Minutes – Standing Policy Committee on Infrastructure Renewal and Public Works – January 10, 2017

REPORTS

Item No. 13 Intersection of Jefferson Avenue and Sinclair Street

STANDING COMMITTEE DECISION:

The Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service:

1. That traffic control signals be installed at the intersection of Jefferson Avenue and Sinclair Street.

2. That the proper officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

DECISION MAKING HISTORY:

Moved by Councillor Sharma,

That the recommendation of the Winnipeg Public Service be concurred in.

Carried

STANDING COMMITTEE RECOMMENDATION:

On September 19, 2016, the Standing Policy Committee on Infrastructure Renewal and Public Works moved the following motion:

WHEREAS the intersection of Jefferson Avenue and Sinclair Street is an extremely busy corner with lots of vehicular and pedestrian traffic;

AND WHEREAS Garden City Collegiate, Seven Oaks School Division MET School, apartment blocks and corner stores are all situated at this intersection;

THEREFORE BE IT RESOLVED that the Standing Policy Committee on Infrastructure Renewal and Public Works direct the Winnipeg Public Service to conduct a traffic study at the intersection of Jefferson and Sinclair to determine if traffic calming devices, including signalization, are warranted and to report back to the Standing Policy Committee within 120 days.

ADMINISTRATIVE REPORT

Title: Intersection of Jefferson Avenue and Sinclair Street

Critical Path: Standing Policy Committee on Infrastructure Renewal and Public Works

AUTHORIZATION

Author	Department Head	CFO	CAO
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EXECUTIVE SUMMARY

A traffic analysis was completed at the intersection of Jefferson Avenue and Sinclair Street as requested by the Standing Policy Committee on Infrastructure Renewal and Public Works. Analysis of the results indicated that removal of the all-way stop control and installation of traffic control signals with pedestrian signals is recommended to improve the level of service, and move people more efficiently and safely through the intersection at Jefferson Avenue and Sinclair Street.

RECOMMENDATIONS

1. That traffic control signals be installed at the intersection of Jefferson Avenue and Sinclair Street.

2. That the proper officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

REASON FOR THE REPORT

On September 19, 2016, the Standing Policy Committee on Infrastructure Renewal and Public Works directed the Winnipeg Public Service to report back in 120 days on the following:

1. Conduct a traffic study at the intersection of Jefferson and Sinclair to determine if traffic calming devices, including signalization, are warranted.

The recommendation for new traffic control signals must be approved by the Standing Policy Committee on Infrastructure Renewal and Public Works as the City's Traffic Authority.

IMPLICATIONS OF THE RECOMMENDATIONS

The cost for the installation of traffic control signals and associated improvements is estimated to be $205,000.00 (Class 3 estimate).

The 2017 Preliminary Capital budget includes $1,000,000.00 in 2017 for the Traffic Engineering Improvements Program – Various Locations.

The capital cost for the installation will be funded by the 2017 Traffic Engineering Improvement Program (TEIP) with the intent to install the traffic signals in 2017 subsequent to the adoption of the 2017 Capital Budget.

The estimated annual maintenance and operating cost for the traffic control signals is $5,000.00 beginning in the 2018 operating budget.

HISTORY / DISCUSSION

The intersection of Jefferson Avenue and Sinclair Street currently operates with all-way stop control.

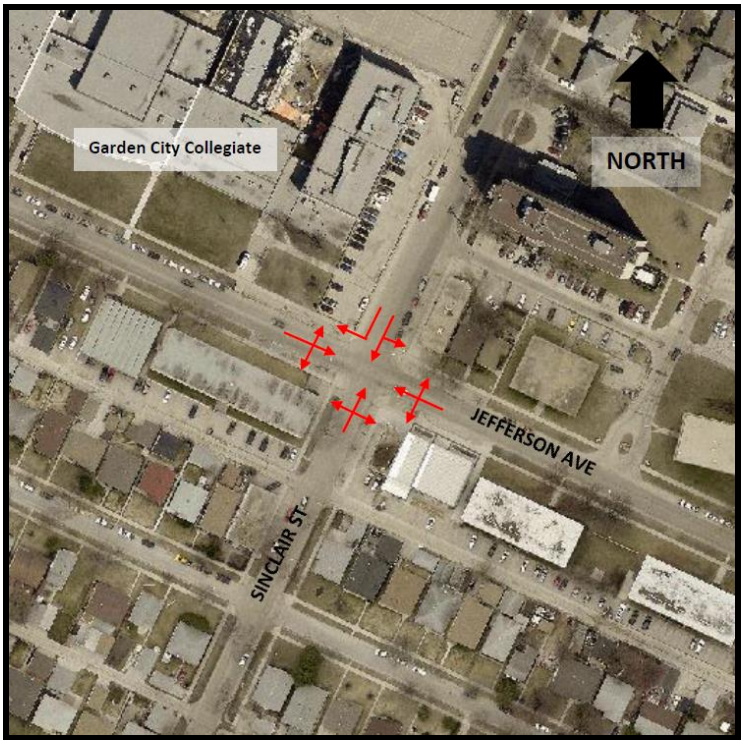
Jefferson Avenue is a two-lane undivided roadway between Main Street and McPhillips Street with parking permitted in the north curb lane. Jefferson Avenue is a non-Regional Collector Street, non-Regional Snow Route and Bus Route. Jefferson Avenue has a speed limit of 50 km/h at Sinclair Street and is not a Truck Route.

Sinclair Street is a two-lane undivided roadway for the most part, the southbound approach widens out to the west between a point approximately 80 metres north of the intersection and Jefferson Avenue (the southbound approach serves as two-lanes to accommodate the shared through +left turn and right turn movements at the intersection at Jefferson Avenue). Parking is permitted on the east and west side of Sinclair Street north of the intersection at Jefferson Avenue; the curb lane on the west side is regulated 'No Stopping 08:00-09:00 & 15:00-16:00 Mon-Fri School Bus Loading' from 10 metres north of Jefferson Avenue to a point 34 metres farther north and the curb lane on the east side is regulated 'One Hour Parking 09:00-17:30 Mon-Sat' from Jefferson Avenue to the first public lane north of Jefferson Avenue. Sinclair Street is a non-Regional Collector Street, non-Regional Snow Route and Bus Route. Sinclair Street has a speed limit of 50 km/h and is not a Truck Route.

Location of signalized intersections nearest to the intersection of Jefferson Avenue and Sinclair Street include:

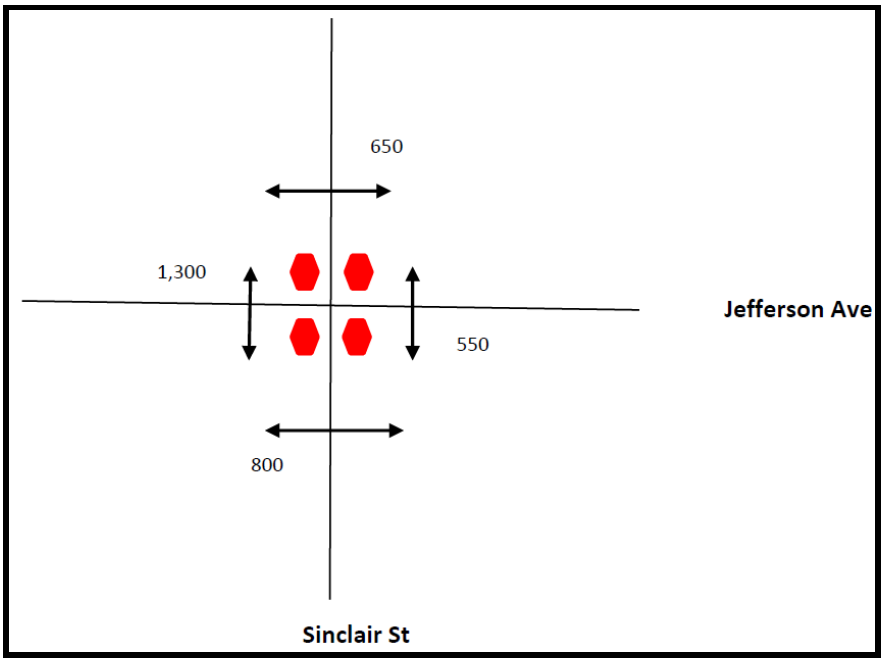
- Traffic control signals approximately 810 metres east of the intersection on Jefferson Avenue at McGregor Street;
- Traffic control signals approximately 970 metres west of the intersection on Jefferson Avenue at McPhillips Street;
- Traffic control signals approximately 765 metres south of the intersection on Sinclair Street at Inkster Boulevard; and
- Traffic control signals approximately 1.10 kilometres north of the intersection on Sinclair Street at Leila Avenue.

Photo 1: Aerial View of the Intersection at Jefferson Avenue and Sinclair Street with Lane Configuration



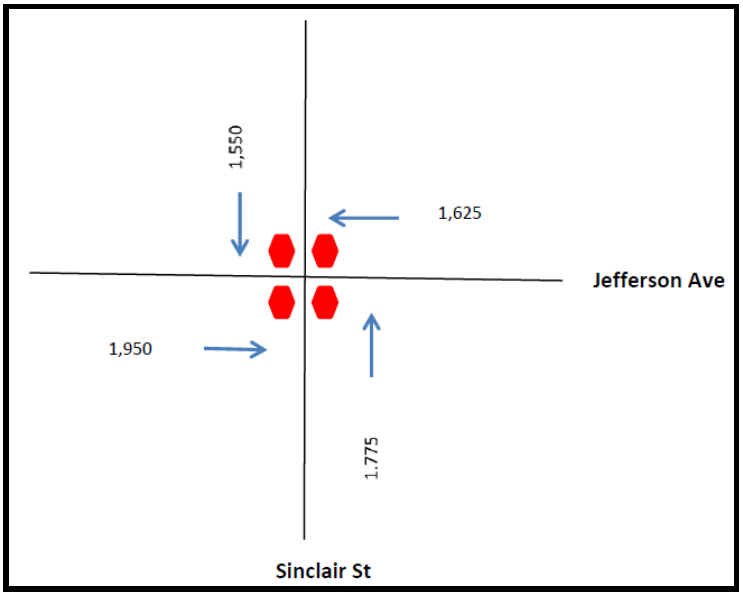
Pedestrian facilities in the vicinity include sidewalks along the north & south side of Jefferson Avenue and along the east & west side of Sinclair Street. Garden City Collegiate School contains approximately 1,330 students in grades 9 to 12 and is located in the north-west corner of the intersection. During an 11-hour pedestrian count completed in October 2016, a total of 3,300 pedestrians crossed at the intersection (see Figure 1) with the west crosswalk having the highest use.

Figure 1: Pedestrian Volumes for the Intersection at Jefferson Avenue and Sinclair Street



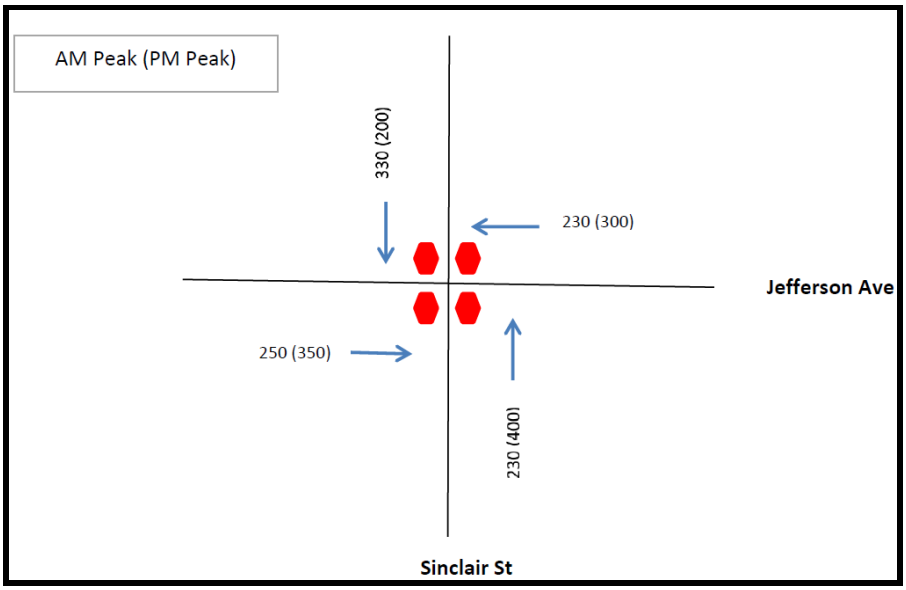
An 8-hour manual traffic count conducted on September 29 & 30, 2014 at the intersection of Jefferson Avenue and Sinclair Street by the Public Works Department indicated there were 6,900 vehicles which approached the intersection in an average weekday 8-hour period, with 1,625 vehicles approaching westbound, 1,950 vehicles approaching eastbound, 1,775 vehicles approaching northbound and 1,550 vehicles approaching southbound (see Figure 2).

Figure 2: Total 8-hour Approach Volumes for the Intersection at Jefferson Avenue and Sinclair Street



The intersection of Jefferson Avenue and Sinclair Street experiences its highest volume of vehicle traffic during the p.m. peak hour; traffic volumes for the a.m. and p.m. peak hour are shown below in Figure 3.

Figure 3: Peak Hour Traffic Volumes for the Intersection at Jefferson Avenue and Sinclair Street



In the most recent 3-year period ending December 31, 2014, the latest date for which data is available on our collision data base, the intersection at Jefferson Avenue and Sinclair Street experienced 25 collisions (3 right-angle, 3 fixed object, 1 sideswipe, 1 left turn, 1 rear-end, 1 pedestrian and 15 unknown). Review of the collision history for the most recent 10-year period ending December 31, 2014, indicated one reported collision involving a pedestrian at the intersection of Jefferson Avenue and Sinclair Street.

Traffic Analysis

A traffic analysis was completed at the intersection of Jefferson Avenue and Sinclair Street analyzing three traffic control options; the existing all-way stop control, a single lane roundabout, and traffic control signals. The analysis was completed using 2014 traffic volumes and 2016 pedestrian volumes.

Option 1 – All-Way Stop Control

The purpose of all-way stop control is to assign right-of-way to traffic approaching an intersection. Stop signs are effective:

- For assigning right-of-way at intersections where large traffic volumes approaching the intersection from all directions are close to being equal,
- To reduce conflicts between vehicles entering an intersection from a stop controlled street and vehicles travelling on the uncontrolled street, and
- Where the horizontal or vertical curvature of the roadway approaching the intersection results in a deficiency in sight-visibility lines and reduced safe sight-stopping distance.

Traffic analysis indicates that the intersection at Jefferson Avenue and Sinclair Street presently operates at an acceptable level of service (LOS) during the a.m. peak hour, and experiences delays greater than or equal to one minute per vehicle with a maximum volume to capacity (v/c)

ratio of 1.04 for northbound traffic (see Table 2) during the p.m. peak hour. However, an on-site visit conducted on October 25, 2016 revealed that the analysis results shown in Table 2 underrepresent the actual level of service and delay. The Public Service believes that the analysis underrepresents the delay because the analysis tool cannot represent the influences outside of the intersection vehicle movements, particularly delay due to pedestrian traffic.

During the October 25 site visit to the intersection at Jefferson Avenue and Sinclair Street between 15:30-16:30, the following delay and vehicle queues were observed on each approach (see Table 1).

Table 1: Observed Average Delay and Queue for the Approaches at Jefferson Avenue and Sinclair Street

Approach	**Average Delay (sec/veh)**	**Average Queue (# of veh)**
Northbound (Sinclair St)	210	15
Southbound (Sinclair St)	40	4
Eastbound (Jefferson Ave)	250	12
Westbound (Jefferson Ave)	70	8

It was observed that motorists on the northbound and eastbound approaches experienced higher delays and vehicles queues.

Option 2 – Modern Roundabout

A modern roundabout is a one-way unsignalized circular intersection in which traffic flows around a centre island. Roundabouts are designed to maximize safety and minimize traffic delays. Traffic is managed with yield control at the entry points and right-of-way is given to vehicles already in the roundabout. Pedestrians are accommodated with signed and marked crosswalks at each approach to the roundabout and cross only one direction of traffic at a time. Low approach speeds help to improve safety performance of roundabouts.

Analysis shows a roundabout functioning with maximum volume to capacity (v/c) ratio of approximately 0.61 for the p.m. peak hour which indicates a good level of service with few delays.

Figure 4: Modern Roundabout at Jefferson Avenue and Sinclair Street

The roundabout is not a desired traffic control option at this location due to high pedestrian volumes, intersection geometry, and land constraints. The most significant concern is that the roundabout design at the intersection of Jefferson Avenue and Sinclair Street requires land acquisition in all four corners to accommodate the construction of a single-lane roundabout and the reconfiguration of existing sidewalks.

Option 3 – Traffic Control Signals

When reviewing the need for traffic control signals, the Public Works Department follows the installation warrant criteria contained in the *Manual of Uniform Traffic Control Devices for Canada* (MUTCDC) which is based upon the conflicting pedestrian and vehicular volumes for the busiest 6 hours during a typical weekday. The minimum cross street volume threshold for consideration of traffic control signals is 75 vehicles per hour (excluding right turns) for at least 6 hours of the day. Generally, traffic control signals are considered (recommended) when the conflicting traffic volumes for the busiest six hours of a typical weekday produce a signal warrant of 100. Based upon this six hour period, the minimum cross street volume threshold of 75 vehicles per hour (excluding right turns) has been met at the intersection of Jefferson Avenue and Sinclair Street; the conflicting intersection volumes produced a signal warrant of 151, exceeding the 100 threshold.

Analysis of the signalized option using current traffic volumes (with permissive left turn displays) shows a maximum volume to capacity (v/c) ratio of approximately 0.60 for the p.m. peak hour. This indicates a good level of service with minimal delays. No change to the intersection geometry is required for the traffic signal.

Results from the traffic analysis are summarized in the following table:

Table 2: Traffic Analysis Results for the Intersection at Jefferson Avenue and Sinclair Street

Design Options	AM Peak Hour Analysis				PM Peak Hour Analysis			
	Critical Mvmt	**LOS**	**Delay (sec/veh)**	**v/c Ratio**	**Critical Mvmt**	**LOS**	**Delay (sec/veh)**	**v/c Ratio**
All-Way Stop Control								
Critical Movement	SB	F	50.4	0.92	NB	F	72.4	1.04
Overall Intersection		D	33.6	0.73		F	51.9	0.84
Roundabout								
Critical Movement	SB	B	14.6	0.60	NB	C	15.1	0.61
Overall Intersection		B	10.8	0.43		C	12.3	0.49
Traffic Control Signals								
Critical Movement	EB	B	16.6	0.52	EB	B	15.9	0.60
Overall Intersection		B	11.9	0.46		B	12.7	0.47

Cost Estimate

The estimated cost to upgrade the intersection at Jefferson Avenue and Sinclair Street, including the addition of traffic control signals is $205,000.00 (Class 3).

Winnipeg Public Service Recommendations

With current traffic volumes and conditions, the existing all-way stop control at the intersection of Jefferson Avenue and Sinclair Street results in average delays in excess of one minute during the p.m. peak hour for motorists on Jefferson Avenue and Sinclair Street. Removal of all-way stop control and installation of traffic control signals with pedestrian signals is recommended to improve the level of service and move people more efficiently and safely through the intersection at Jefferson Avenue and Sinclair Street.

FINANCIAL IMPACT

Financial Impact Statement

Date: November 24, 2016

Project Name:
Intersection of Jefferson Avenue and Sinclair Street

First Year of Program 2017

	2017	2018	2019	2020	2021
Capital					
Capital Expenditures Required	$ 205,000	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	205,000	-	-	-	-
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other	-	-	-	-	-
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Less: Incremental Revenue/Recovery	9,762	-	-	-	-
Net Cost/(Benefit)	$ (9,762)	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Less: Existing Budget Amounts	(9,762)	-	-	-	-
Net Budget Adjustment Required	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000

Additional Comments: Upon the adoption of the 2017 Capital Budget by Council, the total estimated cost of $205,000.00 will be funded by the 2017 Traffic Engineering Improvements Program. The 2017 Preliminary Capital Budget identifies $1,000,000.00 in 2017 for the Traffic Engineering Improvement Program - Various Locations. Recoveries represent the Department Transportation Administration and Corporate Interest Overheads. Direct Costs represent the annual maintenance and operating cost of $5,000.00. The required maintenance and operating costs will be addressed in the 2018 operating budget process, as the existing Traffic Signals Branch operating budget is insufficient to cover these additional expenses.

"Original signed by J. Ruby, CPA, CA"
J. Ruby, CPA, CA
Manager of Finance & Administration

CONSULTATION

In preparing this Report there was consultation with: n/a

OURWINNIPEG POLICY ALIGNMENT

The recommendation of this report is aligned with the key strategic goal of a safe, efficient and equitable transportation system for people, goods and services in the Sustainable Transportation Direction Strategy that supports OurWinnipeg.

SUBMITTED BY

Department: Transportation
Division: Public Works
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Stephen Chapman, P.Eng., Traffic Management Engineer
Date: November 30, 2016