

## FIRE STAFF REPORT

FSR-011/2020

**TO:** Mayor Gibson and Members of Council  
**FROM:** M. Alcock, Fire Chief/CEMC  
**DATE OF MEETING:** September 1, 2020  
**SUBJECT:** Central Fire Station Concept Study – Additional Options

---

### **RECOMMENDATION(S):**

**THAT** Fire Staff Report FSR-011/2020 respecting Central Fire Station Concept Study – Additional Options be received; and

**THAT** a Request for Proposal be undertaken to select a firm for the design, engineering and contract management associated with the new facility utilizing a load bearing concrete block, steel truss roof construction and mixed exterior cladding as presented as “Option 1” in the Concept Study; and

### **EXECUTIVE SUMMARY:**

A second Concept Study with additional options has been prepared for Council’s consideration to provide third party information into the building size and design requirements that will meet the needs and expectations of the Community, Council and the Fire Service for many years to come. Estimated project costs based on various construction types have been prepared.

In addition, a “Pros & Cons” comparison of each construction type has been provided within the study.

### **BACKGROUND**

In February 2020, Council conducted a tour of local Fire Stations within Niagara Region that were utilized as Fire Services headquarters and as primary or alternate Municipal Emergency Operations Centres.

Direction was provided to staff to engage a firm to develop preliminary designs utilizing the spatial needs assessment as approved by FSR-003-2020 and prepare comparative costs estimates based on various types construction and finishes.

A design firm was tasked to develop a concept design that met the needs and expectations and prepare four estimated costs of construction based on various construction types.

The exterior appearance and finishes were selected, taking a “middle of the road approach”, following the direction of Council, balancing longevity, aesthetics and costs.

A masonry skirt and accent walls provide contrast to the more cost effective vertical steel siding, and provides a building that fits within the culture of the community, brings

a sense of pride and manages financial expectations, both short term and long term, responsibly.

At the August 4<sup>th</sup> meeting, Council received FSR-010-2020 Central Fire Station Concept Study and requested staff investigate more options of Construction methods and return to council with an updated study.

The following four construction types were originally selected by staff and the firm based on Councils previous discussions.

- Option #1 – Concrete block load-bearing and interior walls with wood truss roof.
- Option #2 – Total pre-engineered steel structure and drywall interior walls
- Option #3 – Total wood construction
- Option #4 – Pre-engineered apparatus bay structure and wood walls admin area

Design Feature	Option 1.0	Option 2	Option 3	Option 4
<b>Structure Type</b>	Load bearing concrete block	Pre-engineered steel system	Load-bearing wood	Hybrid – Pre-engineered apparatus bays / Load-bearing wood administration
<b>Roof Construction</b>	Wood truss	Pre-engineered steel system	Wood truss	Hybrid – Pre-engineered apparatus bays & Wood truss
<b>Construction Cost</b>	\$3,590,050.00	\$3,652,900.00	\$3,549,400.00	\$3,663,200.00
<b>Building Service Life</b>	75 Years	50 Years	60 Years	50-60 (55) Years
<b>Construction Time</b>	12 Months	10 Months	11 Months	11 Months

*\*All values presented are estimates based on known market values of current and past public safety facilities, and should not be considered final.*

### **OPTIONS/DISCUSSION:**

As a result of discussions from the August 4<sup>th</sup> 2020 meeting, Staff contacted the design firm to amend Option 1 to change the wood truss roof to steel truss (see option 1.1 on page 6), investigate Insulated Metal Panels and prepare estimates on three additional construction methods for council's deliberations.

Staff visited the site of a warehouse being built on North Service Rd. near Victoria Ave and contacted the manufacturer of the Insulated Metal Panels currently being used. Appendix 'C' is a summary of the information provided about its lifespan, warranty, and uses in Public Safety facilities, and pictures of warehouse visited.

As requested by council, Option 5 was developed using a steel structure (Not pre-engineered) and IMPs. The manufacturer of the IMPs provided the 40 year lifespan.

Placing energy efficiency as the highest priority, Option 6 was developed using Insulated Concrete Forms (ICF). While being incredible energy efficient it is also very costly to build.

Placing Longevity as the highest priority, Option 7 was developed using full masonry structure and full masonry veneer. While being incredible durable and long lasting it is also the most costly to build and finish.

Design Feature	Option 5	Option 6	Option 7
<b>Structure Type</b>	Steel Structure with insulated metal panel cladding	ICF (insulated concrete forms) walls with sloped metal trusses	Concrete block walls with metal roof and full brick/block veneer
<b>Roof Construction</b>	Steel Structure	Sloped Steel Roof truss	Steel Roof truss
<b>Construction Cost</b>	\$3,594,200.00	\$3,613,800.00	\$3,747,550.00
<b>Building Service Life</b>	40+ Years	50+ Years	75+ Years
<b>Construction Time</b>	11 Months	11 Months	12 Months

*\*All values presented are estimates based on known market values of current and past public safety facilities, and should not be considered final.*

As prioritized by Council and Fire Service personnel in the Fire Station Survey conducted in December of 2019, a middle of the road approach balancing health & safety, energy efficiency, longevity, and initial build costs has been taken. Staff recommend Option 1.1 as the method of construction that best balances all of those needs.

### **FINANCIAL CONSIDERATIONS:**

Township Staff provided the consultant with the estimates for Fixtures, Furniture & Equipment (FFE) (Appendix 'B') based on current market values from local vendors for the various items required to outfit the building.

The Approved 2020 Capital budget for Phase two of the project was \$4,500,000.00.

Total estimated Phase Two project costs of all four options provided are under the approved budget amount, however, market fluctuations and inflation continues to drive costs upward and these estimates should not be considered firm or final.

A financial overview and financing strategy was prepared and presented to Council in ASR-016/2020 Central Fire Station Project Financial Overview. The financing strategies listed in this report included both Phase 1 & Phase 2 of the project, and provided repayment options that provided minimal impact or increases to the tax levy.

Detail	Option 1.1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
<b>Structure Type</b>	Load bearing concrete block	Pre-engineered steel system	Load-bearing wood	Hybrid – Pre-engineered apparatus bays / Load-bearing wood administration	Steel Framed Structure	Insulated Concrete Forms (ICF)	Load Bearing concrete block
<b>Roof Construction</b>	<i>Engineered Steel Roof Structure</i>	Pre-engineered steel system	Engineered wood roof trusses	Hybrid – Pre-engineered apparatus bays & Wood truss	Engineered Steel Roof Structure	Pre-engineered metal roof trusses	Engineered steel roof trusses
<b>Interior Walls</b>	Concrete block	Metal stud / drywall	Wood stud / drywall	Wood stud / drywall	metal stud / drywall	Metal stud / drywall	Concrete Block
<b>Insulation</b>	Closed Cell Foam Sprayed on block / attic insulated	Compressed Insulation blanket within wall and roof panels	Insulation within walls and attic space	Insulation within walls and attic space	Insulated metal panels	Insulation within ICF walls and insulated attic space	Closed Cell Foam Sprayed on block / attic insulated
<b>Exterior Cladding</b>	Metal Siding / Brick lower 36"	Metal Siding / Brick lower 36"	Metal Siding / Brick lower 36"	Metal Siding / Brick lower 36"	Insulated metal panels	Metal Siding / Brick lower 36"	Brick veneer front / architectural block sides and rear
<b>Roofing</b>	Metal roof	Metal roof	Metal roof	Metal roof	Insulated metal panels	Metal roof	Metal roof
<b>Estimated Project Cost</b>	\$4,129,853.00	\$4,122,274.00	\$4,012,564.00	\$4,133,192.00	\$4,060,052.00	\$4,080,828.00	\$4,222,603.00
<b>Estimated Building Life Span</b>	75+ Years	50+ Years	60+ Years	55+ Years	40+ Years	50+ Years	75+ Years
<b>Estimated Cost per year of service life</b>	\$55,065.00	\$82,445.00	\$66,876.00	\$75,149.00	\$101,501.00	\$81,617.00	\$56,301.00

**OTHERS CONSULTED:**

- 1) WFES Officers
- 2) Deputy Fire Chief
- 3) Strategic Leadership Team

**ATTACHMENTS:**

Appendix A – Concept Study for Central Fire Station – prepared by Whiteline Architects.

Appendix B – Whiteline Architects Fire Station Portfolio

Appendix C – Metlspan – Insulated Metal Panels (IMPs) Manufacturers Information

Respectfully submitted by,

Approved by,

---

Morgan Alcock  
Fire Chief/CEMC

---

William Kolasa  
Chief Administrative Officer