



# BARR COLONY SCHOOL **FEASIBILITY REPORT**

November 2023

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## Background

The Lloydminster Public School Division Board of Education passed a motion at their August 30, 2023 meeting directing the Director of Education to create a feasibility report regarding the operation of Barr Colony School. As per Board Policy 15: School Closure/Grade Discontinuance the Board can request the Director of Education to conduct a review of any school facility within the school division. The review may provide options with respect to possible attendance area consolidation and school closure for the efficient accommodation of students and the provision of quality education in the short and long term.

Key areas looked at in this report are:

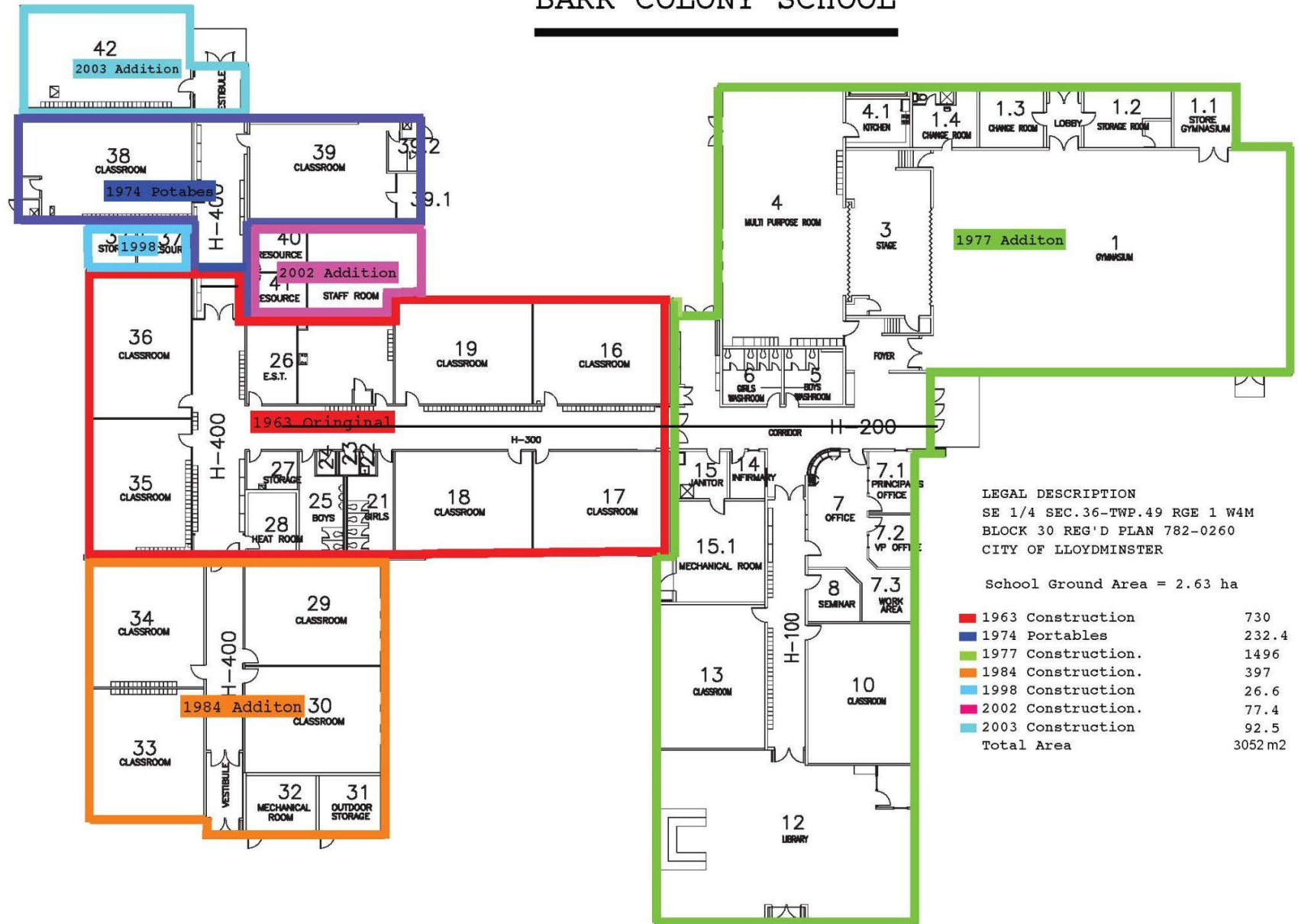
- Building age and construction
- Summary of Mould Assessment Report - RH Services Inc.
- Barr Colony Limited Structural Report - Robb Kullman Engineering LLP
- Deferred Maintenance Report
- Potential Cost Efficiencies
- Current LPSD Enrolment and Utilization Rates
- Potential Revised Attendance Area

## Physical Building

Since its original opening in 1977, the school has taken on several permanent and portable additions. The original school consisted of approximately 1500 m<sup>2</sup> of new building, with the addition of a 730 m<sup>2</sup> school building originally constructed in 1963. From there, a 400 m<sup>2</sup> permanent addition was constructed in 1984. Between 1998 and 2003, there were 3 portable classrooms added to the school, with some permanently constructed additions for office and staff room space.

**Please see the building floor plan on the next page.**

# BARR COLONY SCHOOL



LEGAL DESCRIPTION  
 SE 1/4 SEC.36-TWP.49 RGE 1 W4M  
 BLOCK 30 REG'D PLAN 782-0260  
 CITY OF LLOYDMINSTER

School Ground Area = 2.63 ha

1963 Construction	730
1974 Portables	232.4
1977 Construction.	1496
1984 Construction.	397
1998 Construction	26.6
2002 Construction.	77.4
2003 Construction	92.5
<b>Total Area</b>	<b>3052 m2</b>

## Deferred Maintenance

All LPSD schools have some amount of deferred maintenance. Deferred maintenance is the practice of postponing maintenance activities such as repairs or replacements in order to save costs, meet budget funding levels, or realign available budget monies. Critical building infrastructure is the main focus of Alberta and Saskatchewan preventative and infrastructure maintenance and renewal funding, while operations and maintenance funding is used for less critical, day-to-day maintenance of school buildings.

Barr Colony School has gone through several changes over the years, yielding minor renovations to the interior finishes of the library, classrooms, staffroom, and office and administration areas. Much of the school's mechanical and electrical systems are original to the building and are near or at their end of life. The building envelope, such as the brick veneer finishes, are in good condition, but exterior windows and insulated panels are nearing their forecasted serviceable lifespan.

The 1977 portion of the school was built slab on grade, and is primarily of masonry construction. The roof structure consists of open web steel joists. The roof system over this area of the school was replaced in 2017/2018. This portion of the school is in good structural condition. Some of the mechanical systems, such as the boiler plant, building control systems, and plumbing fixtures, will require renewal within the next 3-5 years. Corresponding electrical systems would also be renewed.

The 1963 portion of the school was moved to the location and placed on a concrete grade beam system, with steel and concrete beams at the interior bearing lines. The building itself is primarily of wood construction. Beneath the building is a crawlspace of varying elevation. The crawlspace has been susceptible to flooding throughout its 60-year life, which has been harmful to the wood floor system of the building. Various steps have been taken to remediate the crawl space after flooding to extend the life of the wood floor system, but rot has set in at joist ends and end floor plates. Mechanical HVAC duct systems are fed to classrooms via the crawlspace making them susceptible to crawl space flooding. The roof system is nearing its end of life and will require replacement within 5 years.

The 1985, 4 classroom addition to the school was constructed slab on grade and is a permanent-style building. This area of the school is nearly all original and has not seen much in the way of renovations or renewals. However, the roof system on this section of the school was replaced in 2017.

The northeast portion of the school contains several permanent and portable style additions that occurred from 1998 through 2003. Two of the portables were constructed in 1974 and have already met their serviceable life. Portable classrooms of this era were constructed entirely of wood and were not intended to be permanent additions to schools.

## Barr Colony School Deferred Maintenance

5 Year Deferred Maintenance Cost	Replacement Value	5 Year Facility Condition Index Rating (FCI)**
\$3,739,000*	\$13,283,000*	28.1%*

*\*Values from Alberta Infrastructure as of October 23, 2023.*

*\*\*FCI (facility condition index) is the ratio of the building's 5-year maintenance costs to the building replacement cost.*

Barr Colony School's deferred maintenance costs include but are not limited to:

- Roofing - \$342,000
- HVAC fan systems - \$385,000
- Boiler system - \$185,000
- Building controls - \$275,000
- Exterior windows - \$72,000

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## Summary of Mould Assessment Report Findings

The below information has been taken from the Mould Assessment Report created by RH Services Inc. dated July 2013.

### Executive Summary

The extent of mould that was observed above grade in the 1963 portion of the building was very minimal and can easily be managed, the crawlspace conditions were extremely conducive to mould magnification and the amount of visible mould was restrained by the high quality of the building materials that had been used in the original construction, (Douglas fir trusses and plywood subfloor), this being said, even high-quality materials that are subjected to elevated humidity and poor ventilation will eventually mould and rot. This was evident along the exterior walls at the end plates and where the floor joists contact the end plates and the concrete grade beam. The end of the joists had rotted and lost their structural integrity, this could be seen in the compression of the joists (up to ½") visible at the grade beam. Extreme rot fruiting bodies and fungal mycelia were present at the end plates with cuboidal cracking and degradation to a reddish powder typical of wood that has had the cellulose degraded and the lignin left. (Dry rot, brown rot).

Complete remediation of the mould and correction of the structural damage in the crawlspace would, in our opinion, not be a cost effective option, It would be more feasible to initiate a mould management plan that will aim to keep the 1963 portion of the school in a safe and operational condition for a further three to five year period, while a long term plan is determined and implemented.



## **Mould Assessment Report Findings (Continued)**

### **Exploration of the perimeter detail (typical throughout)**



Undisturbed condition as discussed on previous page



Perimeter with rigid fibreglass removed



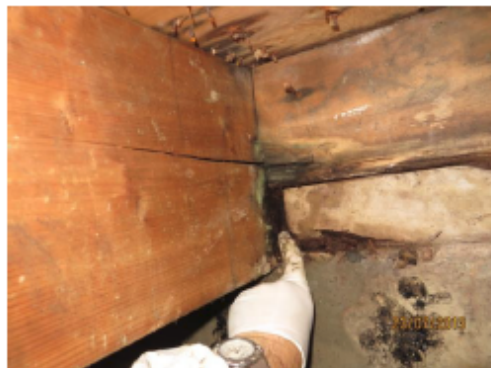
View of the left side of the central joist, note the white mycelia, and dark staining indicating fungal attack



View of the right side of the central joist with a finger penetrating the rotten wood of the blocking



The rotten blocking was broken away by hand and was powdery with cuboidal cracking (Caused by fungi that have removed the cellulose from the wood and left the lignin, Sometimes referred to as 'Brown rot' or 'dry rot')



With the blocking removed it can be seen that the end of the joist has no structural integrity remaining

## ***Mould Assessment Report Findings (Continued)***

### 4.0 Summary

The crawlspace underneath the entire 1963 portion of the school is wet and has major water infiltration issues. The damp condition creates an environment conducive to the amplification of mould, which, when left unaddressed, results in rot, which in turn will compromise the structural integrity of the structure. At the current time, structural compromise has occurred and will continue to worsen unless the crawlspace environment is changed and the rotten lumber is replaced. The current impact that the crawlspace is having on the occupied areas above is manageable but can be expected to worsen and problems will amplify over the coming years unless full remediation is undertaken.

### 6.0 Suggested Actions

Option One, Full remediation: (This option will be necessary should the projected life of the 1963 section of the school exceed five years).

- Immediately locate and control any active water infiltration, including roofing, roof joints and grading on the west side.
- Dry the crawlspace using aggressive drying and ventilation
- Install temporary support beams to take the load off the affected exterior walls ( may require ability to raise the structure on jacks)
- Undertake mould and structural remediation (This will include the physical removal of rotten portions of the floor joists and will require an engineered design proposal for an acceptable method of repair. Repair will be complicated by the fact that the current system involves embedded joists at the grade beams)
- Clean all mouldy surfaces and remove all cellulose wastes and unnecessary items from the crawlspace
- Determine the source of the spilled vermiculite insulation, correct it and clean vermiculite
- Design and install a method of preventing re-occurrence of moisture incursion into the crawlspace (This might involve application of concrete, installation of weeping tile and sump system and the installation of an air exchange system)
- Above grade, remove the bottom four feet of the drywall from all exterior walls, remove all insulation and vapour barrier, clean all of the exposed wall structure including the inner face of the exterior sheathing, studs and sole plates
- After independent mould inspection commence re-building

### ***Mould Assessment Report Findings (Continued)***

Option Two, Temporary Management: (This option could be considered if the 1963 portion was scheduled for demolition within five years).

- Immediately locate and control any active water infiltration, including roofing, roof joints and grading on the west side.
- Dry the crawlspace using aggressive drying and ventilation
- Install weeping tile and sump drainage system the sump pumps to be fail and high water alarmed
- Install an additional three rooftop mounted extraction fans with to exhaust a total of 2,400 cfm from the crawlspace, fans to run continually and be fail alarmed.
- Remove all vinyl baseboard from classroom exterior walls, inspect for mould and encapsulate or remove
- Purchase and have ready for use seven HEPA filtered air purifiers (may be required if air samples indicate mycoflora variants)
- Undertake collection of air samples for viable mould in each classroom and staff room upon completion of the above work and each term during normal occupancy
- Inform and instruct all school staff of the management programme and the schedule for school replacement

*Structural engineer would be needed to confirm the stability of the joist detail for the five year life expectancy.*

## **Mould Assessment Report Findings (Continued)**

### 7.0 Budget Costs and Schedule

#### **Option One, Full Remediation:**

##### **Desired schedule:**

Summer 2013	roofing, exterior grading and drying of crawlspace
Autumn-Spring 2013-14	Design and planning for structural requirements
Summer 2014	Mould remediation and structural remediation, interior mould remediation and re-building
Fall 2014	Re-occupancy

##### **Budget costs:** (very preliminary order of magnitude only)

Roofing and grading	300k
Design and planning	200K
Remediation and re-build	1,200K
<b>Total</b>	<b>1,700K</b>

#### **Option Two, Temporary Management:**

##### **Schedule:**

Summer 2013	roofing, exterior grading and drying of crawlspace, inspect and repair baseboards. Purchase HEPA filtered air purifiers
2013 Fall term	viable mould in air sampling
2014	viable mould in air sampling (three sets)
2015	viable mould in air sampling (three sets)
2016	viable mould in air sampling (three sets)
2017	viable mould in air sampling (three sets)
2018	viable mould in air sampling (three sets)
<b>2019</b>	<b>Demolition</b>

##### **Budget Costs:**

Roofing, grading and crawlspace drying, fan and drainage system installation and interior remediation	375K
2013 air sampling and inspection	3K
2014-2018 air sampling and inspection	50K
Contingency	100K
<b>Total</b>	<b>528K</b>

## **Mould Assessment Report Findings (Continued)**

Quorex was asked to give an updated cost if the Full Remediation work was completed today.



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Fax: (306) 665-7705

November 15, 2023

Lloydminster Public School Division  
5017 - 46 Street  
Lloydminster, AB, T9V 1R4

**Attn.: Wayne Grassl, Facility Manager**

**Re: Barr Colony School Structural Remediation High-Level Budget**

Dear Wayne,

We would like to thank you for giving Quorex the opportunity to provide the Lloydminster Public School Division with this current market value high-level budget for what we understand to be the Work described in the provided RH Services Inc. 2013 Assessment Report as: 'Option 1 – Full Remediation (structural repairs), at the Barr Colony School'.

We have reviewed the provided report in order to develop an understanding of the extent of the structural work required. For clarity, our budget is based upon the following:

- We understand that the exterior perimeter portion of the floor joists located in the 1963 school (east and west; totaling 80 meters), all have significant rot and are in need of repair (we assume that this can be achieved by sistering in new wood joist members along the existing joist to bridge the decayed areas).
- We understand that the existing joist ends are embedded in the concrete foundation so the new bearing detail would have to be altered (we assume that this can be achieved by adding a steel bearing angle fixed to the inside face of the concrete foundation to carry the load of the floor system).
- We understand that there is no subfloor sheathing that is in need of replacement.
- We understand that the floor system in the affected areas will have to be temporarily shored within the crawlspace while the repairs are conducted.
- We understand that the contractor on site would be considered a Prime Contractor during the structural repairs, and therefore the budget is to allow for all design and site operations costs reasonably anticipated for this work only.
- We understand that the all other remediation work described in the Report (including: envelope repairs, mold remediation, crawlspace dewatering and regrading, and/or interior architectural finishes), are not to be considered in this budget.

In consideration of the above, we present the following:

**Total High-Level Construction Budget** **+/- \$1,760,000 + Applicable Taxes**

I trust you find this presented figure satisfactory. That said, please do not hesitate to contact me anytime to further discuss what is included, or what may be required for further pricing going forward.

Yours truly,  
**Quorex Construction Services Ltd.**



**Brent Mareschal, A.Sc.T., GSC, LEED AP**  
Operations Manager

# Limited Structural Report Findings

**ROBB ■ KULLMAN ENGINEERING LLP**

STRUCTURAL CONSULTANTS

3022 Louise Street, Saskatoon, SK, S7J 3L8 T: 306.477.0655 F: 306.477.1995

October 19, 2023

File No. : 23-634

Lloydminster Public School Division  
5017 - 46 Street  
Lloydminster, AB  
T9V 1R9

**Attention: Wayne Grassl**

Dear Sir:

**Re: Barr Colony School - Limited Structural Assessment  
3103 52 Avenue  
Lloydminster, AB**

As you requested, we visited the above-captioned property on Friday, October 13, 2023 to investigate the state of the existing wood framed wood floor above the existing crawlspace.

Our investigation was undertaken to identify apparent structural deficiencies which may affect the safety of the wood floor system and to address the concerns expressed in the "Mould Assessment Barr Colony School" as prepared by RH Services Inc., dated July 2013.

Our investigation was limited to a walk-through visual inspection of the following portions of the building;

- .1 Exterior perimeter at grade level was reviewed to get an overall sense of the building layout and drainage around the building.
- .2 The crawlspace was accessed under the portion of the building that had a main floor constructed of wood.

No original building drawings were made available for review.

We examined a selected sample of structural components that were exposed and safely accessible in the crawlspace. No effort was made to expose hidden components. We did not examine all exposed structural components.

Our investigation has not included measurement, testing, analysis or other efforts that would be required to determine the load capacity of the structure or to verify its conformance to the National Building Code of Canada.

**Observations**

The main floor is framed as follows;

- .1 Plywood wood floor sheathing, supported by;
- .2 Dimensional wood joists (typically 2x10 framing at 16" on centre), supported by;
- .3 Typically a concrete grade beam at the perimeter or a steel beam at interior bearing lines.

The crawlspace was dry at the time of the site visit. Based on discussions with yourself, additional drainage sumps and additional ventilation were added to the crawlspace.

Our review of the existing joists was largely limited to the exterior concrete grade beam on the north edge of the building. This was the area noted in the RH Services report as being the most damaged. Our review of this area has confirmed that there has been some rot to the joist ends that are set into the concrete. Not every joist has sustained the same amount of damaged and some joists have no damage at all. The joist rot appeared to be limited to the portion of joist set into the grade beam.

... continued

Wayne Grassl  
October 19, 2023

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Based on our review of this area, there have been no signs of settlement or crushing of the joist ends.

Based on our review of other areas of the crawspace framing, there were no other signs of rot or distress.

### **Assessment**

Our observations suggest that the structure is generally in good condition. It appears to have adequately supported the loads to which it has been subjected. We observed no evidence of overloading, excessive deformation or deterioration except for the limited rot at some of the joist ends at the north exterior building face.

### **Recommendations**

To prevent joist settlement into the concrete grade beam we recommend that the joists with damaged joist ends are repaired. Based on our experience, we expect the following would be the most cost effective method;

- .1 Adding a galvanized joist hanger at the end of the joist set into the existing concrete wall.
- .2 The joist hanger can simply be fastened to the existing concrete grade beam by means of Tapcon fasteners.

### **Limitations**

This report has been prepared for the exclusive use of Lloydminster Public School Division and their agents, as set forth herein and shall not be relied upon by others without the express written consent of Robb Kullman Engineering LLP. It has been prepared in accordance with generally accepted structural engineering practices and no other warranty, express or implied, is made.

The opinions expressed herein are based solely on visual inspection and shall be interpreted with due consideration of the limitations inherent in such an investigation.

Should conditions be discovered that differ from those that we have observed, please notify us so that we may assess the new information.

We trust the information provided in this report will meet your needs at this time. Should you require further information or clarification please do not hesitate to contact the writer.

Yours truly,  
**ROBB KULLMAN ENGINEERING LLP**



per:  
Mark Gress, P. Eng

## Current LPSD Enrolment and Utilization Rates

School	23/24 Enrolment	Utilization Rate	24/25 Projected Enrolment	Projected Utilization Rate	Building Capacity
<b>Barr Colony</b>	<b>274</b>	<b>88%</b>	<b>244</b>	<b>78%</b>	<b>311</b>
Avery Outreach	201	N/A	N/A	N/A	N/A
Bishop Lloyd	413	99%	426	102%	417
College Park	629	140%	564	125%	450
E.S. Laird	308	88%	300	86%	351
Jack Kemp	328	74%	268	61%	442
LCHS	1008	85%	1310	83%	1187
Queen Elizabeth	170	83%	145	71%	204
Rendell Park	464	122%	392	103%	381
Winston Churchill	347	83%	304	73%	416

With the expansion at Lloydminster Comprehensive High School, the student population at our 5 elementary schools and College Park School will decrease to start the 2024/2025 school year. As a result, 4 of LPSD schools will have a population below 80% building capacity.

*\*For most schools capacity is calculated by dividing the total instructional area by 4 m<sup>2</sup>/student. For high schools, we add capacity for PAA labs and gyms. (Ministry of Education)*



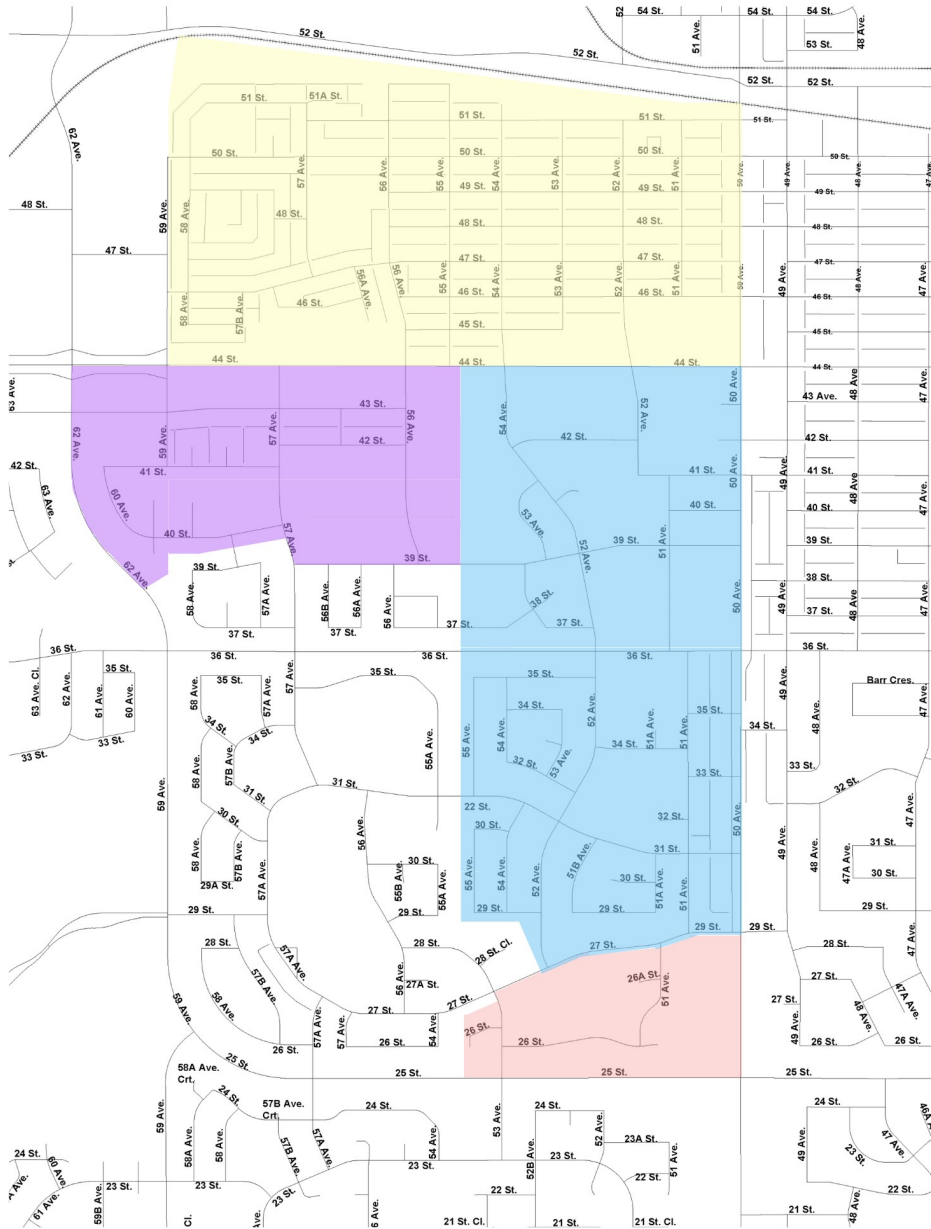
## Barr Colony K-6 Enrolment Trend

School Year	K-6 Enrolment	Increase/Decrease
2014/2015	327	-
2015/2016	296	-31
2016/2017	253	-43
2017/2018	220	-33
2018/2019	183	-37
2019/2020	184	+1
2020/2021	171	-13
2021/2022	195	+24
2022/2023	218	+23
2023/2024	235	+17

## Potential Revised Attendance Areas

The maps on the next two pages illustrate how attendance area boundaries could be changed for Barr Colony School students.

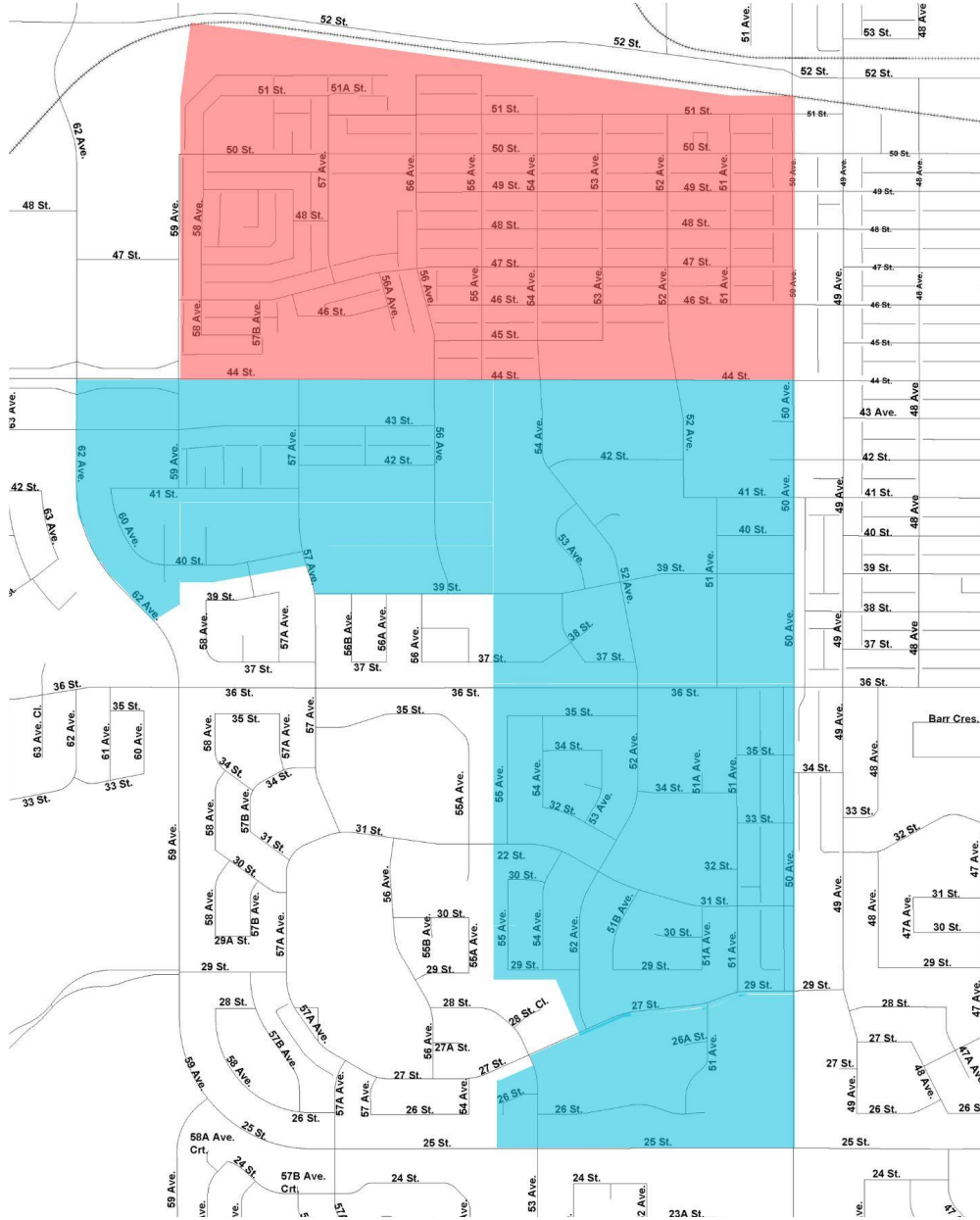
### Grade K-5 Boundaries



Yellow - Queen Elizabeth School  
Blue - Jack Kemp School

Purple - Rendell Park School  
Red - Winston Churchill School

### Grade 6-8 Boundaries



Red - E.S. Laird Middle School  
 Blue - Bishop Lloyd Middle School

### **Potential Revised Attendance Areas (Continued)**

If attendance boundaries were revised as suggested on the previous pages, the potential impact to school enrolment and utilization rates is displayed in the table below:

School	24/25 Projected Enrolment	Projected Utilization Rate	With Boundary Changes		Building Capacity
			24/25 Projected Enrolment	Projected Utilization Rate	
<b>Barr Colony</b>	<b>244</b>	<b>78%</b>	<b>N/A</b>	<b>N/A</b>	<b>311</b>
Avery Outreach	N/A	N/A	N/A	N/A	N/A
Bishop Lloyd	426	102%	401	97%	417
College Park	564	125%	564	125%	450
E.S. Laird	300	86%	325	96%	351
Jack Kemp	268	61%	426	96%	442
LCHS	1310	83%	1310	83%	1187
Queen Elizabeth	145	71%	184	90%	204
Rendell Park	392	103%	432	113%	381
Winston Churchill	304	73%	311	75%	416

*\*For most schools capacity is calculated by dividing the total instructional area by 4 m<sup>2</sup>/student. For high schools, we add capacity for PAA labs and gyms. (Ministry of Education)*

## Annual Financial Impact of Repurposing School

Funding & Expenditures	Financial Impact	Category
SK and AB Grant Reduction	(\$280,000)	Revenue
Staffing	\$334,000	Expense
Utilities	\$84,000	Expense
<b>Total Annual Savings</b>	<b>138,000</b>	

Facility Grants from Saskatchewan and Alberta would be reduced.

Staffing efficiencies would be realized through few school administrators required across LPSD. As well, custodian and secretarial time will be reduced. These staff members would be offered positions in other buildings.

With a smaller school footprint, annual utility costs will be reduced.

The total annual savings does not include annual maintenance costs that will be reduced. These costs vary annually and include costs of materials and labour.

## School Community Engagement

School community engagement sessions were held in the Barr Colony School gymnasium on November 6th with staff and then the school community at large. Comments were gathered from the in-person sessions and 63 responses provided through the online option. The data gathered in-person and through the surveys reveal a deep concern and emotional attachment to Barr Colony School among respondents. The overarching themes include:

**Urgency and Anxiety:** Many responses express anxiety over the delayed decision-making process and its impact on families and staff. There's a strong desire for more immediate action to facilitate planning and reduce uncertainty.

**Community Impact:** The potential closure of the school is seen as negative, not just for students and staff, but for the entire neighborhood. The school is perceived as a vital community hub.

**Leadership Criticism:** There's criticism of the leadership and decision-making process of the LPSD. Respondents expect accountability and express distrust, citing perceived negligence in maintaining the school building.

**Advocacy for Maintenance and Renovation:** A common suggestion is to fix and maintain the current Barr Colony School infrastructure rather than closing it. Respondents seem to prefer renovation over the disruption of relocating students.

**Impact on Students with Special Needs:** The potential closure is particularly concerning for families of children with special needs. The proximity and familiarity of Barr Colony School is important to these families, and any change is anticipated to have a negative impact.

**Overcrowding Concerns:** Many responses highlight the problem of overcrowding in other schools. There's a fear that moving Barr Colony students to other schools will exacerbate this issue.

**Call for Transparency and Detailed Planning:** Respondents would have liked more transparent communication and detailed planning from the LPSD. They seek clear information on alternatives, renovations, and the future of the school.

**Emotional Connection and History:** There's sentimental attachment to the school, with many families having chosen their homes based on its proximity. The history and personal connections to the school add an emotional dimension to the issue.

**Financial and Management Critiques:** Several responses question the financial management of the school district, suggesting that funds could have been better allocated towards maintaining Barr Colony School.

**Alternative Solutions and Suggestions:** Some respondents propose creative solutions, such as partial closures with temporary classrooms, bringing back students who left for specialized programs, or transforming the school into an early learning center.

These responses collectively paint a picture of a community deeply invested in the fate of their local school, concerned about the impact of its potential closure on their children's education and well-being, and seeking more engagement and transparency from the school division leadership.



## Conclusion

In summary, there are many different factors to consider when deciding the future of Barr Colony School:

- Staff and Student Safety
- Impact a school move will have on students and staff
- Fiscal considerations
  - Cost of full remediation of the 1963 section of the school
  - Significant maintenance costs in the next 5 years
  - Operational savings with Barr Colony School repurposed
  - Funding decrease if Barr Colony School repurposed
- Building utilization rates across Lloydminster Public School Division
- Impact (positive or negative) on surrounding elementary schools
- Other options available that do not involve moving students and staff

In making this decision, the LPSD Board of Education must consider the responsible use of division funding and resources to benefit all students across the school division.

## [Appendix 1 - Board Policy 15](#)