

MEMORANDUM



TO: Lucas Smith, P.Eng.

FROM: Anthony Kwok, P.Eng.,
Bassam Hamwi, P.Eng.

PROJECT No.: 1900001.00

RE: Algonquin College – ARC Building
Transportation Impact Assessment – Screening
Form

DATE: 6/21/2019

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1. Description of Proposed Development

Municipal Address	ARC Building Algonquin College 1385 Woodroffe Avenue K2G 3G7, Ottawa ON
Description of Location	The limits of the proposed ARC Building are to be built in the northwest quadrant of Parking Lot 8 & 9 at Algonquin College. The north side of the site is bounded by North Access Road (a secondary roadway off of Navaho Drive).
Land Use Classification	Health/ Fitness Club (ITE Land Use #492) Athletic Club (ITE Land Use #493)
Development Size (units)	1
Development Size (m²)	125,138 ft ² (11,626 m ²)
Number of Accesses and Locations	0 (The site does not contain any new main vehicular access.)
Phases of Development	1
Buildout Year	2021

The proposed ARC Building development is expected to replace the existing recreational and athletic facilities on campus with larger multi-use facility. Currently, the athletics/ recreational facilities are situated in a shared building comprising of a multitude of uses, including academics. The additional capacity afforded with the new development will allow the College to expand and provide more inclusive physical and social activity programs for their students.

The total gross floor area of the existing athletics/ recreational facilities on the Algonquin College campus is approximately 47,840 ft² (4,445 m²). The proposed ARC Building development is slated to grow the footprint to 125,138 ft² (11,625 m²), or by approximately 262%. The substantial growth in the footprint of the proposed ARC Building can be attributed to an increase in the areas available for athletics (additional courts), fitness (discovery track, studios, weight rooms, etc.), and recreational (bowling alley, billiards, rock climbing wall, etc.), including lounges/ concessions. **Table 1** provides a breakdown of the existing and proposed athletics/ recreational facilities.

TABLE 1: GROSS FLOOR AREA OF EXISTING AND PROPOSED ATHLETICS/ RECREATIONAL FACILITY

	Athletics (ft²)	Health/ Fitness (ft²)	Total (ft²)
Existing Athletics/ Recreational Facility	18,180	29,660	47,840
ARC Building	41,544	83,594	125,138

Based on the background information provided above, the following memo will address the Transportation Impact Assessment (TIA) screening trigger checks for trip generation, location, and safety.

2. Trip Generation Trigger

	Yes	No
Does the proposed development generate more than 60 person-trips or more during weekday peak hours?		✓

The land use classification for the ARC Building is noted in Section 1 as a Health/ Fitness Club and an Athletic Club. The Health/ Fitness Club land use classification describes a facility where the focus is on individual fitness or training while the Athletic Club focuses primarily on offering a comprehensive offering of athletic facilities for team sports and social gatherings. Although neither land use can accurately describe the form and function of the ARC Building, a combination of the two land uses was determined to provide a better representation of the expected trips.

Table 2 includes the trip generation equations for the two applicable land use classifications per the ITE Trip Generation Manual (2012), while **Table 3** uses the equations to calculate the expected number of trips. The expected trips generated for the Combined Land Use was determined based on the proportion of the total gross floor area attributed to each classification.

TABLE 2: LAND USE CLASSIFICATIONS

Land Use	# of Studies	2-Way Traffic (Inbound and Outbound)	
		AM Peak Hour	PM Peak Hour
Health/ Fitness Club (492)	6	$T = 1.41(x)$	$\ln(T) = 0.95\ln(x)+1.43$
Athletic Club (493)	3 (AM) & 4 (PM)	$T = 2.97(x)$	$T = 6.58(x) - 17.51$

Note: 'x' represents each 1000 sq. ft of gross floor area.

TABLE 3: TRIPS GENERATED BASED ON RELEVANT LAND USE CLASSIFICATION

Land Use	% of Land Use	Trips Generated (2-Way Traffic)	
		AM Peak Hour	PM Peak Hour
Existing Facility			
Combined Land Use	62%Health/Fitness 38%Athletic	96 trips	207 trips
Proposed Facility			
Health/ Fitness Club (492)	100%	176 trips (+80 trips)	411 trips (+204 trips)
Athletic Club (493)	100%	372 trips (+276 trips)	806 trips (+599 trips)
Combined Land Use	67%Health/Fitness 33%Athletic	241 trips (+145 trips)	536 trips (+329 trips)



The estimate for trip generation potential per the ITE Trip Generation Manual is not representative of what can be expected by the proposed development for the following reasons:

1. Trip rates in the ITE Trip Generation Manual are based on suburban sites with transit mode share that is at or below 10% of total trips. The ARC Building is within close proximity to the Woodroffe Rapid Transit Station and as a result has achieved a 58% transit mode share.
2. Trip rates in the ITE Trip Generation Manual are based on stand-alone facilities which serve as a “destination” in and of itself. The ARC Building is an integral element of the Algonquin College campus and is intended to serve the College students’ exclusively.

In light of the above, the ITE trip generation rates must be adjusted downward to account for the above and ensure that it is representative of what can reasonably be accepted.

To account for the higher transit mode share, ITE trip rates should be reduced by a factor of 53% (1-0.42/ 0.9). As such, the increase in trips can be expected to be 68 vph in the AM peak hour and 155 vph in the PM peak hour.

Notwithstanding the above, there is no expectation of increase in traffic generation due to the increase in facility size. Any increase in traffic generation by the building, if any, would be attributed to increase in student enrolment. Therefore, the Trip Generation trigger is considered not to be satisfied.

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City’s Transit Priority, Rapid Transit or Spine Bicycle Networks?		✓
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?		✓

The proposed ARC Building will not require a connection to any boundary streets that are designated by the City of Ottawa as transit priority, rapid transit, or spine cycling routes. However, the development is located within the Mixed Use Centre Design Priority Area and Baseline/Woodroffe Transit-Oriented Development zone as defined in Schedule B and Annex 6 of the City of Ottawa’s Official plan, respectively, which satisfies the Location Trigger.

However, since the campus is well connected to the pedestrian, cycling and transit networks, it is not viewed as having a significant potential for further improvements that are typically identified from the conduct of a TIA.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		✓
Are there any horizontal/ vertical curvatures on a boundary street limits sight lines at a proposed driveway?		✓
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300m of		✓



intersection in rural conditions, or within 150m of intersection in urban/ suburban conditions)?		
Is the proposed driveway within auxiliary lanes of an intersection?		✓
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there a documented history of traffic operations or safety concerns on the boundary streets within 500m of the development?	✓	
Does the development include a drive-thru facility?		✓

The majority of the questions for the Safety Trigger were answered with ‘No’, with the exception that there are historical traffic operations and safety concerns for the boundary streets surrounding the proposed development.

The roadways identified within 500m of the proposed development include Baseline Road, Woodroffe Avenue, Navaho Drive, and College Avenue. **Table 4** summarizes the number of collisions along each mid-block section and at each intersection within close proximity to the ARC Building using data available from the City of Ottawa’s Open Data platform for the 3 most recent years (2015-2017).

TABLE 4: COLLISION HISTORY ON BOUNDARY STREETS AROUND THE ARC BUILDING

Intersection \ Mid-Block	Proximity to Development		Year			Most Recent Available AADT Count	3-Year Average Collision Rate (Collisions/million vehicles entering intersection)
	< 500m	> 500m	2015	2016	2017		
Intersections							
Navaho Drive @ Navaho Drive (North Access Road)	✓		0	0	1	N/A	N/A
Baseline Road @ Navaho Drive	✓		13	8	12	32310 (2016)	0.68
Navaho Drive @ Woodroffe Avenue/ Transitway North	✓		15	13	10	33627 (2016)	1.06
Woodroffe Avenue @ College Avenue/ Transitway South	✓		3	2	3	50125 (2015)	0.16
Baseline Road @ Woodroffe Avenue*		✓	N/A	N/A	N/A	N/A	N/A
Mid-Block Sections							
Navaho Drive b/w Baseline Road & Navaho Drive	✓		4	2	3	N/A	N/A
Navaho Drive b/w Woodroffe Avenue & Navaho Drive	✓		0	0	3	N/A	N/A
Baseline Road b/w Woodroffe Avenue & Navaho Drive	✓		11	4	4	N/A	N/A
Woodroffe Avenue b/w Baseline Road and Navaho Drive	✓		7	1	2	N/A	N/A

* The intersection of Baseline Road and Woodroffe Avenue is outside the 500m radius of the proposed development.

From a safety perspective, the collision rates for the intersections of Baseline Road/ Navaho Drive and Navaho Drive/ Woodroffe Avenue exceed the average annual City collision rate which is typically around 0.6. From an operational perspective, the intersections of Woodroffe Avenue and Navaho Drive



historically exhibit a poor LOS that is worse than LOS D. Therefore, as a result, the Safety Trigger is fulfilled.

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?		✓
Does the development satisfy the Location Trigger?		✓
Does the development satisfy the Safety Trigger?	✓	

Given that the use of the proposed development will be restricted to Algonquin College students only, and serve the same student population as the current building, it is not expected that the proposed development will have a significant impact on the existing road network and traffic operations to warrant the completion of a full Transportation Impact Assessment. In light of the facts presented herein, as well as our intimate knowledge of the site and the proposed development, we propose that “Step 2 – Scoping” of the TIA reflect the above statement.

