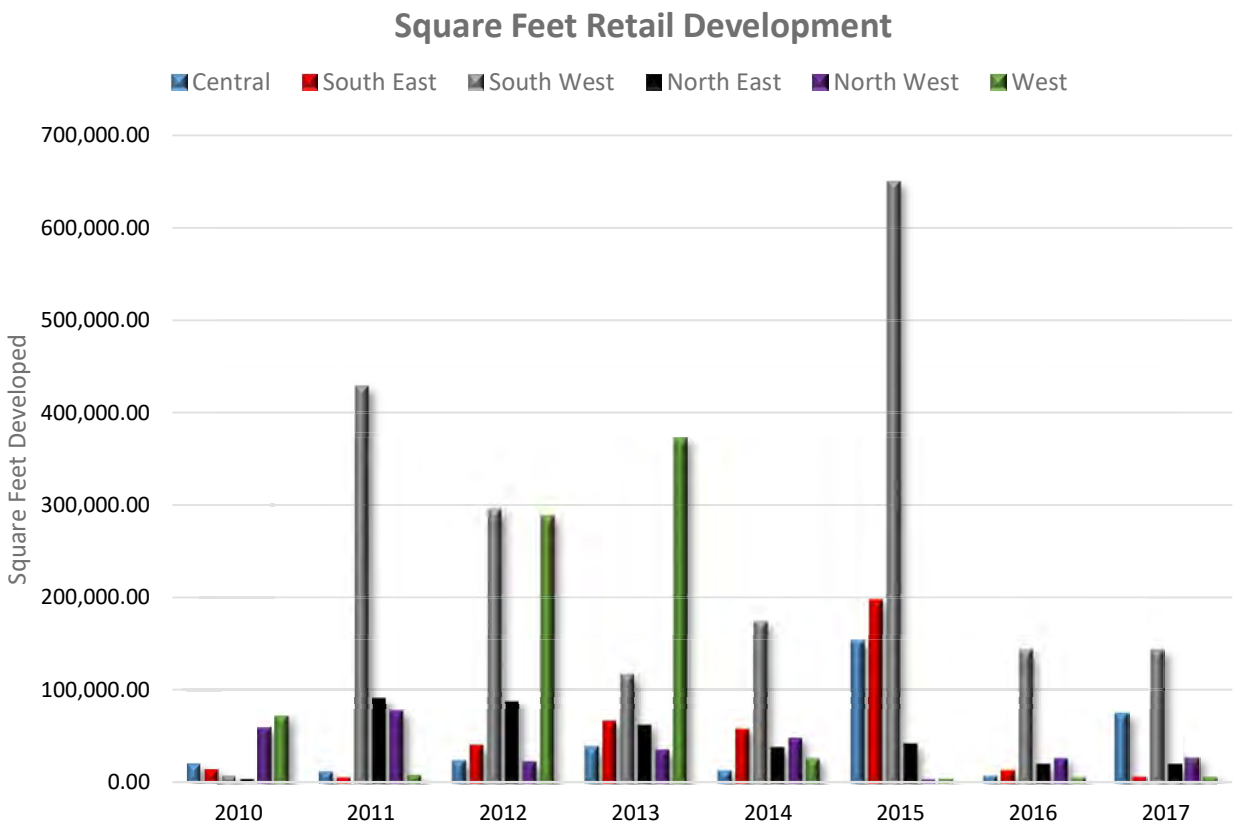
With an understanding of how many square feet the proposed development should be able to capture on an annual basis, we must convert that number to an equivalent amount of commercial land that could be sold or leased to fulfill the required square footage. Our analysis of suburban office development suggests that on average office space is developed at 30% of the overall land size in which the property sits.

Our analysis suggests that of the 75,000 square feet of office space developed per year southeast Winnipeg will be able to absorb 11.5% of the space or 8,625 square feet. The proposed development should be able to absorb 65% of the 8,625 square feet allocated to southeast Winnipeg, or 5,606 square feet.

RETAIL PROPERTY

Winnipeg's retail market has seen strong growth in recent years, with the predominant form of development being big box or small-scale strip mall development in Winnipeg's suburban communities. Of Winnipeg's overall retail market 34% is centrally located while 66% falls in suburban areas. Similar to Winnipeg's office market the supply of new retail supply has been predominantly in suburban areas.

The chart below shows total square feet of retail development in Winnipeg since 2010, broke down by community area, which helps to illustrate the dominance of suburban areas in retail development.



Square Feet Retail Development

	2010	2011	2012	2013	2014	2015	2016	2017
Central	21,039.00	12,456.00	24,702.00	39,185.00	13,849.00	153,290.00	7,899.00	74,526.00
South East	14,933.00	6,144.00	40,767.00	66,476.00	57,914.00	197,843.00	14,075.00	6,144.00
South West	7,836.00	428,521.00	295,392.00	118,059.00	173,781.00	650,165.00	143,556.00	143,556.00
North East	4,387.00	90,600.00	87,613.00	62,071.00	38,146.00	41,872.00	20,634.00	20,634.00
North West	59,381.00	77,565.00	23,403.00	36,309.00	47,965.00	4,014.00	27,114.00	27,114.00
West	72,009.00	9,000.00	288,352.00	372,449.00	26,755.00	4,494.00	6,122.00	6,122.00
Total	**179,585.00**	**624,286.00**	**760,229.00**	**694,549.00**	**358,410.00**	**1,051,678.00**	**219,400.00**	**278,096.00**

(Total Square Feet Retail Development)

As seen in the chart above, Winnipeg's southwest quadrant has contributed a substantial portion of the City's new retail development. The southwest's main contribution to the City's retail portfolio has been located along Kenaston Boulevard and in Waverley West's town centre. Large-scale developments such as Ikea, Cabela's, and most recently the Season's Outlet Collection mall have all contributed significantly to Winnipeg's overall retail market.

Winnipeg Retail Market Absorption

	2010	2011	2012	2013	2014	2015	2016	2017
Starting SF	16,728,874	16,908,459	17,532,745	18,292,974	18,987,523	19,345,933	20,397,611	20,617,011
New Inventory	179,585	624,286	760,229	694,549	358,410	1,051,678	219,400	278,096
Total SF	16,908,459	17,532,745	18,292,974	18,987,523	19,345,933	20,397,611	20,617,011	20,895,107
Vacant SF	599,710	658,074	609,978	781,226	878,016	1,135,013	1,205,431	1,096,847
SF Absorbed		**565,922**	**808,325**	**523,301**	**261,620**	**794,681**	**148,982**	**386,680**

By looking at the inventory of new retail space in Winnipeg, in relation to overall space, and the City's ability to absorb the new space, we get the picture of a very healthy retail market in recent years. The chart below outlines absorption for retail space in Winnipeg between 2011 and 2017.

The suggested mean rate of absorption over the period of 2011-2017 has been 498,502 square feet per year. Looking to the new inventory of retail property built between 2010 and 2017, we see a large percentage of the square footage allocated to substantial owner-occupied properties, such as Ikea and Cabella's in the southwest, the vacant Target building at Polo Park, and a variety of large grocery stores of 40,000 – 60,000 square feet. The market is starting to show signs of saturation for large single use properties, which should limit the markets ability to continue to produce and absorb such large inventories of new construction.

Retail growth is driven by population growth and the disposable income of the population. The chart below identifies the average floor space of retail development in Winnipeg, based on Winnipeg CMA population.

Retail Floor Space per Capita

	2010	2011	2012	2013	2014	2015	2016	2017
Total SF Retail	16,908,459	17,532,745	18,292,974	18,987,523	19,345,933	20,397,611	20,617,011	20,895,107
Total Population	736,368	746,059	759,620	770,000	783,000	795,000	812,000	828,000
Floor Space / Capita	22.96	23.50	24.08	24.66	24.71	25.66	25.39	25.24

Average floor space per capita has been fairly consistent over the period of 2010-2017, with a suggested mean rate of 24.50 square feet of retail area per capita. Applying the suggested mean rate of 24.50 square feet per capita to the projected population growth for the Winnipeg CMA we arrive at an average suggested increase of required retail floor space per year of 255,000 square feet, as indicated in the table below.

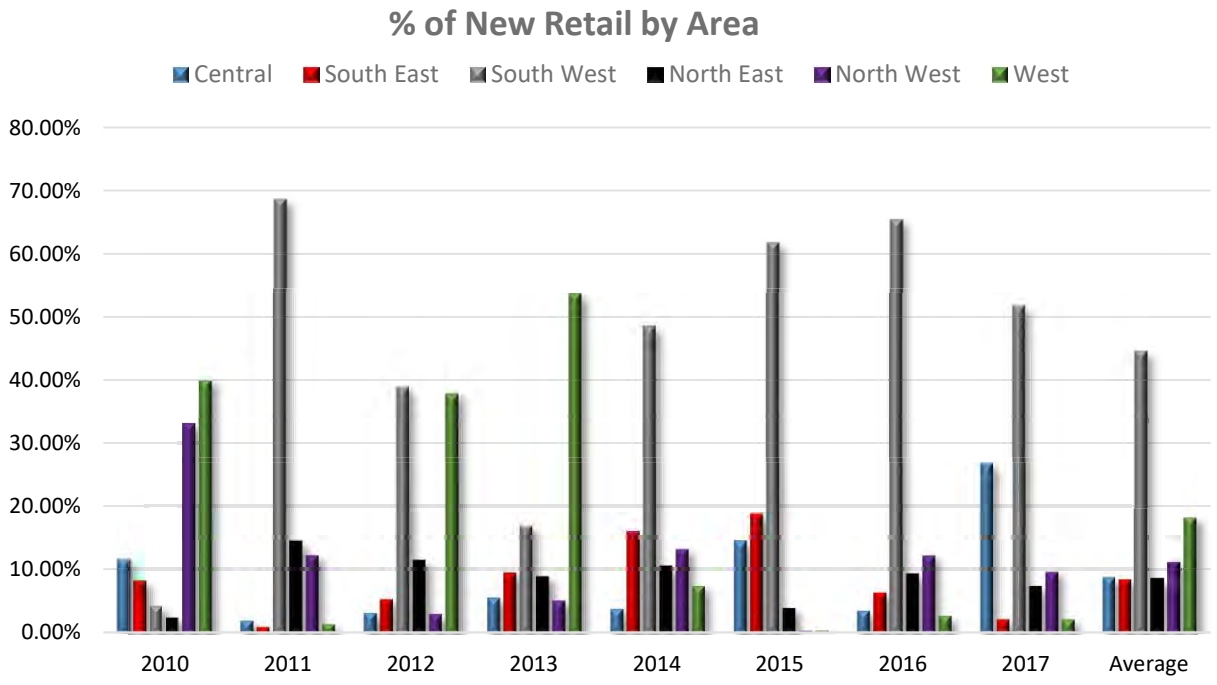
Our analysis suggests that the market's suggested floor space per capita requirements are a more accurate representation of Winnipeg's ability to absorb retail space.

Winnipeg CMA Projected Floor Space per Capita

	2017	2020	2022	2027
CMA Population	810,845.00	842,865.00	864,321.00	914,927.00
Floor Space / Capita	24.50	24.50	24.50	24.50
Total Floor Space CMA	19,865,702.50	20,650,192.50	21,175,864.50	22,415,711.50

Our suggested annual rate of absorption for retail property in Winnipeg is 255,000 square feet.

Of the overall retail space to be absorbed by the City, we must now determine the percentage which would be attributed to the target market southeast quadrant. Southeast Winnipeg makes ups 11.43% of Winnipeg's overall commercial market. As it relates to retail space suburban Winnipeg makes up 66% of the Winnipeg retail market , of that 66%, southeast Winnipeg makes up 20.5% of the suburban retail market (or 16.5% of the total market). Similar to office development these numbers are based on historical inventories, yet central areas of Winnipeg have seen very little new retail development, on an annual basis Winnipeg's retail market is continually leaning to a higher percentage of Winnipeg's overall retail inventory. As evidenced by the chart on the below Winnipeg's suburban areas have been contributing far more square footage of retail space to the Winnipeg market per year than its 66% market share.



% of New Retail by Area									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
Central	11.72%	2.00%	3.25%	5.64%	3.86%	14.58%	3.60%	26.80%	8.93%
South East	8.32%	0.98%	5.36%	9.57%	16.16%	18.81%	6.42%	2.21%	8.48%
South West	4.36%	68.64%	38.86%	17.00%	48.49%	61.82%	65.43%	51.62%	44.53%
North East	2.44%	14.51%	11.52%	8.94%	10.64%	3.98%	9.40%	7.42%	8.61%
North West	33.07%	12.42%	3.08%	5.23%	13.38%	0.38%	12.36%	9.75%	11.21%
West	40.10%	1.44%	37.93%	53.62%	7.46%	0.43%	2.79%	2.20%	18.25%

As indicated in the charts above suburban Winnipeg has provided from 73% on the low end, to 98% on the high end of Winnipeg's new retail development, with a mean indicated rate of 91%. Southeast Winnipeg has provided between 1% and 19% of Winnipeg's total retail development.

Retail development in Winnipeg's southeast has been limited by the availability of raw commercial land. Southwest Winnipeg has dominated the new retail market mainly due to its large supply of land. Developers have a variety of

commercial developments on Kenaston Blvd., Sterling Lyon Parkway, and in Waverley West to choose from with a large supply of zoned commercial land. Southwest Winnipeg has been able to capture a larger percentage of commercial development than other areas due to this supply.

Southeast Winnipeg has only seen one area provide a consistent supply of commercial land. Development in the Sage Creek neighbourhood accounted for 52% of the overall retail development in southeast Winnipeg between 2011-2017 despite the fact that it's inventory was only available between 2013 and 2015. Southeast Winnipeg's best years were 2014 and 2015 in which it created 16.16% and 18.81% of the markets total square retail feet, all of which were absorbed.

Our analysis shows that the southeast quadrant of Winnipeg has been undersupplied with retail development in recent years, and that there is a strong ability to absorb retail property in the quadrant, which is not being met due to a lack of supply. Competing areas have taken turns taking a larger part of the pie and if properly supplied the southeast should be able to create and absorb a larger portion of Winnipeg's retail market, our research suggests 25%, for a suggested annual absorption of 63,750.

SE Winnipeg Projected Floor Space per Capita

	2017	2020	2022	2027
SE Population	132,931	138,674	142,280	149,588
Floor Space / Capita	24.50	24.50	24.50	24.50
Total Floor Space SE	3,256,809.50	3,397,513.00	3,485,860.00	3,664,906.00

Utilizing the same floor space / capita rate of 24.5 square feet determined earlier, and applying it to the projected population growth for southeast Winnipeg we arrive at a suggested average annual absorption rate of 40,810 square feet.

Taking into consideration both indicated absorption rates, with more emphasis being placed on the population based floor space per capita, we arrive at a suggested annual absorption rate of 45,000 of commercial development for southeast Winnipeg.

Our analysis suggests that the southeast quadrant of Winnipeg can absorb 45,000 square feet of retail space per year.

The proposed development would be able to provide retail space in a relatively uncompetitive market, with little existing and planned development which would capture a portion of the total retail development for southeast Winnipeg. For existing development the only substantial area with an existing area of land planned for commercial development is the Sage Creek master planned community. In this community the majority of commercial land has been developed, and of this commercial land the majority has been developed with retail, restaurant, or commercial services, and this is expected to be the continued use for Sage Creek's commercial property, at the time of writing there was approximately 9 acres remaining to be developed.

For future competition the only known development which will provide a substantial future supply of commercial land is the Dawson Trial neighbourhood located on Fermor Avenue between the Perimeter Hwy. and Lagimodier Blvd. This project will be expected to have a small portion of its inventory geared towards office, however, this project is not expected to move forward with saleable or leasable land for quite some time.

Southeast Winnipeg has seen some infill development of retail space, as well as some additions of retail space being built onto existing locations, much of this development has been in response to the markets inability to provide stable sources of commercial land. If the proposed development was able to provide zoned space for retail development, redevelopment of infill property would be less appealing and expected to slow down.

Based on our analysis of the retail development that has happened since 2010, the existing supply of retail space in southeast Winnipeg, and the predicted future supply and competition for the proposed development, we feel that the subject property should be able to absorb 60% of the south east's total new retail development.

Our analysis suggests that of the 255,000 square feet of retail space developed per year southeast Winnipeg will be able to absorb 45,000 square feet. The proposed development should be able to absorb 60% of that 45,000 square feet, or 27,000 square feet.

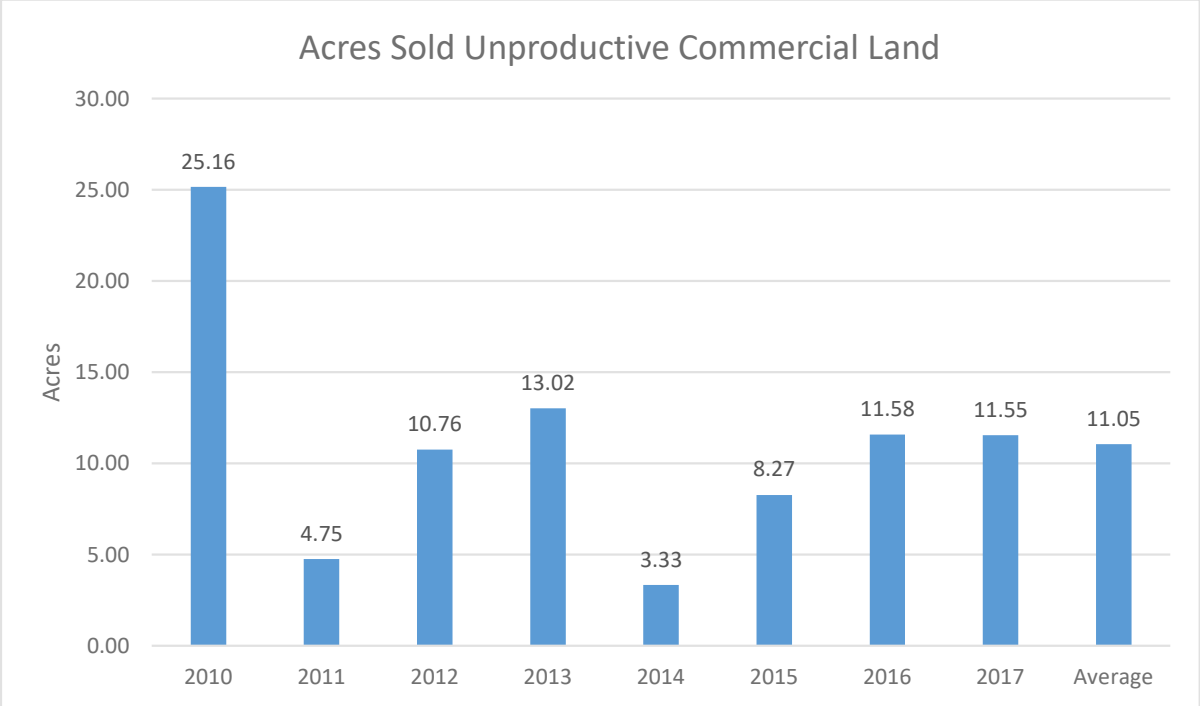
Annual Absorption of Retail Space = 27,000 square feet

UNDEVELOPED COMMERCIAL LAND

The analysis of retail and office absorption provides a strong indication of the market's ability to absorb commercial land, however, it does not provide a complete picture. A portion of Winnipeg's commercial land market is improved with public uses which aren't accounted for through absorption, acquired for future development (spec) or are held up longer than usual in lengthy approvals.

These lands are not accounted for through the standard analysis, yet make use of commercially zoned land which could be used for an economically productive use, and should be accounted for.

The chart below provides a snapshot of the commercial lands sales falling under these categories which have been sold between 2010-2017.



Of the 11.05 average acres sold per year, 3 can be attributed to Winnipeg's southeast quadrant. Our analysis suggests that the proposed development would be able to absorb roughly 16% of these land sales, or 0.5 acres per year.

CONCLUSION

To sale of commercial land and buildings within the proposed development will be dependent on the community, City, and Provinces perceived ability to support the business' that would choose to build or lease in the proposed development.

Looking to our market overview from section II of this report, we see reasonably positive figures for unemployment rate, population, personal income per capita, and retail sales. We feel these indicators offer a strong support of our analysis of Winnipeg's appetite for, and ability to support the businesses which will occupy the commercial space within the proposed development.

Our analysis suggests that the proposed development should be able to absorb 5,606 square feet of office development annually, and 27,000 square feet of retail product annually. As indicated in the table below based on the proposed development build out the project should be able to absorb the proposed office inventory of 72,500 square feet in 12.93 years, and the 138,500 square feet of retail product in 5.13 years.

Absorption Period for Commercial Product

	SF / Year Absorbed	Total SF	Years of Inventory
Office	5,606	72,500	12.93
Retail	27,000	138,500	5.13

Based on the market suggested absorption rates for office and retail property, the optimized build out of the project would consist of 36,000 square feet of office space, and 175,000 of retail space, which the market would be able to absorb in approximately 6 years for each product type.

In addition to the absorption of the proposed development our research suggests that if the owner was willing to sell vacant land on the open market they would be able to achieve the sale of an additional 0.5 acres of commercially zoned land per year, if willing to sell the land with no development timelines or restrictions.

VII – INDUSTRIAL PROPERTY

The concept plan for the Public Markets redevelopment proposes 52.0 acres land which will be used for light industrial purposes. To address the industrial component of the concept plan we have carried out an analysis of Winnipeg's existing industrial inventory recent and development metrics.

In the review of industrial land developed in Winnipeg our research shows two broad categories of industrial land, those which have a light use, and those which have a heavy use. Light industrial development consists of light manufacturing with a customer-focused presence, warehouse / office build out, and more recently the use of industrial property in industrial business parks for a purer office / professional service / or retail use. Heavy industrial use consists of heavy manufacturing, heavy storage, and other uses which would not be likely to see customers coming directly to the property. When considering the proposed developments ability to absorb industrial space we will be focused on its ability to absorb light industrial space.

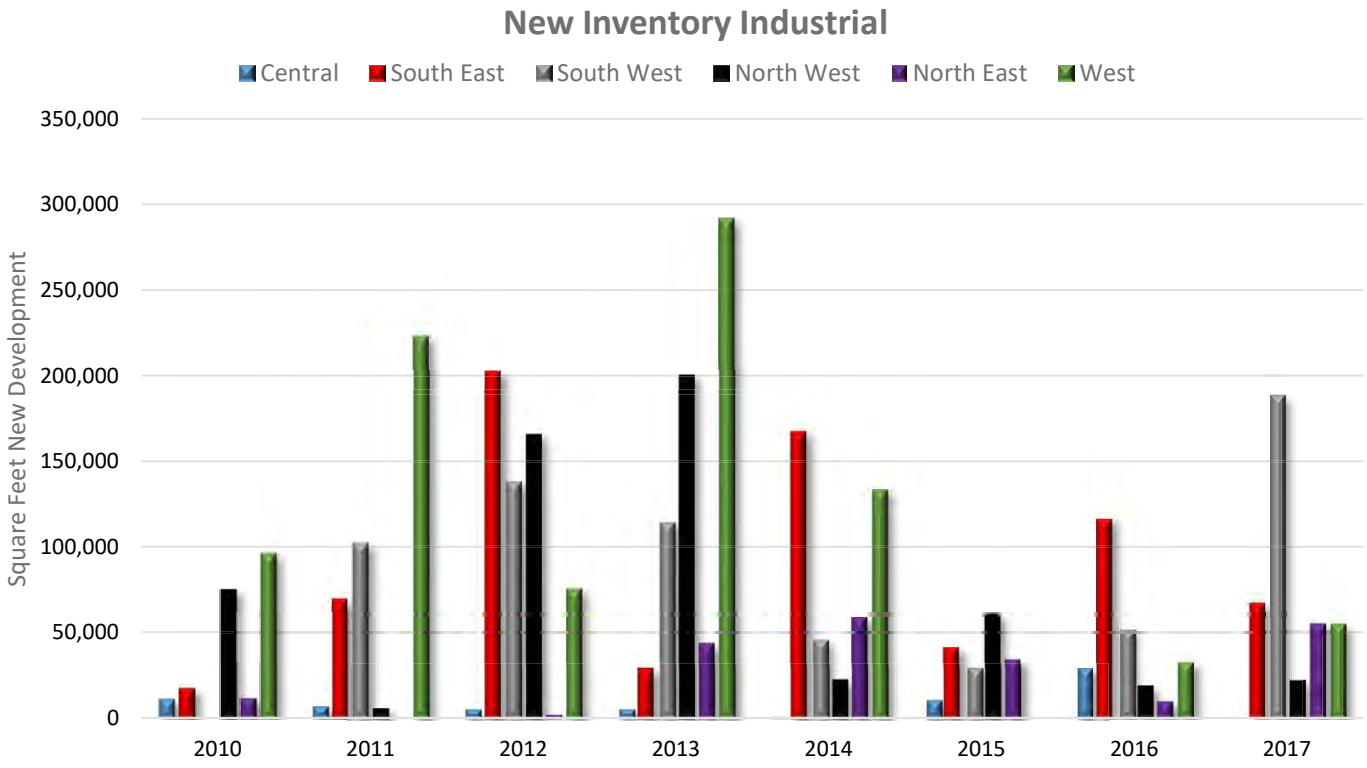
Our analysis will be broken down by determining the existing supply of industrial property, the rate at which the market is able to absorb industrial property, anticipated future supply and competition for the subject property, and finally the expected rate at which the industrial property for the proposed development should be absorbed into the marketplace.

INDUSTRIAL DEMAND

Historically Winnipeg's industrial inventory has been located on the outskirts of residential and commercial development, mainly due to its higher intensity uses and lack of requirement for public access. As the City of Winnipeg has grown this has held true, however you start to see rings of development throughout the City as residential suburbs build out. New industrial development is relegated to industrial parks for true industrial use, and to "industrial business parks" which can be located in closer proximity to commercial and residential development.

As shown in the chart on the following page, Winnipeg has had fairly consistent industrial development, with new construction being spread out across the City on a year by year basis. Southeast Winnipeg falls second in construction of new industrial development only to Winnipeg's west area. Winnipeg's west area contains the Winnipeg International Airport and adjacent CentrePort development area which holds the highest level of development in the City.

When considering new construction on an annual basis it is important to keep in mind the impact that a single new build can have on overall numbers. *In 2011 and 2013, which were west Winnipeg's biggest growth years, a large part of each years new construction was a single building for a single-occupant (Magellan in 2011 with 135,372 SF and Boeing in 2013 with 149,400 SF).*



Winnipeg New Industrial Development

	2010	2011	2012	2013	2014	2015	2016	2017
Central	11,375	6,943	5,000	4,992	320	10,500	28,709	0.00
South East	17,301	69,944	202,658	28,904	167,585	41,022	116,450	67,467.00
South West	0	102,251	137,957	114,139	45,139	28,839	51,030	188,619.00
North West	75,326	5,713	165,820	200,487	22,385	61,374	19,023	22,205.00
North East	11,602	0	2,027	43,460	58,716	33,965	9,902	55,339.00
West	96,655	223,563	75,900	292,195	133,786	0	32,547	55,339.00
Total	**212,259**	**408,414**	**589,362**	**684,177**	**427,931**	**175,700**	**257,661**	**388,969.00**

Having reviewed the recent supply of overall new industrial development we are able to summarize recent years industrial absorption, as shown in the chart below, using known historical inventories and vacancies.

Winnipeg Industrial Market Absorption

	2010	2011	2012	2013	2014	2015	2016	2017
Starting SF	78,845,900	79,058,159	79,466,573	80,055,935	80,740,112	81,168,043	81,343,743	81,601,404
New Inventory	212,259	408,414	589,362	684,177	427,931	175,700	257,661	388,969
Total SF	79,058,159	79,466,573	80,055,935	80,740,112	81,168,043	81,343,743	81,601,404	81,990,373
Vacant SF	1,742,920	1,914,266	1,590,700	2,036,639	2,538,631	2,451,781	2,616,059	2,202,710
SF Absorbed		**237,068**	**912,928**	**238,238**	**-74,061**	**262,550**	**93,383**	**802,318**

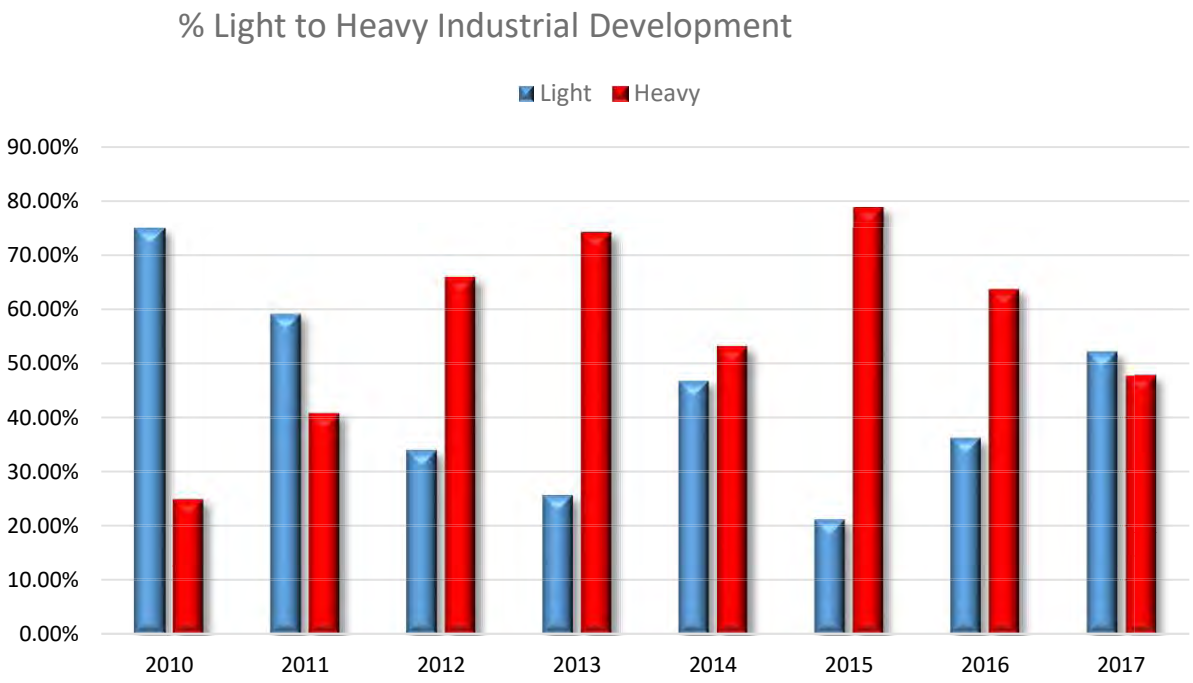
The table above identifies known inventories and vacant square footage of the overall Winnipeg industrial market, and gives an indication of Winnipeg's overall ability to absorb new industrial space. Winnipeg has seen a variance of the markets ability to absorb new inventory, which can be attributed mainly to speculative business park development, and relocation of existing commercial tenants to newer buildings leaving behind new vacancies. As discussed previously a large part of Winnipeg's new construction consists of owner-occupied, purpose-built industrial, which favorably contributes to years of significant absorption.

Due to the relatively uncomplicated form of construction for most speculatively built industrial buildings the lag between supply and demand is typically fairly low. Given the early momentum of the Centreport development in the northwest quadrant, along with continued expansion of the flex-space/business park market, the absorption of new space within Winnipeg's industrial market should remain strong and match the mean indicated rate suggested between 2011 and 2017 of 353,203 square feet of space per year.

Our analysis indicates that Winnipeg will be able to continue to absorb 353,203 square feet of industrial space per year, or the equivalent of the mean indicated rate for industrial space absorbed between 2011 and 2017.

The overall indicated rate of 353,203 square feet per year is a suggested rate for both heavy and light industrial absorption. The proposed development only plans to allow for light industrial uses so the overall absorption rate must be adjusted to account for only light industrial.

As shown in the chart below the percentage of heavy to light industrial development varies from year to year. In heavy dominant years there are generally one or two purpose-built single user large builds, in light dominant years the market is usually responding to low vacancies with a higher percentage of spec built property. When averaged out we arrive at a fairly consistent mix of heavy and light industrial space at 56.20 and 43.80 % respectively.



% Light to Heavy Industiral Development

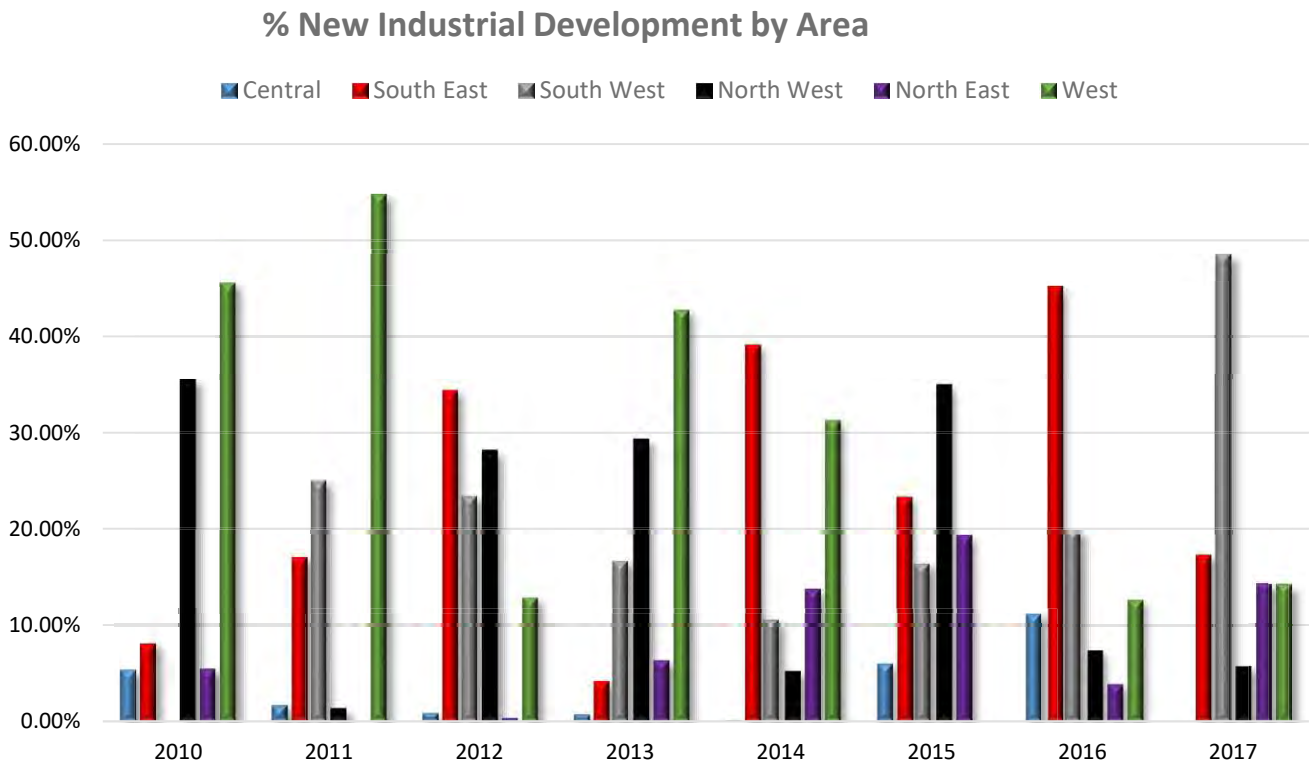
	2010	2011	2012	2013	2014	2015	2016	2017	Average
Light	74.96%	59.12%	34.05%	25.76%	46.76%	21.27%	36.30%	52.17%	43.80%
Heavy	25.04%	40.88%	65.95%	74.24%	53.24%	78.73%	63.70%	47.83%	56.20%

Taking into account historical mix, recent construction trends, existing supply of vacant light industrial space, and market trends of slight increase of industrial space filling the role of commercial, we anticipate that light industrial space should account for 45% of new industrial absorption moving forward.

Our research suggests that new light industrial should account for 45% of industrial absorption or 158,941 square feet per year.

Of the light industrial land to be absorbed by Winnipeg we must allocate a percentage of total product to the southeast quadrant of Winnipeg, as well as the proposed development overall.

Historically southeast Winnipeg makes up 13.8 % of the overall Winnipeg industrial market. Between 2010 -2017 southeast Winnipeg has seen between 4.2 % and 45.20 % of Winnipeg's total industrial development, with a mean suggested rate of 23.62%.



% New Industrial Development by Area

	2010	2011	2012	2013	2014	2015	2016	2017	Average
Central	5.36%	1.70%	0.85%	0.73%	0.07%	5.98%	11.14%	0.00%	3.23%
South East	8.15%	17.13%	34.39%	4.22%	39.16%	23.35%	45.20%	17.35%	23.62%
South West	0.00%	25.04%	23.41%	16.68%	10.55%	16.41%	19.81%	48.49%	20.05%
North West	35.49%	1.40%	28.14%	29.30%	5.23%	34.93%	7.38%	5.71%	18.45%
North East	5.47%	0.00%	0.34%	6.35%	13.72%	19.33%	3.84%	14.23%	7.91%
West	45.54%	54.74%	12.88%	42.71%	31.26%	0.00%	12.63%	14.23%	26.75%

The years where southeast Winnipeg has seen strong numbers have been happening for two reasons, strong supply of space in southeast Winnipeg, and lack of available space in west Winnipeg.

Looking to Winnipeg's overall industrial market to identify past, present and future competition for the proposed development, we see an overall decrease in supply of both serviced and unserviced industrial land, which should bode well for the proposed developments ability to get maximum share of absorption. The table below shows some consideration given to how the market has been defined previously, how market share should be segmented currently, and in the future.

Industrial Park Competition Winnipeg

Area	Name	Total Acres / Units	Vacant Acres / Units Serviced	Vacant Acres Unserviced
SE	St. Boniface Industrial	700 ac	8 ac	160 ac
SW	South Landing	46 units	27 units	0
SW	Tuxedo BP	75 ac	0	11 ac
NW	Inkster Industrial	600 ac	0	0
NW	Inksbrook Industrial	204 ac	0	36 ac
NE	The Waters	125 ac	40 ac	42 ac
NE	Terracon BP	100 ac	0	13 ac
W	Murray Industrial	180 ac	0	0
W	Murray Industrial	180	0	0
W	Headingley BP	48 units	11 units	43 ac
W	Centre Port	n/a	20 ac (unserviced for sale)	100 ac
W	Brookside	150 ac	5.36 ac	0

West Winnipg has run into a situation where the supply of zoned serviced land in industrial parks is very low, and with no current ability to provide consistent significant supply. Success of parks just outside Winnipeg such as Brookside show examples of the west and north-west's ability to absorb industrial product. West Winnipeg has promise for a large supply of future growth, predominantly in Centreport or airport adjacent developments, however servicing issues continue to drag out delays in the ability to provide serviced land.

Areas outside the City such as the Headingley Business Park have made an attempt to provide an alternative in close proximity to the City, and are able to provide product that has seen reasonable absorption, however this product is not seen as being a direct competitor to the subject property.

In southeast Winnipeg itself there is very little existing industrial or industrial business park opportunity. Potential purchasers of land have a close alternative with two business parks in northeast Winnipeg which have the ability to supply land, and are considered substitutes. However restrictions come with these parks in that the land in them is not for sale, the owner will only build to suit and lease back the improvements. Moving further to the northeast, the Matheson Industrial Park in the RM of Springfield has very little relevant supply.

The only known significant planned supply of industrial development would come from the Dawson Trial neighbourhood located on Fermor Avenue between the Perimeter Highway and Lagimodier Boulevard. This project will be expected to have a small portion of its inventory geared towards office, however, this project is not expected to move forward with saleable or leasable land for quite some time.

Considering southeast Winnipeg's favourable performance, we anticipate that southeast market and the proposed development should be able to achieve a strong percentage of total light industrial absorption in Winnipeg.

Southeast Winnipeg, over the timeline of the proposed development should be able to account for 23.50 % of industrial development in Winnipeg. Of the industrial development in southeast Winnipeg the subject property should be able to capture 70% of absorption based on current and planned serviced and unserviced land.

Of the 158,941 square feet of light industrial development in Winnipeg the proposed development should be able to capture 26,146 square feet per year.

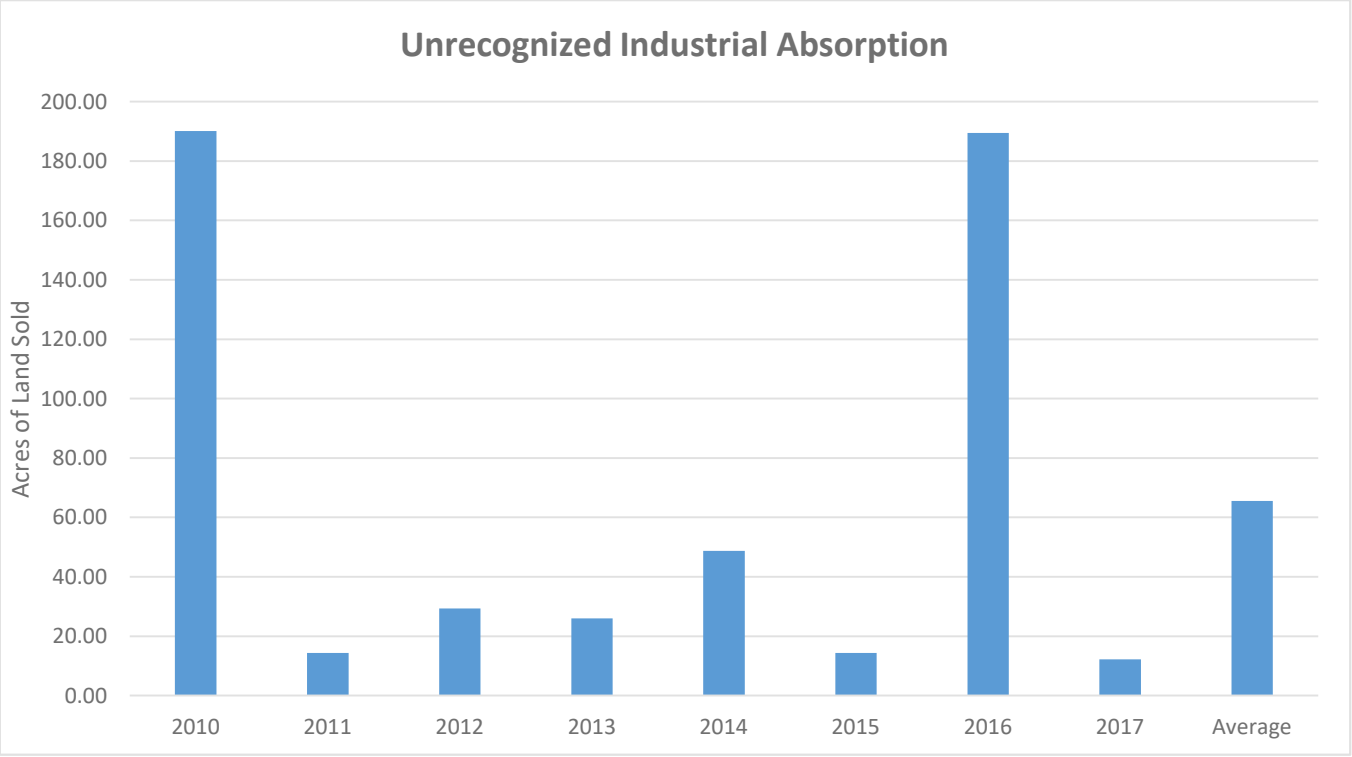
The City's overall site coverage ratio for industrial property is 28.65%. Further analysis suggests that that number would be closer to 30% based on build outs in parks similar to the proposed development. At a coverage ratio of 30% the 26,146 square feet captured per year would be equivalent to 2.00 acres per year.

UNDEVELOPED INDUSTRIAL LAND

The analysis of industrial absorption provides a strong indication of the market's ability to absorb industrial land, however it does not provide a complete picture. A portion of Winnipeg's industrial land market is improved with public uses, or non-industrial uses which aren't accounted for through absorption, purchased for external storage or storage expansion, acquired for future development (spec) or are held up longer than usual in lengthy approvals.

These lands are not accounted for through the standard analysis, yet make use of industrially zoned land which could be used for an economically productive use, and should be accounted for.

The chart below provides a snap shot of the industrial lands sales, sold between 2010-2017.



Unrecognized Industrial Absorption									
	2010	2011	2012	2013	2014	2015	2016	2017	Average
Acres Sold	190.11	14.33	29.38	25.97	48.75	14.40	189.50	12.16	65.57

Of the uses identified in the land sales some would not be recognized or likely in the proposed development. Adjusting for these uses, as well as the large one-off land sales for non-industrial uses we arrive at an average of 13 acres being sold in the Winnipeg market per year. Utilizing the same market share percentages of 23.5% for southeast Winnipeg, and 70% for the proposed development, as used in the prior analysis, we arrive at a suggested annual absorption of industrial land of 2.13 acres.

The proposed development would be able to sell 2.13 acres of vacant industrial land for unrecognized industrial absorption.

CONCLUSION

To successfully sell and lease industrial land and buildings within the proposed development we there have to be businesses willing to occupy the space created, for business to occupy industrial space they rely on consumers to purchase the good or service being created, and workers to make the goods or service.

Looking to our market overview from section II of this report, we can identify economic trends which support our historical research and conclusions, and economic predictors and forecasts which support our findings in the markets ability to absorb industrial property. Of major interest as it relates industrial growth is the industrial production and work-force (un-employment / employment) numbers.

Our analysis suggests that the proposed development will be able to capture a significant percentage of Winnipeg's light industrial development, by way of 2.00 acres per year being sold / or leased out for immediate development of usable space, and 2.13 acres of land being sold / leased for other industrial uses, for a total absorption of 4.13 acres per year.

With 52 acres of light industrial land in the project, the project should take 12.59 years to absorb the entirety of the industrial land.

Limiting Conditions

LIMITING CONDITIONS

This report has been prepared at the request of **7319828 Manitoba Ltd,** with the intended use to aid in the strategic decision-making process. The report has been prepared during the period October/November 2017.

It is not reasonable for any person(s) other than those associated with the property owner(s) and/or project developers, to rely upon this analysis without first obtaining written authorization from the above-mentioned individual and the authors as there may be qualifications, assumptions or limiting conditions, in addition to those set out below, relevant to that person's identity or his intended use.

The report is prepared on the assumption that no other person will rely on it for any other purpose and that all liability to all such persons is denied.

A number of assumptions regarding real estate market performance and building activity were made and outlined in the body of the report. Because market conditions, including economic, social and political factors can change rapidly, the conclusions drawn in this report are specific to the effective date of this report.

The compensation for services rendered in this report does not include a fee for court preparation or court appearance, which must be negotiated separately. Neither this nor any other of these limiting conditions, however, is an attempt to limit the use that might be made of this report should it properly become evidence in a judicial proceeding that will decide the use of the report best serving the administration of justice.

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