Calgary

Joint Use Site Calculation Methodology

Principles and criteria for determining the number of Joint Use Sites required for school-age children (5 to 14) in area structure plans

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Next update of Calculation Assumptions: 2016, following census release.
Next update of Section 2.0 Principles: 2021

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1.0 Introduction

In 2006, The Joint Use Coordinating Committee (JUCC), comprising The City of Calgary, The Calgary Board of Education (CBE), and The Calgary Catholic School District (CCSD) adopted a formal process to calculate the number of joint use sites required in new communities. Since then, two major changes have occurred:

- The 2009 adoption of a new Municipal Development Plan, which has resulted in a broader range of housing types and higher densities within new communities
- The addition of the Francophone School Districts (FrancoSud) into a Joint Use Agreement with The City in 2012

As a result, the existing calculation required an update. However, the general principles behind the calculation and its application remain largely the same as in 2006.

The updated calculation method will assist in determining an appropriate allocation of municipal reserve lands for joint use sites in Area Structure Plans (ASPs) for elementary, middle, junior high, and elementary/junior high schools. These sites are required to meet the educational needs for school-age children in the 5 to 14 age bracket (Kindergarten to Grade 9) within the Calgary Board of Education (CBE), Calgary Catholic School District (CCSD) and Francophone School Districts (FrancoSud). Joint use sites comprise a school building envelope, plus playfields.

The method recognizes variations in school populations resulting from the unit composition / density of communities. It also includes the FrancoSud students into the equation for the first time.

Note: This methodology applies only to school facilities required for Kindergarten to Grade 9 students. A separate method is used for High School students. High Schools sites are obtained through various mechanisms including dedication of reserve land and acquisition of land through the Reserve Fund.

2.0 General principles for the Joint Use Site calculation

Determining the number of joint use sites required for school-age children in the 5 to 14 years age cohort shall be undertaken jointly by The City and the School Boards as part of the Area Structure Plan (ASP) process, using the following principles:

1. This methodology will assess the number of joint use sites required to accommodate Kindergarten to Grade 9 students for the CBE, CCSD and FrancoSud. The joint use sites consist of a school building envelope and associated playfields, and may include a Community Association site.

2. A detailed assessment of the number of joint use sites required will occur during preparation of an ASP. This assessment will include distribution and allocation decisions. If warranted, a high level assessment may be made at a regional planning level to assist in the broad allocation of school site requirements between communities, and particularly to assist in the location of a FrancoSud facility (see section 3.0).

3. The City of Calgary's Civic Census data will be used to estimate the student population ages 5 – 14 by housing type. Student generation rates will be based on the estimated number of students per single/semi-detached and multi-residential units. This rate is multiplied by the projected number of units reported in the ASP to determine the projected number of students living in the ASP.

4. Although the portion of school-age children may be higher or lower within some ASP areas, in general the city-wide proportion of school-age children in the 5 to 14 age cohort will be used.

   If the population composition of a neighbouring ASP or a community is significantly different from the city-wide average, a review of the appropriate proportion of school-age children will be undertaken. An appropriate percentage of school-age children shall be applied in accordance with the result of this investigation.

5. School sites will be provided based on accommodating the stable population in core schools. The peak will be accommodated though portable school facilities on these sites and/or alternative accommodation strategies.

6. The number of school sites shall be based upon school sizes as determined by the appropriate school board, and outlined in Section 4.0.

7. Wherever possible, students should be able to attend an elementary and middle (junior high) school in their community, as delineated within the ASP. Where the population forecast does not support the need for a full school, sharing between communities should be considered.

8. Where the calculation does not result in a full school (ex 2.4 schools), options to accommodate the student population include, but are not limited to:
   - Shared school sites between schools "joint-joint use sites"
   - Other schools in the vicinity (in the community or outside of it)
   - Non-standard school sizes, if it would result in a viable school for a stable population
   - Use of portable facilities
   - Other methods, as appropriate.

9. Notwithstanding points 7 and 8, FrancoSud will be considered on a regional level. Due to their regional catchment and relatively smaller student population, the FrancoSud school calculation number will generally round down to zero. Regardless of the number calculated, the need for a Francophone school site may be determined at the outset of an ASP process. Refer to Section 3.0 Principles and Processes for FrancoSud Facilities.

10. The allocation made at the ASP stage may be reviewed prior to the approval of Outline Plans where there have been significant changes to the assumptions outlined in Section 4.0 since the ASP was prepared. This may occur, for example, when there has been a substantial time lag between approval of the ASP and submission of an Outline Plan. The need for a review may be

identified by the applicant or Site Planning Team. In the event of a disagreement on the need for such a review the matter shall be referred to JUCC.

Significant deviation from the housing unit split at the Outline Plan stage may require a review of the school requirements, and any changes shall be referred to JUCC.

11. A reduction in the number of school sites will not result in a reduction in the amount of reserve land owing in a community. Reserve will still be owed in accordance with the requirements of the Municipal Government Act and the policies and practices of The City of Calgary. Any reserve land freed up as a result of providing fewer school sites will be allocated to other educational (e.g., high school) and or open space purposes, based on the priority list in the Joint Use Agreement.

3.0 Principles and processes for Francosud facilities

Purpose and background

The purpose of this section is to ensure Francophone students have equitable access to joint use sites and school facilities as Calgary grows and develops. Francophone school boards were only relatively recently established in Alberta. FrancoSud has had access to future Municipal and School Reserve land only since 2012 when a Joint Use Agreement was signed between FrancoSud and The City of Calgary.

Section 23 of the Canadian Charter of Rights and Freedoms guarantees the right to a French language school where it is warranted by the number of students. The educational experience in French language schools must be substantively equivalent to that offered in the neighboring English language schools. This presents a land use planning challenge in that the potential number of students able to attend FrancoSud schools is much smaller than the number of students attending English language schools, leading to many fewer sites being required. The key is to ensure that such sites are provided on an equitable basis in both size and location.

Planning for FrancoSud facilities

Planning for a FrancoSud school is different than planning for CBE or CCSD schools. CBE / CCSD schools have a local catchment that is well-captured at the ASP level; FrancoSud schools have a broad regionally based catchment, similar to a high school catchment. Using the calculation outlined in this document, the total population needed to yield enough students for 1.0 FrancoSud school is 60,000 (at bare minimum) to approximately 120,000. At the low end, this is similar to some very large ASPs, but is generally more in line with the population of a regional plan.

Given that the number of students that are able to enroll in FrancoSud schools represents a relatively small proportion of the total number of students, most ASPs will not require a FrancoSud school.

In recognition of these differences, the following principles and processes will be applied to the Joint Use Site calculation for FrancoSud facilities when new long range planning policy is developed.

Within this policy, a facility may refer to either a joint use site, or a school building envelope.

1. Regional level planning

The total population needed to yield enough students for 1.0 FrancoSud facility is generally similar to the population of a regional plan. The City does not currently anticipate any regional level planning in the foreseeable future. However, if large scale regional plans are developed, the following process will apply:

a. The Project Planner will notify FrancoSud of a new regional planning process at its outset to discuss FrancoSud's potential need for a facility within the plan boundaries.

b. If FrancoSud believes there is a need for a facility within the regional plan, the matter will be referred to the Chair of the Francophone Regional Authority Joint Use Agreement Steering Committee. The Chair will discuss the matter with the FrancoSud representative and determine if the regional plan should include a school facility for FrancoSud.

c. If it is believed a FrancoSud facility is warranted, a FrancoSud joint use site should be allocated to a future ASP cell on the Land Use Concept Map through the planning process.

d. The size and composition of the joint use site will be determined at ASP stage.

2. Local Area Planning (ASP Stage)

The initial ASP level joint use site calculation will always include FrancoSud students. In most ASPs, this calculation number will round down to zero, due to its relatively smaller potential student population.

To ensure FrancoSud equitable access to a school building envelope and joint use sites when required the following process will apply:

a. The Project Planner will notify FrancoSud of a new ASP process at its outset to discuss FrancoSud's potential need for a facility within the ASP boundaries.

b. If FrancoSud believes there is a need for a facility within that particular ASP boundary, the matter will be referred to the Chair of the Francophone Regional Authority Joint Use Agreement Steering Committee. The Chair will discuss the matter with the FrancoSud representative and determine if planning for that ASP should include a school facility for FrancoSud.

c. In making a decision, the Chair and the FrancoSud representative shall have regard to the following factors:

   i. balanced distribution of FrancoSud facilities, in order to provide FrancoSud students with equitable access to schools across the city

   ii. regional need for a FrancoSud School, based on a regional catchment

   iii. if the ASP is located in an area that is not part of a regional plan, and there are no other FrancoSud facilities, existing or planned, within the immediate region (including adjacent ASPs), at least one FrancoSud facility should be provided

   iv. if the ASP is located within an existing regional plan area where there is no existing or planned FrancoSud facility within that regional plan, at least one FrancoSud facility should be provided

d. Upon making a decision, the Chair will instruct and advise the ASP project team accordingly.

3. FrancoSud Joint Use Site size and configuration

The ability of FrancoSud to access Municipal and School Reserve for their facilities does not mean that there are more students, only that they are spread across three school boards instead of two. Nor does it mean that The City will need additional playing fields for recreation purposes.

All school facilities must have the ability to meet their education delivery needs both within and outside the building. This usually means at least a school building envelope plus open space capable of accommodating at least one soccer field.

School sites accommodating French language schools must be substantively equivalent to the schools sites of nearby English language schools. If a FrancoSud facility is proposed within an ASP, the project team will investigate options for providing for a facility with suitable access to appropriate playing fields that are equivalent to the playing fields of neighboring English language schools. Options include, but are not limited to:

- a standard sized joint use site,

- a joint use site, which may be smaller than the standard but still meets education delivery requirements,
- the addition of the school building envelope to another joint use site of standard size, or
- the addition of the school building envelope to another joint use site which may need to be enlarged to accommodate it, if required, for example, two 4-acre school building envelopes, plus six acres of shared playfields.

Consideration may be given, where practical, to co-locating a FrancoSud School Building Envelope on a proposed high school site, with suitable access to playing fields. As regional facilities, both have similar locational characteristics and needs, such as transportation access and facilities. Further, high school sites are very large and the addition of a school building envelope may make more efficient use of Reserve Land overall.

4.0 Calculation assumptions

(to be updated 2019 following release of census)

A number of assumptions are included in the methodology calculation and reflect the most accurate and up to date information available at the time of their approval. These assumptions need to be updated at regularly scheduled intervals to ensure the calculation is yielding the most accurate results.

The occupancy assumptions should be updated every year the civic census conducts an age cohort survey. Upcoming census years that include data on age cohorts include 2019, 2021, and 2024. The school share and core school capacity shall also be reviewed at the same time.

Assumption	Value	Source	Description
Occupancy assumptions			
Single/Semi-Detached Student Generation Rate	0.373	Civic Census	Number of residents age 5 – 14 per single/semi-detached household
Multi-Residential Student Generation Rate	0.114	Civic Census	Number of residents age 5 – 14 multi-residential household
City-wide Vacancy Rate	3.00%	Civic Census	
School share assumptions			
Percentage of total student attending CBE/CSSD	85.4%	School Boards, Civic Census	Sum of total enrolment (provided by school boards) divided by total students aged 5-14 (from Civic Census)
CBE Share	68.3%	School Boards	
CCSD Share (City of Calgary enrolment only)	31.7%	School Boards	
Percentage of students attending FrancoSud (City of Calgary enrolment only)[1]	2.9%	FrancoSud, Civic Census, Statistics Canada	Blend of current enrolment numbers (from FrancoSud) and eligible students as per legal entitlement under Charter (ie. francophone children, or children of francophone parents)[1]
Core school capacity[2]			
CBE Elementary	350	CBE	
CBE Middle	500	CBE	
CCSD K-6	325	CCSD	The CSSD uses two building models – one with 300 students and one with 350 students. An average of 325 will be used for calculation purposes.
CCSD Junior High/Combined Elementary Junior High	450	CCSD	
Conseil Scolare FrancoSud (all)	375	FrancoSud	

1 The current K-9 enrolment of FrancoSud is 1,931. Section 23 of the Canadian Charter of Rights and Freedoms guarantees French language education rights to francophone citizens meeting certain condition. Based on data from Statistics Canada (2011), there are approximately 6,100 eligible K-9 francophone students in Calgary. Because francophone schools historically have not been assigned at an ASP level, the number of schools does not meet the demand for them. Therefore, there are eligible francophone students currently enrolled in schools in the public, separate, and private systems. However, it would also be unfair to assume 100% of eligible francophone students would attend a francophone school, as this is not the case in the other boards. This study assumes the K-9 enrolment in CSFS to be 4,000, which is approximately the average between the current enrolment (1,931) and the total eligible number of students (6,100). As a percentage of the city's total students, this equals 2.94%.

2 The calculation determines the core school requirements based on the stable population only. Therefore, this number does not include additional student capacity provided by portable classrooms.

5.0 Review procedures

1. The Principles in Section 2.0 shall be reviewed by the Joint Use Coordinating Committee every five years or earlier if recommended by Site Planning of the JUCC.

2. The review shall involve consultation with all stakeholders.

3. The assumptions in Section 4.0 for Occupancy, School Share and Core School Size shall be reviewed by Geodemographics, or its equivalent, every 2-3 yrs in accordance with procedure 4 below, and in consultation with the three school boards, as required. The results of the review will to be presented to Site Planning Team. Site Planning Team shall send a report to JUCC to confirm their approval of the assumption.

4. The data used in the formulas shall be updated following the issuance of revised age cohort data published in the Civic Census, normally every 2 – 3 years. The next scheduled updates will occur in 2016, 2019, and 2021.

6.0 Methodology for calculating total K-9 school requirements for a stable population at an area structure planning stage

The stable student population of an ASP area is based on the estimated number of single and multi-family units in an ASP[3]. The number of schools required to serve these students is calculated on a number of assumptions derived from Civic Census data as well as data provided by the school boards.

The formula for calculating the total number of schools required in an Area Structure Plan is as follows:	
1.	Total estimated single/semi detached units in ASP[3] less citywide vacancy rate[4] = total estimated occupied single/semi-detached units in plan area.
2.	Total estimated multi-residential units in ASP less citywide vacancy rate = total estimated occupied multi-residential units in plan area.
3.	Total estimated occupied single/semi-detached units multiplied by single/semi-detached student generation rate[5]=total students in single semi-detached units.
4.	Total estimated occupied multi-residential units multiplied by the multi-residential student generation rate = total students living in multi-residential units in the plan area.
5.	Combine total students living in single/semi-detached and multi-residential housing for total K-9 student population in ASP.
6.	Multiply total student population by the current school board share assumption[6] for the Calgary Board of Education, Calgary Catholic School District, and Conseil Scolaire FrancoSud to get total student populations going to each board.
7.	Divide student population going to each school board by 2 to estimate total number of students attending elementary and middle schools in CBE and CCSD schools[7].
8.	Divide total number of students going to each school of each board's School Core Capacity[8] to determine the total number of schools required.

An example is provided on the next page.

3 Estimating the total number of single/semi-detached and multi-residential units in an ASP is done by cross-referencing planned densities in ASPs to their average corresponding unit type split as determined yearly from observed plans and historic data referenced in the document *"Suburban Residential Growth"*, published annually by Geodemograpics, City of Calgary.

4 The **Citywide Vacancy Rate** is determined using data from the most current Civic Census. It typically ranges from 3% to 5%.

5 The single/semi and multi-residential **Student Generation Rates** estimate stable population of Kindergarten to Grade 9 students living in those respective housing forms. These rates are calculated using the 5 – 14 age-cohort data from the Civic Census. Further information on calculating the student generation rates can be found in the section *"Methodology for Calculating Student Generation Rates by Housing Form"*

6 **School board share assumptions** are calculated from total K-9 enrollments provided by the school boards as a percentage of total K-9 students citywide, taken from 5-14 age cohort data in the Civic Census.

7 Although the split between elementary and middle schools is not exactly 50/50, this assumption provides for some flexibility for school boards to adjust grades offered in schools to suit changing age cohorts in growing communities.

8 Stable school capacity does not include excess capacity created using temporary portable classrooms, which can be used to increase capacity during times of peak community population.

Methodology for estimating school requirements at the ASP stage

Example using 2016 assumptions (assume an ASP with 6000 single/semi units and 4000 multi units)

Occupied Units:

1. Total estimated occupied single/semi-detached units in ASP 1 =(Total single/semi-detached units) x (1 - % citywide vacancy rate 2)
Example: 6000 single/semi units **x** (**1 – 3%) = 5820** occupied single/semi units

2. Total estimated occupied multi-residential units in ASP = (Total multi-residential units) x (1 - % citywide vacancy rate)
Example: 4000 multi units **x** (**1 – 3%) = 3880** occupied multi units

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Total Students in Plan Area:

3. Total students in single/semi-detached units = (total estimated occupied single/semi units) x (single/semi student generation rate 3)
Example: 5820 single/semi units **x 0.373** students per single/semi unit **= 2171** students living in single/semi units

4. Total students in multi units = (total estimated occupied multi units) x (multi student generation rate)
Example: 3880 multi units **x 0.114** students per multi unit **= 442** students living in multi units

5. Total students in plan area = (total students in single/semi units) + (total students in multi units)
Example: 2171 students **+ 442** students **= 2613** students in ASP area

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Total Students per School Board:

6a. Total CBE students = (total students) x (CBE enrollment share)
Example: 2613 students **x 58%** CBE share **= 1525** CBE students

6b. Total CCSD students = (total students) x (CCSD enrollment share)
Example: 2613 students **x 27%** CCSD share **= 707** CCSD students

6c. Total CSF students = (total students) x (CSF enrollment share)
Example: 2613 students **x 3% = 77** CSF students

Number of Schools Required:

7a. CBE elementary students = (total CBE students) / 2
Example: 1525 CBE students **/2 = 763** CBE elementary students

7b. CBE junior high students = (total CBE students) / 2
Example: 1525 CBE students **/2 = 763** CBE junior high students

7c. CCSD elementary students = (total CCSD students) / 2
Example: 707 CCSD students **/2 = 354** CCSD elementary students

7d. CCSD junior high students = (total CCSD students) / 2
Example: 707 CCSD students **/2 = 354** CCSD junior high students

8a. Total CBE elementary school required =(CBE elementary students) / (CBE elementary core capacity)
Example: 763 CBE elementary students **/350** students per CBE elem. school **= 2.2** CBE elementary schools

8b. Total CBE junior high schools =(CBE junior high students) / (CBE junior high core capacity)
Example: 763 CBE junior high students **/500** students per CBE JH school **= 1.5** CBE junior high schools

8c. Total CCSD elementary schools required = (CCSD elementary students) / (CCSD elementary core capacity)
Example: 354 CCSD elementary students **/325** students per CCSD elem. School **= 1.1** CCSD elementary schools

8d. Total CCSD junior high schools required = (CCSD junior high schools students) / (CCSD junior high core capacity)
Example: 354 CCSD junior high schools **/450** students per CCSD **= 0.8** CCSD junior high schools

8e. Total CSF schools required = (CSF students) / (CSF core capacity)
Example: 77 CSF students **/375** students per CSF school **= 0.2** CSF schools

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7.0 Methodology for calculating student generation rates by housing form

Different forms of housing generate a range of student-aged population. Multi-residential units tend to generate fewer students than single detached housing. Generation rates by housing form should be updated every year that the civic census includes age cohort data.

Historically, student occupancy rates of households have both increased and decreased. Therefore, a rolling average is used to calculate the student generation rates to moderate any temporary spikes or drops. It is also important to note that student generation rates must be calculated on city-wide averages. The city-wide student occupancy rates are lower than student occupancy rates in newly developing areas, as new families tend to move into newly communities. However, when planning the total school requirement, it is important to plan for the stable population of the community, not the peak population that is experienced in the early stages of the community's lifecycle.

The steps for calculating the student generation rate by housing form are as follows:

1. Calculate the student generation rate for single/semi-detached dwellings using data from the current civic census. Sum the number of residents in the 5 – 14 age cohort living in the Single Family and Duplex census dwelling structure types. Sum the total number of in Single Family and Duplex units.

2. Calculate the student generation rate for multi-residential dwelling from the current civic census. Sum the number of residents in the 5 – 14 age cohort living in the Apartment, Multi-Plex and Townhouse census dwelling structure types. Sum the total number of in Apartment, Multi-Plex and Townhouse[9] units.

3. Repeat the process for the past four civic census years (although this work will have presumably been done in previous years). Sum the total number of students living in single/semi-detached dwellings in the past four census years and add to it the single/semi-detached student population from the current census year[10]. Sum the total number of in single/semi-detached dwellings from the past four census years along with the total in single/semi-detached dwellings from the current census year. Divide the total number of students by the total number of units to calculate the rolling-average single/semi-detached student generation rate.

4. Repeat step 3, using multi-residential data.

9 Although duplexes and townhomes tend to produce similar student generation rates, a duplex must be considered as a single/semi-detached unit and a townhome as a multi-residential unit in order to align with the calculation of housing splits done at the ASP stage, and to align with housing type splits reported elsewhere in The City and housing development industry. Splitting the housing forms into two categories of student generation rates also provides a buffer should lifestyle and housing demand shift in the future towards having more families living in semi-detached and town houses as expected and encouraged by the Municipal Development Plan. Assigning a higher student generation rate to semi-detached units protects for this future shift towards families living in higher-density housing forms by allocating students to these housing types at higher rates than are currently being seen.

10 Because census age cohorts are released every two to three years, using five census years in the calculation equates to a rolling average trend of approximately ten to twelve years.

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