

то:	CHAIR AND MEMBERS PLANNING & ENVIRONMENT COMMITTEE MEETING ON MONDAY AUGUST 28, 2017
FROM:	JOHN M. FLEMING MANAGING DIRECTOR, PLANNING AND CITY PLANNER
SUBJECT:	REQUEST FOR DEMOLITION OF HERITAGE DESIGNATED PROPERTY AT 723 LORNE AVENUE (LORNE AVENUE PUBLIC SCHOOL) BY: CITY OF LONDON

#### RECOMMENDATION

That, on the recommendation of the Managing Director, Planning & City Planner, with the advice of the Heritage Planner, with respect to the request for the demolition of a heritage designated property at 723 Lorne Avenue School the following actions **BE TAKEN**:

- a. The demolition **BE PERMITTED**; and,
- b. The following items identified in Appendix C of this report **BE REMOVED** from the building prior to its demolition and **BE INCORPORATED** into a future park space at the site with appropriate commemoration/interpretation:
  - i. The school bell; and,
  - ii. Aluminium lettering currently affixed to the north façade of the building.

#### PURPOSE AND EFFECT OF RECOMMENDED ACTION

The recommended action would satisfy requirements of the *Ontario Heritage Act* for the demolition of a D-ranked property located within the Old East Heritage Conservation District which is designated under Part V of the *Ontario Heritage Act*.

### PREVIOUS REPORTS PERTINENT TO THIS MATTER

June 20, 2017. Report to Corporate Services Committee, "Lorne Avenue Public School Update."

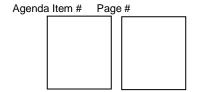
February 21, 2017. Report to Corporate Services Committee, "Lorne Avenue Public School Request for Proposals Update and Next Steps."

March 24, 2015. Report to Corporate Services Committee, "Lorne Avenue Public School Update."

# BACKGROUND

#### Location

The property at 723 Lorne Avenue is located on the southwest corner of Lorne Avenue



and English Street in Old East (Appendix A). It was the location of the Lorne Avenue Public School from 1875 to 2016. Queens Place, a short street north of Queens Avenue just west of English Street, terminates at the southern end of the property.

The Lorne Avenue Public School (existing building constructed 1961/1969) is set within a context of historic homes built in the 1860s-1930s that have a reasonably consistent character and quality (architectural features, building materials, and construction details).

## **Property**

The property at 723 Lorne Avenue is located within the Old East Heritage Conservation District (HCD). The Old East HCD was designated under Part V of the *Ontario Heritage Act* in 2006. There are 963 properties in the Old East HCD. 723 Lorne Avenue was assigned a D-ranking by the *Old East Heritage Conservation District Plan*.

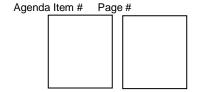
### Description

The existing building located at 723 Lorne Avenue replaced the original school structure (built in 1875, with additions and modifications). The existing building was a purpose-built school structure. It has a U-shape footprint, with its broad façade fronting the south side of Lorne Avenue; the U-shape footprint is open to the schoolyard at the rear (Appendix B). The building is three stories in height, with the exception of the two-storey wing (including the double-height gymnasium) at the west end of the building. The first storey is accessed by descending a half flight of steps; the second storey is accessed by ascending a half flight of steps. The exterior of the building is clad in red brick veneer, laid in a stretcher bond. The brick is punctuated by tall, narrow aluminium frame windows that are regularly spaced across the façades and aligned between floor levels of the building, with the exception of the gymnasium space which has no windows and a portion of the south façade which was part of the 1961 addition (with a different window fenestration pattern; see Appendix B, Image 15). The building has flat roof articulated by a plain parapet as well as mechanical units and a penthouse.

The main (north) entrance to the building is located off Lorne Avenue. It is accented by a fixed awning, which spans the front entry doors and adjacent windows. The space above the entry doors is accented by vertical engaged piers which project to the parapet, almost appearing like crenellations (see Appendix B, Image 18). The second storey between the engaged piers is blind, but windows are located between the engaged piers of the third storey. The engaged piers appear to be concrete and are painted a blue colour, which contrasts with the yellow colour paint applied between the engaged piers and the red colour of the brick. Aluminium lettering, reading "Lorne Avenue Public School," is affixed to façade to the east of main entry. Additional entrances are located on the east façade under the library projection, the south end of the east wing, the south end of the central portion of the building, the south end of the west wing, and out of the gymnasium.

Similar architectural detailing is found on the library resource centre, which projects as a cantilevered structure supported by piers off the second storey east façade. Like the front entry, the piers are painted blue and the wall cladding is painted yellow. The piers define the seven bay length of the projection. The piers project above the parapet, similar to those of the front entry.

The interior of the building has features and finishes typical of a mid-century educational institution (see Appendix B, Image 20-21). The main corridors and stairwells have terrazzo flooring with painted concrete block walls. Some corridors have benches, with hooks and shelves, and others have lockers. Classrooms are typically finished with painted concrete block walls and tile floors. Drop ceilings and fluorescent lighting are



found throughout. Solid wood cabinets and sinks, as well as synthetic (green) chalkboards can be found in most classrooms.

In addition to its 27 classrooms (including some "quads"), the building also included: specialized kindergarten spaces, resource centre for the hearing impaired, special education classrooms, adult English as second language facilities, family studies (kitchen space), music room, library resource centre, resource/seminar spaces, wellness centre/nurses office, interview rooms, gymnasium with stage, as well as administrative offices, custodial spaces, mechanical rooms, and storage.

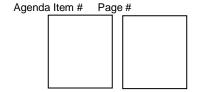
Grass boulevards and sidewalks are located along the Lorne Avenue and English Street frontages of the property. An asphalt-paved parking area is located at the southwest corner of Lorne Avenue and English Street, which is accessed by a one-way route off of Lorne Avenue and exiting onto English Street. An additional asphalt-paved parking area, which is enclosed by chain link fencing, is located at south end of the property off of Queens Place. Chain link fencing also defines southern and western extents of the property. Paved driveways are located off of English Street south of the building and to the west of the building off of Lorne Avenue; these provide access into the schoolyard. The majority of the schoolyard is paved in asphalt and annotated with painted basketball courts, hopscotch, and other recess-time games. Playground equipment was located in the centre of the U-footprint of the building, as well as the southeast corner of the property in an area covered by pea gravel (recently removed). A grassed area is located at the west end of the property, between the parking lot in the southwest corner of the property and the ball hockey court in the northwest corner of the property. There are a few trees located around the perimeter of the property, as well as a few trees on the edge of the grassed area.

#### **Brief History**

The Euro-Canadian history of the property beings in 1819 when Nobel English (c.1797-1872) obtained a land grant of 100-acres from Colonel Thomas Talbot. In 1837, Nobel English purchased an additional 100-acres, expanding his property holdings to include the land now defined by Dundas Street, Central Avenue, Adelaide Street, and Woodman Avenue (Baker and Neary 2005, 15). Thirty-five acres of Noble English's property between Adelaide Street and what would become Elizabeth Street was subdivided into 120 lots. Following his death in 1872, the remainder of Nobel English' property was surveyed and subdivided into building lots by Samuel Peters (1822-1882) under the direction of his heirs led by Rev. Nobel Franklin English.

Streets were named for the English family, including English Street, Elizabeth Street (for Elizabeth Forsythe English), Elias Street (for Elias English), Timothy Street (for Timothy English; now Lorne Avenue – renamed for the Marquis of Lorne, Governor General of Canada in 1876), Franklin Street (for Nobel Franklin English; now a continuation of Dufferin Avenue), and Lyman Street (for Lyman English; now a continuation of Princess Avenue – named for Princess Louise) (Baker and Neary 2005, 15; Priddis 1909).

In 1875, property within the English subdivision was purchased by the "School Board" to serve the growing needs of the newly incorporated Village of London East. The first school was designed by S. Peters & Sons, and was a two-room brick school that faced Timothy Street. This school was briefly named Timothy School, but became known as the "Anderson School," as a tribute to Murray Anderson (1814-1898), who was the first mayor of the incorporated City of London in 1855 and prominent London East resident (Matthews 1955).



The Anderson School (later Lorne Avenue Public School) grew as the community around it developed. In 1879, two classrooms were added to the original structure. In 1890, four more classrooms were added. In 1896, an addition with two more classrooms was designed by Herbert Edward Matthews (1867-1941), who also completed additions or plans for five other schools in London in 1896-1898 (see Appendix B, Image 5). In 1906-08, an addition with four additional classrooms and extensive façade alterations, designed by William G. Murray (1876-1954), were added onto the front of the building to bring the school building almost up to Lorne Avenue (see Appendix B, Image 6). In 1952, the fifteenth classroom was added to the building, and in 1956, a three-floor wing to the west was added at a cost of \$63,000 (*Echo*, February 6, 1957).

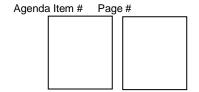
The London & Middlesex Historical Society published an account of the history of the Lorne Avenue Public School by W. D. E. Matthews, Principal (June 15, 1955). Regarding the old school bell, it notes that the bell on the roof of Lorne Avenue Public School was hit by lightning in 1950; "one summer night, in the midst of a violent thunderstorm, aroused by a piercing, shattering bolt of lightning, it shuddered, clanged, and spoke no more. Later when workmen repaired the roof, both bell and turret were removed." The bell was removed and later displayed in the front foyer of the Lorne Avenue Public School.

In 1961, a nine room addition to the east was constructed to the design of Robert D. Schoales, architect, Division of Buildings, London Board of Education (see Appendix B, Image 9). The addition was opened by Dr. A. B. Lucas, London Director of Education, on March 1, 1962 (*London Free Press*, March 2, 1962). This addition can still be seen on the south façade of the existing building, as articulated by different brick cladding on the exterior and different composition of window fenestration.

Robert D. Schoales was also responsible for the design of the existing structure constructed in 1969-1970 (see Appendix B, Images 10-11). This replaced the earlier school and its additions, excluding the 1961 east addition which was incorporated into the central portion of the existing school building. The north façade of the 1961 building was substantially altered in 1969-1970, including removal of most of its glazing. Additionally, six homes along English Street were demolished in 1968 in anticipation of this addition (*London Free Press*, September 25, 1968). When it was announced in 1967, the estimated costs of the rebuild project was \$1,224,140 (*London Free Press* October 27, 1967); the final costs were \$1,057,300 and the project was completed "in a record 88 working days" (*London Free Press*, April 4, 1970).

Robert D. Schoales was on the Board of Directors of the Research Corporation of the Association of School Business Officials in 1964 when it published Research Bulletin No. 2, "Rehabilitation of Existing School Buildings or Construction of New Buildings? Criteria for Boards of Education, Administrators and School Business Officials" for the U. S. Department of Health, Education and Welfare, Office of Education. Four primary criteria educational obsolescence, site and location obsolescence, obsolescence, and additional considerations. Heritage, or historical reasons, were not factors in the decision making questionnaire. As architect for the London Board of Education, Robert D. Schoales was responsible for the design of many of London's midcentury school buildings, including but not limited to Knollwood Park Public School (70 Gammage Street) and G. A. Wheable Centre for Adult Education London (70 Jacqueline Street).

In addition to W. D. E. Matthew's "Lorne Avenue School" (June 15, 1955), W. W. Shannon's update, "Lorne Avenue Public School: A Brief History 1875-1967" (1967), and Debra Roger's *Hey Wendy Watch This! An East of Adelaide Childhood* (2016) record



some of this stories and historical associations of the Lorne Avenue Public School.

#### **School Closure**

In 2011, the Thames Valley District School Board (TVDSB) authorized an Accommodation Review Committee (ARC) for Bishop Townshend Public School, Lorne Avenue Public School, and St. George's Public School. Lord Roberts French Immersion Public School was subsequently added in January 2012 to the Central London Elementary ARC. Public consultation meetings were held in 2012, and a draft ARC Report was presented on January 31, 2013. The community group, Save Lorne Ave., advocated for Lorne Avenue Public School to remain open. The Central London Elementary ARC rejected Senior Administration's recommendation and recommended that all schools remain open. Senior Administration's response to the Central London Elementary ARC on March 26, 2013 further recommended that Lorne Avenue Public School be closed and declared surplus as of June 2015, and that students be accommodated at Bishop Townsend Public School and St. George's Public School. Efforts to sell the school property were then initiated by TVDSB.

The City of London entered into an agreement of purchase and sale with the TVDSB to acquire the Lorne Avenue Public School in 2014. It was purchased to meet a critical need for parkland in the Old East Village neighbourhood. In 2015 and 2016, the City initiated a process to explore the future of the site, including potential adaptive reuse and park schemes.

Lorne Avenue Public School was initially planned to close at the end of the 2014-2015 school year, but was extended to remain open for the entire 2015-2016 school year due to renovation work at Bishop Townsend Public School required to accommodate the incoming students. The "End of an Era Bash" was held on June 11, 2016 to celebrate 141 years of the Lorne Avenue Public School. Students were relocated to Bishop Townsend Public School, which was renamed East Carling Public School for the 2016-2017 school year.

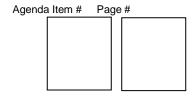
On October 28, 2016, the City of London took possession of the Lorne Avenue Public School property. On June 26, 2017, Municipal Council provided direction to Civic Administration to proceed with demolition, including the legislated processes for demolition of a heritage designated property under the *Ontario Heritage Act*.

#### **Demolition Request**

A request for the demolition of the heritage designated property was received on June 27, 2017. Pursuant to Council Policy, a public participation meeting is held at the Planning and Environment Committee. If Municipal Council does not make a decision on the demolition request by September 25, 2017, the request is deemed permitted.

## POLICY REVIEW

Section 2.6.1 of the *Provincial Policy Statement* (2014) directs that "significant built heritage resources and significant cultural heritage landscapes shall be conserved." "Significant" is defined in the *Provincial Policy Statement* (2014) as, in regards to cultural heritage and archaeology, "resources that have been determined to have cultural heritage value or interest for the important contribution they make to our understanding of the history of a place, and event, or a people." The objectives of Chapter 13 (Heritage) of the City of London's *Official Plan* (1989, as amended), as well as the policies of *The London Plan* (adopted 2016), comply with these policies. The Strategic Plan for the City of London



2015-2019 identifies heritage conservation as an integral part of "Building a Sustainable City."

## Ontario Heritage Act

Pursuant to Section 42(1) of the *Ontario Heritage Act*, municipal approval is required for the demolition of a building located on a property designated under Part V of the *Ontario Heritage Act* (HCD). Municipal Council must respond to a request for the demolition of a heritage designated property within 90 days and may give the applicant:

- a. The permit applied for;
- b. Notice that the Council is refusing the application for the permit; or,
- c. The permit applied for, with terms and conditions attached (Section 42(4), *Ontario Heritage Act*).

As part of this process, consultation with the London Advisory Committee on Heritage (LACH) is required (Section 42(4.1), *Ontario Heritage Act*).

## **Old East Heritage Conservation District**

The *Old East HCD Plan* establishes policies and guidelines to help manage change within this area of significant cultural heritage resources. While demolition is strongly discouraged for A, B, and C-ranked properties by the policies of Section 6.5 of the *Old East HCD Plan*, the Lorne Avenue Public School property (723 Lorne Avenue) is a D-ranked property. D-ranked properties are defined as,

...May have great value and be dearly appreciated, but this assessment determines that they are not representative of the collective heritage of the area. Some Group D buildings may have an A Group building concealed behind new cladding and windows, or historic connections that were not known at the time of assessment. Detailed assessments should continue in the future if required (Section 4.2, Old East HCD Study, p.31).

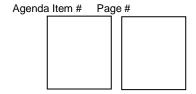
Section 4.1 of the *Old East HCD Plan* further elaborates on the contributions of individual properties within the HCD,

The contribution of each individual property to the overall character of the district is primarily the front façade of the building except at corners where the side façade also contributes to the street appearance. To that end, certain buildings within the heritage conservation district represent its history and architectural heritage better than others, and for those buildings, certain features are of greater significance than others. The original assessment of the Old East Heritage Conservation District area classified properties as A, B, C, or D based on historical reference and architectural quality (Section 4.1, Old East HCD Plan, p.4.1).

## ANALYSIS

Based on its historical reference and architectural qualities, the Lorne Avenue Public School property received a D-ranking by the *Old East HCD Plan*. Therefore, the property is a suitable candidate for consideration of demolition and future redevelopment that is more compatible with the Old East HCD.

There are significant historical associations with the property, primarily its use as the Lorne Avenue Public School between 1875 and 2016. While these associations do not necessarily merit the retention of the existing building, they are worthy of commemoration within the future redevelopment of the property.



A tour of the Lorne Avenue Public School building was undertaken by the Heritage Planner on July 12, 2017 to identify potential artifacts suitable for salvage and retention. The school bell and the aluminium lettering reading "Lorne Avenue Public School" affixed to the north façade of the building were identified as artifacts suitable for salvage and future reuse. Many other potential artifacts (e.g. trophies, etc.) were removed by the TVDSB prior to the closure of the school. It is recommended that the school bell and lettering be incorporated into plans, accompanied by suitable interpretation, for the future park proposed for the site.

Additionally, the banners currently affixed to the east façade of the Lorne Avenue Public School building will be removed prior to demolition.

#### **Future Development**

The *Old East HCD Plan* provides policies and guidelines on achieving compatibility between new developments within the Old East HCD. In particular, Section 6.1 of the *Old East HCD Plan* articulates the following general principles that should be taken into consideration if and when potential land use changes are being considered:

- Maintain the residential amenity and human scale of Old East by ensuring that the low density residential land use designation remains dominant;
- New land uses that are out of keeping with the residential character of the Old East area or would have a negative impact on the area are discouraged;
- If new uses are proposed, adaptive reuse of the existing building stock should be considered where feasible;
- Any redevelopment or new development in the area should be restricted to small scale, low rise buildings that are architecturally compatible in terms of use, scale, orientation, height and bulk with the heritage character of the existing community;
- Parking requirements for any new land uses should be visually unobtrusive and restricted to side or rear yards to minimize their impact on the streetscape.

Heritage Alteration Permit approval is required to permit development on the property.

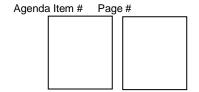
Archaeological work on the property is scheduled to be undertaken in advance of any proposed demolition activities.

## Consultation

Pursuant to Council Policy for the demolition of heritage designated properties, notification of the demolition request was sent to 223 property owners within 120m of the subject property on August 9, 2017, as well as community groups including the Old East Village Community Association, the Old East Village Business Improvement Area, Architectural Conservancy Ontario – London Region, London & Middlesex Historical Society, and the Urban League, as well as individuals who previously provided their contact information for items related to the Lorne Avenue Public School. Notice was also published in *The Londoner* on August 10, 2017.



The *Old East HCD Plan* provides policies and guidelines for managing change within this significant area. It recognizes that there are some properties that do not represent the collective heritage of the area and may merit consideration for demolition, such as the Dranked former Lorne Avenue Public School property (723 Lorne Avenue). While there are



significant historical associations of the property, these do merit retention of the existing building. Artifacts that represent part of these historical associations should be salvaged and incorporated into a proposed park at this location with appropriate commemoration/interpretation.

The Old East HCD Plan also provides guidance on future development to ensure compatibility with the Old East HCD. Future development on this site will require Heritage Alteration Permit approval.

PREPARED BY:	SUBMITTED BY:		
KYLE GONYOU, CAHP	JIM YANCHULA, MCIP, RPP		
HERITAGE PLANNER URBAN REGENERATION	MANAGER URBAN REGENERATION		
URBAN REGENERATION	URBAN REGENERATION		
RECOMMENDED BY:			
JOHN M. FLEMING, MCIP, RPP MANAGING DIRECTOR, PLANNING AND CITY PLANNER			

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Attach:

Appendix A – Maps

Appendix B - Images

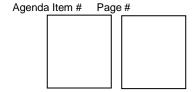
Appendix C – Artifacts Recommended for Salvage and Reuse

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Sources

Amec Foster Wheeler Environment and Infrastructure. Stage 1 Archaeological Assessment, Part of Lot 12, Concession I, formerly within the Township of London, Middlesex County, now at 723 Lorne Avenue, City of London, Ontario. P348-0019-2014. January 8, 2015.

Baker, M. and Bates Neary, H. 100 Fascinating Londoners. 2005.



City of London. Old East Heritage Conservation District Study. 2004.

City of London. Old East Heritage Conservation District Plan. 2006.

Dalton, K., Executive Superintendent Operations Services, Thames Valley District School Board, "Senior Administrative Response to the Central London Elementary ARC (Bishop Townsend, Lord Roberts French Immersion, Lorne Avenue, and St. George's Public Schools). March 26, 2013.

Jaffe, P., Chairperson/Trustee. Report of the Central London Elementary ARC (Bishop Townsend, Lord Roberts French Immersion, Lorne Avenue, and St. George's Public Schools). January 31, 2013.

London Free Press. Clipping files courtesy of the London Room, Central Branch, London Public Library.

"Matthews, Herbert Edward." Biographical Dictionary of Architects in Canada. <a href="http://dictionaryofarchitectsincanada.org/node/1469">http://dictionaryofarchitectsincanada.org/node/1469</a>. Retrieved July 20, 2017.

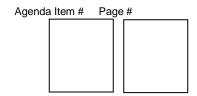
Matthews, W. D. E. *Lorne Avenue School.* June 15, 1955. London & Middlesex Historical Society.

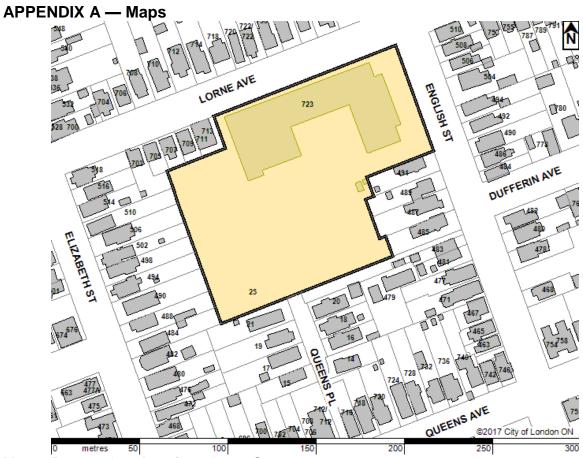
"Murray, William George." Biographical Dictionary of Architects in Canada. <a href="http://dictionaryofarchitectsincanada.org/node/717">http://dictionaryofarchitectsincanada.org/node/717</a>. Retrieved July 20, 2017.

"Peters, Samuel." Biographical Dictionary of Architects in Canada. <a href="http://dictionaryofarchitectsincanada.org/node/1391">http://dictionaryofarchitectsincanada.org/node/1391</a>. Retrieved July 20, 2017.

Priddis, H. "The Naming of London Street." London & Middlesex Historical Society. 1909.

Sessions, E. B., ed. Research Bulletin No. 2: Rehabilitation of Existing School Buildings or Construction of New Buildings? Criteria for Boards of Education, Administrators and School Business Officials. U. S. Department of Health, Education & Welfare, Office of Education. Research Corporation of the Association of School Business Officials. 1964.

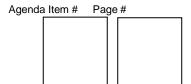




Map 1: Property location of 723 Lorne Street.



Map 2: Aerial image of 723 Lorne Avenue (2015).



## **APPENDIX B — Images**



Image 1: Aerial photograph of the Lorne Avenue Public School showing property with original school building (1922, R290).

Image 2: Aerial photograph of the Lorne Avenue Public School property showing the 1956 and 1961 additions to the original school building (1965, Line 5, Image 209).



Image 3: Aerial photograph of the Lorne Avenue Public School property showing the demolition of houses along English Street (1969, Line 4, Image 173).

Image 4: Aerial photograph of the Lorne Avenue Public School property showing the current approximate build out of the site (1972, Line 5, Image 170).

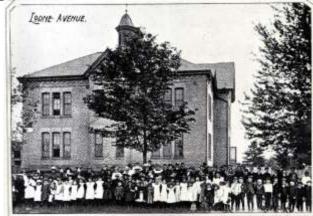


Image 5: Lorne Avenue Public School in *City* of London: The Pioneer Period & The London of To-Day (1900, p.196).



Image 6: Lorne Avenue Public School, circa 1930 (Courtesy Tom Baasner, via Vintage London).

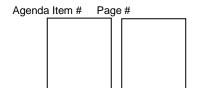




Image 8: Lorne Avenue Public School, Centennial Celebration Program, 1967 (Courtesy London Room, London Public Library).



Image 9: Lorne Avenue Public School (1967, attributed to Victor Azziz).

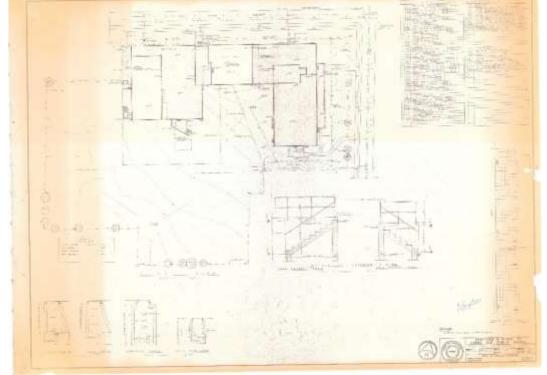
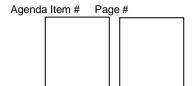


Image 10: Sheet A1: Plot Plan, List of Drawings, Details, Additions & Alter. To Lorne Ave. Public School (February 7, 1969).



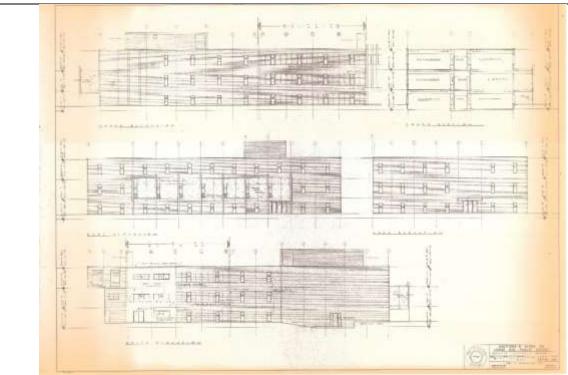


Image 11: Sheet A6: Exterior Alterations Phase 1, Additions & Alter. to Lorne Ave. Public School (February 7, 1969)



Image 12: View of Lorne Avenue Public School building from Lorne Avenue and English Street.

Image 13: East façade of Lorne Avenue Public School, see from English Street.



Image 14: Southeast wing of the Lorne Avenue Public School building seek from the playground.

Image 15: South façade of Lorne Avenue Public School showing 1961 structure in contrasting cladding.

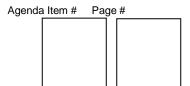




Image 16: Southwest wing of the Lorne Avenue Public School building, comprising the gym.

Image 17: North façade of the Lorne Avenue Public School building along Lorne Avenue.



Image 18: Detail of the main entrance (north) to the Lorne Avenue Public School building.

Image 19: Interior image of the front foyer of the Lorne Avenue Public School.



Image 20: Typical classroom in Lorne Avenue Public School (Room 321).

Image 21: Typical corridor of Lorne Avenue Public School (Corridor 3B).

Agenda Item # Page #

K. Gonyou

## APPENDIX C — Artifacts Recommended for Salvage and Reuse



Image 1: Former Lorne Avenue Public School bell. Presently located within front foyer. Cast iron bell set on a stand. Inscription plaque reads, "This bell served Lorne Avenue from October 1875 to June 1950." Note: clapper missing.



Image 2: Aluminum lettering, reading "Lorne Avenue Public School," currently affixed to north façade of the building, adjacent to the main entry.