



Business Plan: Fire Station and Training Centre

April 2019

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1.0 Background

1.1 Strategic Context

The City of Cornwall (City) is located on the banks of the St. Lawrence River with a population of 47,000 residents within the City limits and over 100,000 people residing in the region.

In November 2016, the City of Cornwall began implementing its Asset Management Plan (AMP) which provides a vehicle for the City to manage its infrastructure. The AMP considered the construction of a new fire station to meet operational and program expansion requirements as the current Fire Station 1 has reached the end of its useful life. The City has factored the construction of a new fire station into its 10-year Capital Plan and its long-term financial plan.

It is important to note that the recommendations contained within the Fire Master Plan relating to fire station options do not form part of this analysis. This work is done to address the current Fire Station 1 building's end of useful life and the coverage area duplication issue resulting from the existing configuration of the City's two fire stations. A well considered two station model, along with some planned changes to access points within the City, is expected to adequately address the City's current fire response service needs.

The City has undertaken numerous studies and modeling exercises which demonstrated that:

- moving the existing headquarter fire station headquarters to the northwest quadrant of the City (in the general vicinity of the intersection of Brookdale Avenue and Vincent-Massey Drive) would improve fire service response times and avoid duplication of coverage; and,
- the Cornwall Fire Service (CFS) would benefit from development of a Training Centre alongside the proposed Fire Station; currently CFS staff members are sent offsite to receive training which results in time off from regular duty, additional compensation and training schedule planning difficulties (CFS staff is dependent on the external training agency's availability making it difficult to achieve annual training goals).

Colliers Project Leaders (Colliers) has been engaged by the City to complete a Business Plan to identify potential sites, space requirement, schematic facility space layout and needs, affordability, physical components, suitable location and cost estimates for the proposed Fire Station and Training Centre in the City's northwest quadrant.

1.2 Aim of Process

The aim of the assessment is as follows:

1. To engage stakeholders and the community to identify the needs and desires for a Fire Station and Training Facility and identify other potential tenants;
2. To identify the most suitable location in the general vicinity of the location recommended by the drive-time analysis;
3. To develop a high-level estimate of the space requirements based on the needs of the Cornwall Fire Service, thus gaining an understanding of the potential facility layout and size;

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4. To develop an estimate of the potential capital cost to procure and develop new premises;
5. To explore potential shared operating models and funding structures involving other City, Province of Ontario or Federal Government of Canada entities; and,
6. To explore opportunities for public private partnerships for this project.

1.3 Success Factors

Long term success will be defined by the ability of the devised strategy to ensure:

- Ability to address the issues of Fire Station 1 having reached the end of its useful life and coverage area duplication resulting from the existing configuration of the City's two fire stations;
- Alignment with service and population growth considerations over the next 10 years;
- Optimal utilization of CFS resources; and,
- Continued stakeholder support of the City's fire protection strategy.

The success of this study will be defined by the effectiveness of:

- Community engagement in promoting awareness, participation and building consensus amongst the public to achieve the CFS's long term goals;
- Analyzing potential options on the basis of both economic and social value created; and,
- Recommended options in addressing the objectives of the AMP and the City.

2.0 Approach and Methodology

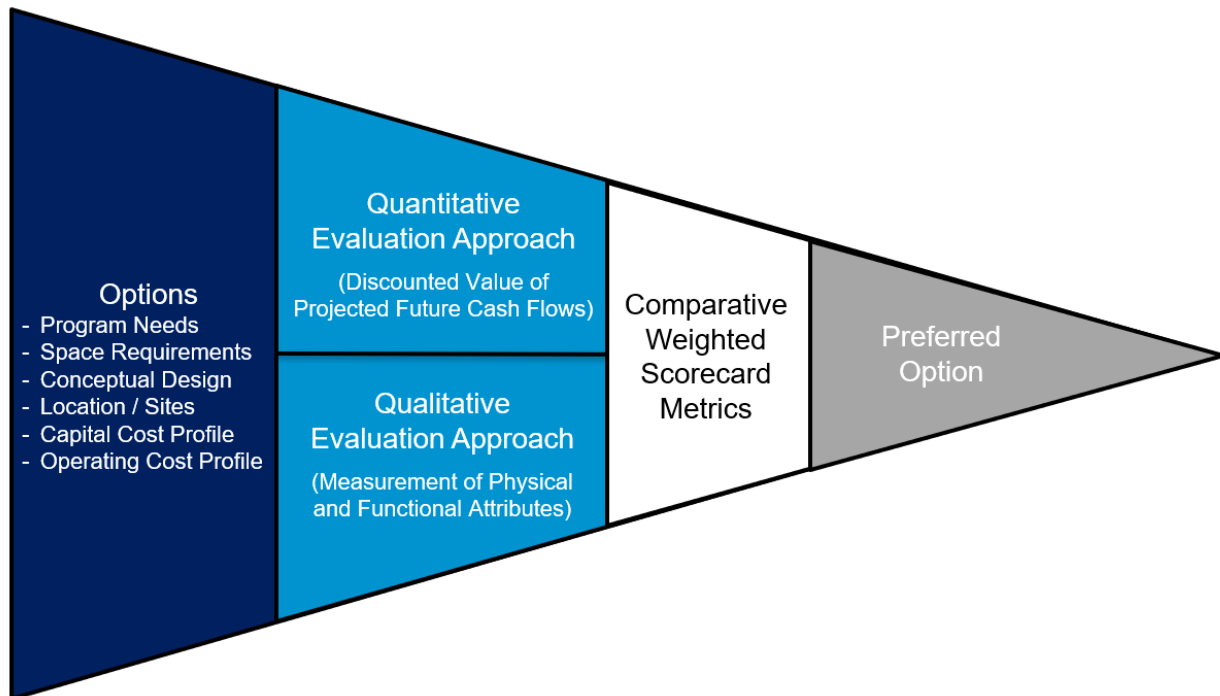
2.1 Approach

The main challenge of an options analysis exercise is to find a rational way to evaluate both quantitative and qualitative criteria across options that display a wide variety of attributes. Such an analysis needs to include the following core components:

- Program delivery needs;
- Location preferences, connectivity, parking;
- Future expansion potential;
- Estimates for preliminary capital costs related to site acquisition, demolition, soil remediation (if any), design and construction;
- Projections for long-term occupancy expenses, ancillary revenues, and major capital expenditures over the course of the analysis horizon;
- An evaluation methodology to assess each option’s respective upfront investment and operational performance; and,
- A final, empirical metric that can be easily understood and can potentially be used as both a standalone and comparative measure of suitability.

The evaluation approach aims to address these core components using a weighted scorecard that captures the qualitative and quantitative performance of options (Figure 1).

Figure 1: Evaluation Approach



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- **Qualitative Evaluation:** An option will display a wide variety of physical and functional attributes that allow it to effectively deliver services to its client base. A qualitative analysis attempts to measure these attributes and gauge the potential for an option to meet program requirements and deliver services to its client. The attribute groups include: Physical Factors / Functionality / Management; Municipal Services and Zoning; Connectivity; Impact on External Entities; Ownership Structure; and, Other Considerations. An option's performance by criterion is represented as the product (score) of its relevance (weight) and ability to satisfy that criterion (rating). Criteria scores are summed by attribute group and then again overall to provide a qualitative performance score for an option.
- **Quantitative Evaluation:** The quantitative analysis score is determined using results from a financial analysis of options. The financial analysis is conducted using a detailed financial model that can simulate various ownership and development options. The model incorporates the findings and results from space analysis, diligence investigations, and construction cost estimates, together with a range of estimates for operating expense, capital expenditure and market assumptions. A Discounted Value of Projected Future Cash Flows (DCF) approach was applied in accordance with modern financial theory to assess the Net Present Value (NPV) to the City of each identified option. This is a widely accepted financial metric for valuing real estate development projects.
- **Comparative Weighted Scorecard:** A quantitative performance score for an option is also determined within the scorecard using the Project NPV derived through cash flow modelling and a calculated performance ratio. The overall performance is then measured as an option's combined performance in both qualitative and quantitative analysis. When calculating the combined total score, the same weighting or relative importance has been assigned to both qualitative and quantitative scores (half of the combined score is determined by the qualitative result and half by the quantitative result). An option that achieves the highest combined score would be deemed most ideal for the new development.

2.2 Methodology

A six-stage evaluation methodology was adopted which consisted of both qualitative and quantitative assessments. The key tasks under each stage are outlined in Table 1.

Table 1: Methodology

| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 | Stage 6 |
|---|--|--|--|--|--|
| Project Initiation <ul style="list-style-type: none"> • Project kick-off • Identify project team • Develop project plan and charter | Information Gathering <ul style="list-style-type: none"> • Review of existing documents and reports • Stakeholder interviews • Public consultation | Facility Needs and Market Analysis <ul style="list-style-type: none"> • Initial space requirements • Market scan for potential lease and ownership solutions • Identify site options | Functional Program and Conceptual Design <ul style="list-style-type: none"> • Building functional program • Identify detailed space requirements • Develop conceptual design • Estimate square footages | Options Assessment <ul style="list-style-type: none"> • Define test scenarios • Develop qualitative analysis criteria and framework • Conduct multi-criteria analysis of each option • Develop quantitative financial model • Conduct discounted cash flow analysis of each option | Preferred Option <ul style="list-style-type: none"> • Interpret results and findings • Identify preferred option(s) • Prepare feasibility report |

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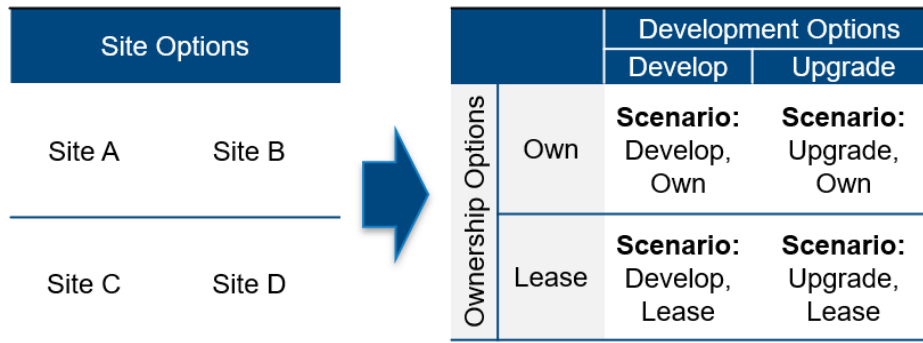
The detailed tasks for the six stages of the evaluation methodology are presented below:

1. Initiate project:
 - a. Project Kick-Off Meeting to review and establish the detailed objectives of the project with City staff and Cornwall Fire Service and to agree upon a detailed plan for its delivery;
 - b. Develop Project Plan and Project Charter as a common reference point for all stakeholders with clear definition of project scope and how the project will be managed;
2. Gather information and engage stakeholders:
 - a. Review previous studies and reports, census data, economic development data, demographic information, the City's Fire Master Plan, Asset Management Plan, Strategic Plan, Official Plan, and Long Term Financial Plan;
 - b. Review the City's organization structure, departments, roles and services as they relate to the subject facility;
 - c. Conduct stakeholder interviews to explore general operational challenges and opportunities; and,
 - d. Organize and hold a public meeting / open house to gain public input.
3. Conduct a facility needs analysis and market analysis to identify potential site options:
 - a. Conduct a facility needs analysis based on public consultation and user group data to further understand the needs of the City, Cornwall Fire Service and surrounding communities and identify the initial space requirements to meet those needs; and,
 - b. Develop a comparison matrix of possible locations available for a Fire Station and Training Centre comparing: property availability, advantages and disadvantages between new construct or renovation, potential to accommodate the facility program, other potential tenants, utility costs and current servicing, property tax costs (if owned), potential for setbacks and public realm spaces, favorable and unfavourable physical attributes of each possible site based on a desktop review of available information, municipal planning / zoning requirements (pre/post-development) and site plans, and legal encumbrances on the properties such as rights of way and laneways.
4. Develop building functional program and conceptual design based on the information gathered during the facility analysis:
 - a. Develop a building functional program based on feedback from the City;
 - b. Identify space requirements for a new facility: apparatus bays, storage, office spaces, training room, kitchen, multi-purpose meeting room, support space, public space, parking space and reception; support spaces necessary within the new facility including food services, washrooms, storage; and examine the functional relationship between spaces for proximity, accessibility, circulation, security and parking requirements;
 - c. Develop a conceptual design using the key elements of the preferred site and based on the finalized functional building program and vision for the facility: develop high level site plan to show the building placement on the site, vehicle and pedestrian circulation, parking and efficient response patterns; develop schematic floor plan to illustrate the scale, facility room layout, furniture placement and overall flow; and,
 - d. Estimate square footages for each room and the estimated area that would be needed for corridors.
5. Conduct an options assessment using qualitative and quantitative evaluation approaches based on results from the facility needs analysis (Stage 3) and the building functional program and conceptual design (Stage 4):

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- a. Identify development options and ownership / procurement options aligned with the preferred site options;
- b. Define scenarios for qualitative and quantitative testing using identified site, development and ownership / procurement options (for example, as Figure 2 denotes, multiple scenarios may be tested at one site; the scenarios outlined below represent various possibilities based on what is available in the market; not all of them will be tested);

Figure 2: Conceptual Scenario Definition

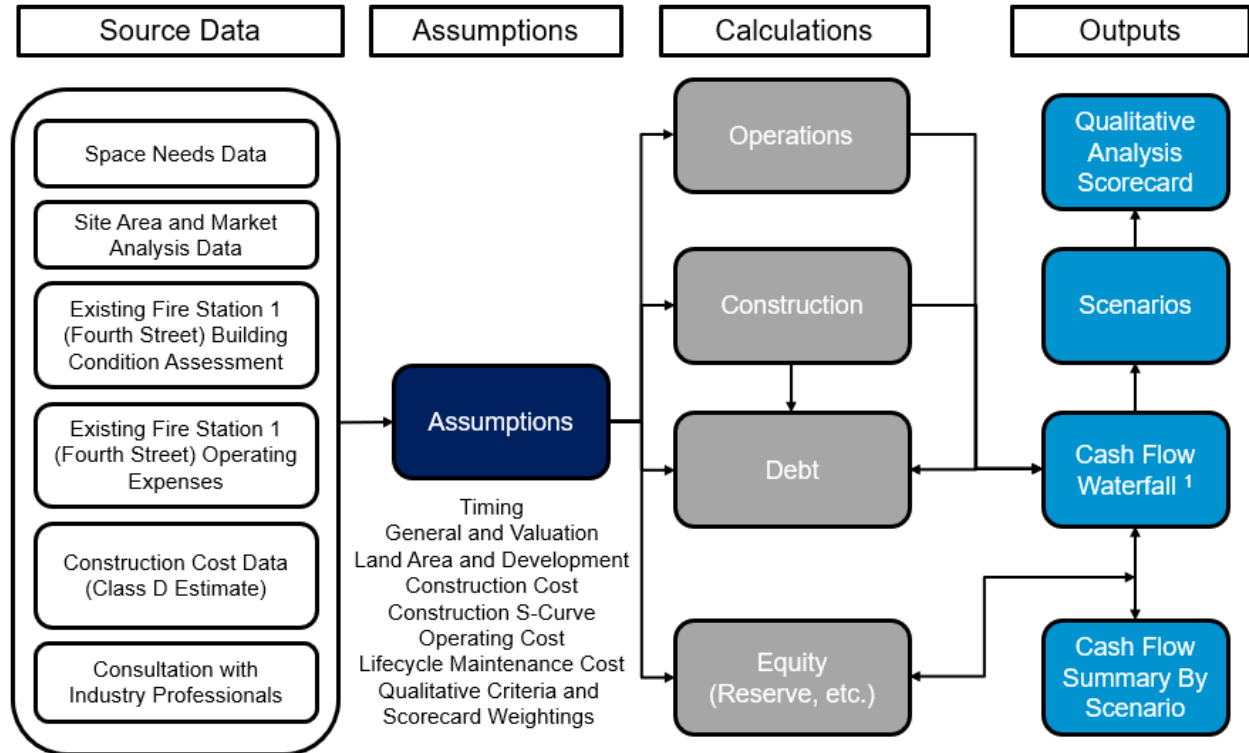


- c. Develop a Class D cost estimate for the facility for each test scenario at the preferred sites, including: professional fees, permits, site development, construction or renovations costs, equipment costs and land or building acquisition costs; and a master schedule containing critical phasing for construction and operational periods;
 - d. Develop a qualitative scorecard framework and conduct a multi-criteria analysis for each test scenario; also build into the scorecard functionality to capture and score results from a quantitative financial analysis of projected cash flows as well as weighted aggregated scorecard results from both qualitative and quantitative assessments;
 - e. Develop a quantitative financial model using best practice SMART modelling principles to evaluate each test scenario, providing: a monthly cash flow forecast over a 27 year period; simulation of variables and impacts, most notably, capital investment into facility development, operational and lifecycle costs, and revenue generation; ease of amendment of input assumptions; sensitivity analysis to key assumptions; and, value for money for each option being assessed and preferred option.
6. Identify the preferred option:
- a. Review results and findings of the assessment and identify a preferred option;
 - b. Explore potential shared operating models and funding structures involving other City, Province of Ontario or Federal Government of Canada entities;
 - c. Explore opportunities for public private partnerships; and,
 - d. Draft a feasibility report outlining strategic context, approach and methodology, assumptions, results, key findings and preferred options.

2.3 Analytical Model Schematic

Figure 3 provides a schematic overview of the analytical model developed for the assessment.

Figure 3: Analytical Model Schematic



¹ Cash flow waterfall is a representation of the cash flow statement rearranged to show the priority of each cash inflow and outflow. For investment analysis and in project finance assessment, the cash flow waterfall is typically preferred to the traditional cash flow statement. This is due to the importance of cash flow prioritization to understand available cash flows to different stakeholders in a project whether that be creditors, lenders or equity.

2.4 Data Sources

Data used to conduct the analysis was sourced from the following:

- Needs Assessment conducted through stakeholder interviews and public consultation;
- City of Cornwall, Fire Master Plan Final Report, September 2014 (Reissued April 2015);
- Cornwall City Council, Fire Master Plan Update, January 23, 2017;
- Annual Building and Operating Expenses and Reserves, Fire Hall #1, 2017;
- Building Condition Assessment Fire Station 1;
- Site Plan of Lot 13 Concession 2 Part of Demontigny Street, Lots 14 and 15 and Part of Lots 13 and 16 to 22 Inclusive Registered Plan 157 Geographic Township of Cornwall, City of Cornwall, 2015 (Old Kmart Site, 1400 Vincent Massey Drive);
- 739 Tollgate Road West / South Part of Lot 13 Concession three, Potential City of Cornwall Firehall and Training Centre Purchase Options;
- Area Plan, Proposed Brookdale North Sanitary Servicing (2495 Brookdale Drive site);

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- Altus 2018 Construction Cost Guide;
- Hanscomb Yardsticks for Costing: Cost Data for the Canadian Construction Industry (for building construction cost benchmarks);
- Royal Architectural Institute of Canada (RAIC), A Guide to Determining Appropriate Fees for the Services of an Architect;
- City of Cornwall, Asset Management Plan, November 2016 Version 2.0;
- City of Cornwall, 2016-2018 Strategic Plan;
- City of Cornwall, Long-term Financial Plan Final Report, June 26, 2017;
- Official Plan of the Corporation of the City of Cornwall, 2004;
- Consultation with Colliers expert industry professionals in Ontario;
- Correspondence with Department of Planning, Development and Recreation - Planning Division, City of Cornwall.

3.0 Facility Needs and Market Analysis

The facility needs analysis was conducted as an iterative process based on public consultation and user group data to further understand the needs of the City, Cornwall Fire Service and surrounding communities and identify the initial space requirements that meet those needs. A market analysis was also conducted to identify and compare possible site locations available to the City for the proposed Fire Station and Training Centre in the City's northwest quadrant.

3.1 Existing Fire Station 1 Location

The Fire Master Plan which the City began implementing in June 2015 outlined a number of issues with the current locations of fire stations and concluded that a well considered two station model with planned changes to access points would adequately address the City's fire response service needs. The issues described in the Fire Master Plan relating to the existing Fire Station 1 facility (Figure 4 and 5) are listed below:

- Located on a one-way street with poor arterial road access;
- Close to Fire Station 2 which has resulted in a duplication of area coverage;
- High response times to northern areas with only 69% coverage in under six minutes;
- No easy access to arterial roads; and,
- No live training facility, forcing staff to travel to Ottawa for training adding cost and training schedule planning difficulties.

The current drive-time map for the City demonstrating poor response times to the northern areas is presented in Figure 6.

The City's Fire Master Plan recommended the following:

- Avoid duplication of coverage;
- Improve response times;
- Improve reach to northern areas;
- Improve access with an arterial road location;
- Implement a new two station model; and,
- Improve training for personnel.

Implementation of Fire Master Plan recommendations is expected to provide the following benefits:

- Development of northern areas;
- Savings through co-location of other emergency services;
- Potential reduction in both commercial and residential (community) insurance costs;
- Increased safety for residences and businesses;
- Increased reach of emergency services; and,
- Efficient training of emergency response personnel.

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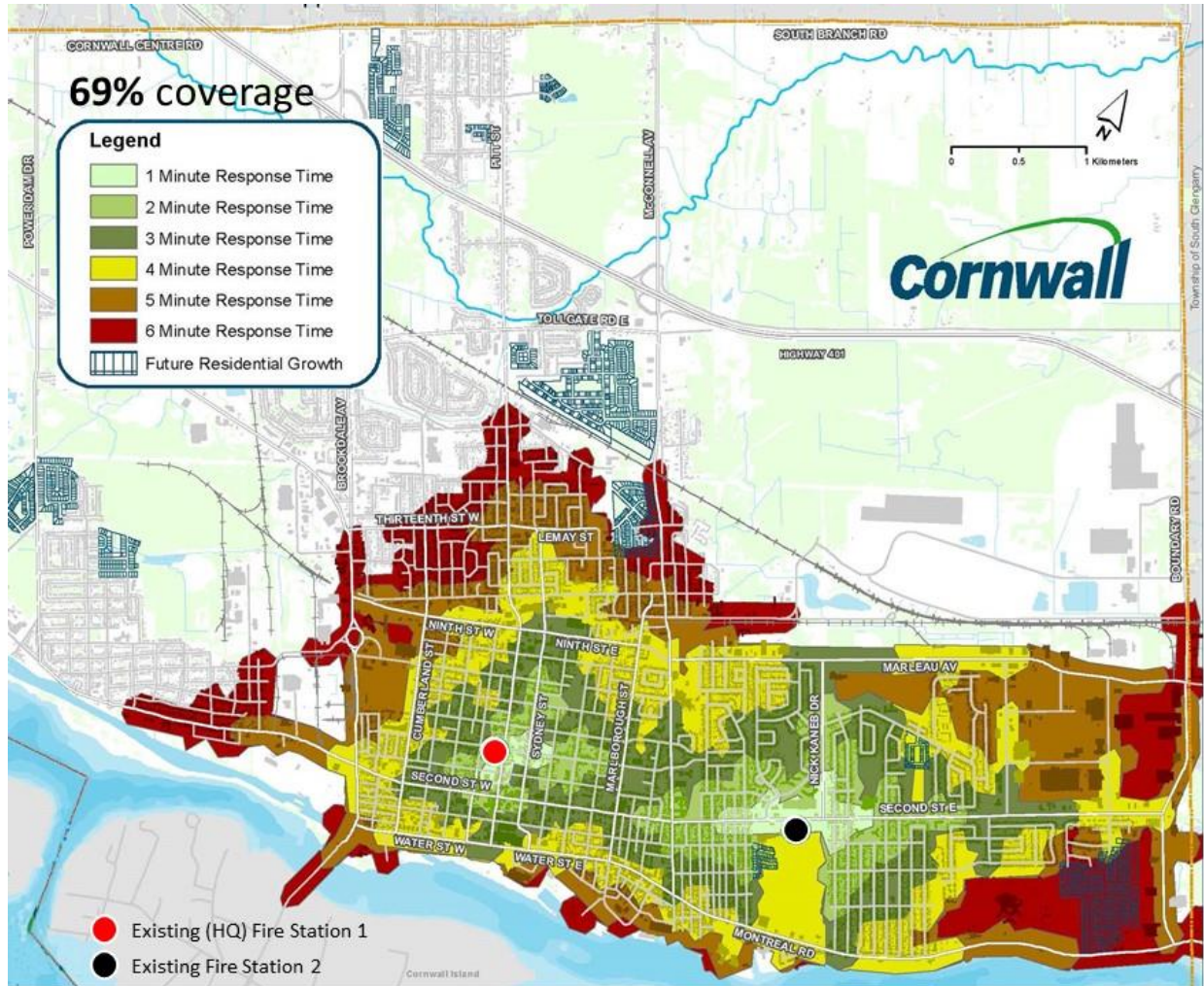
Figure 4: Existing Fire Station 1 Headquarters Located on Fourth Street West (Aerial View)



Figure 5: Existing Fire Station 1 Headquarters Located on Fourth Street West (Ground View)



Figure 6: Current Drive-Time Areas (as per the Fire Master Plan Final Report, September 2014)



3.2 Preferred Site Characteristics

A well considered two station model with some planned changes to access routes is expected to adequately address the City’s fire response service needs.

Moving the current Fire Station 1 headquarters to the northwest quadrant of the city (in the general vicinity of the intersection of Brookdale Avenue and Vincent-Massey Drive) is expected to provide an ideal location with optimal response coverage; and development of a fire training facility alongside the proposed new Fire Station will provide cost and training schedule planning benefits for the CFS.

Preferred site characteristics included the following:

- Corner property which allows access to the rear of the building and access to drive through bays and training spaces without disrupting administration areas or visitor parking areas;
- Proximity to major arterial roads is preferred, allowing quick response without having to travel through smaller neighbourhoods with congested roads;

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- Large enough to accommodate future expansion and / or colocation of other services; and,
- Located away from dense residential and commercial areas.

The preferred area for the proposed Fire Station and Training Centre (in the general vicinity of the intersection of Brookdale Avenue and Vincent-Massey Drive) is presented in Figure 7. The area represents a re-alignment and right-sizing to current and future needs, and improves response times, overall efficiency, and service delivery and reach of the CFS.

Figure 7: Preferred Area for Proposed Fire Station and Training Centre and Future Drive-Time Areas (as per Fire Chief’s Presentation to Council 2016 and follow-up review to Fire Master Plan Report) ¹



¹ The drive-time analysis shown here takes into consideration the extensions of both Ninth Street and Lemay Street.

3.3 Stakeholder and Public Consultation

Stakeholder interviews were conducted to explore general operational challenges and opportunities for the CFS. A public consultation was also held to gain public input. The public consultation and user group data was used to inform the facility needs analysis and identify the initial space requirements.

The following comments and concerns were voiced by members of the public during the public consultation:

- Participants all felt the need for CFS's presence in the northwest quadrant of the City. They cited a need to improve response times (particularly due to increased residential development in the north and traffic congestion), provide easier access to the 401 and potential decrease in commercial and residential insurance rates in the north.
- Other identified socio-economic benefits to the community were cited including: land can be owned not leased, not be located on a flood plain and have enough space to accommodate the trucks; better proximity to high risk buildings and other emergency services like medical; create jobs and serve a catalyst for growth in the northwest quadrant; provide incentive to get water / sewer to a new location not already serviced; better visibility to the community, easier to find and access for tours and education, provide a better location in the public eye, provide a hub for the community in the north end of the city, and a new / upgraded modern facility could be a City attraction; provide a hurricane proof structure with backup power for dual purposes for example, serve as an emergency shelter with a commercial kitchen to support the public; and develop more qualified firefighters, generate revenue and assist in staff recruitment (training centre).
- Other agencies identified for representation in the northwest quadrant of the City may include Emergency Medical Services, Police, Public Works, Emergency Management Ontario, Social Services, Financial Services, Tourism and possibly any department that is paying rent; also St. Lawrence College for the training facility. The proposed fire station design will allow accommodation of other departments in the future.
- Participants expressed concerns about having a new fire station and training centre in their neighbourhood, such as noise, smoke and air pollution (and smell) from the training facility, green space and environmental impact, increased local traffic and children in roads, decreased property values and insurance, a cheap looking building and presence of a construction area for a period.
- Participants felt public awareness could be improved through the following: having better, more accessible facility with more space in a better location and with appropriate accommodation for the public; by conducting school and other tours, open houses with prevention booth, and public training / education through the training facility; and leveraging technology through, electronic message boards, Wi-Fi and smartboards. The new visibility provided by a new facility also presents an opportunity to highlight building code issues.
- There was a general preference for the City to develop a new facility and owning as it was thought to be a cheaper long-term option. Upgrading an older existing building was not favoured, nor was leasing from the private sector given the loss of control and potential for landlord-tenant issues arising.
- Other possible locations in the City's northwest quadrant highlighted for consideration for development of the proposed facility included: the former Brenntag site on 7th Street extension to Riverdale (currently shutdown and in an area big enough and not close to residential homes); the Indigo Inn space (located Vincent Massey Drive); and the northeast (versus northwest) as there is a lot of room in the industrial park.

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- A reasonable timeframe for completion of the project was thought to be two to three years.

3.4 Potential Site Options

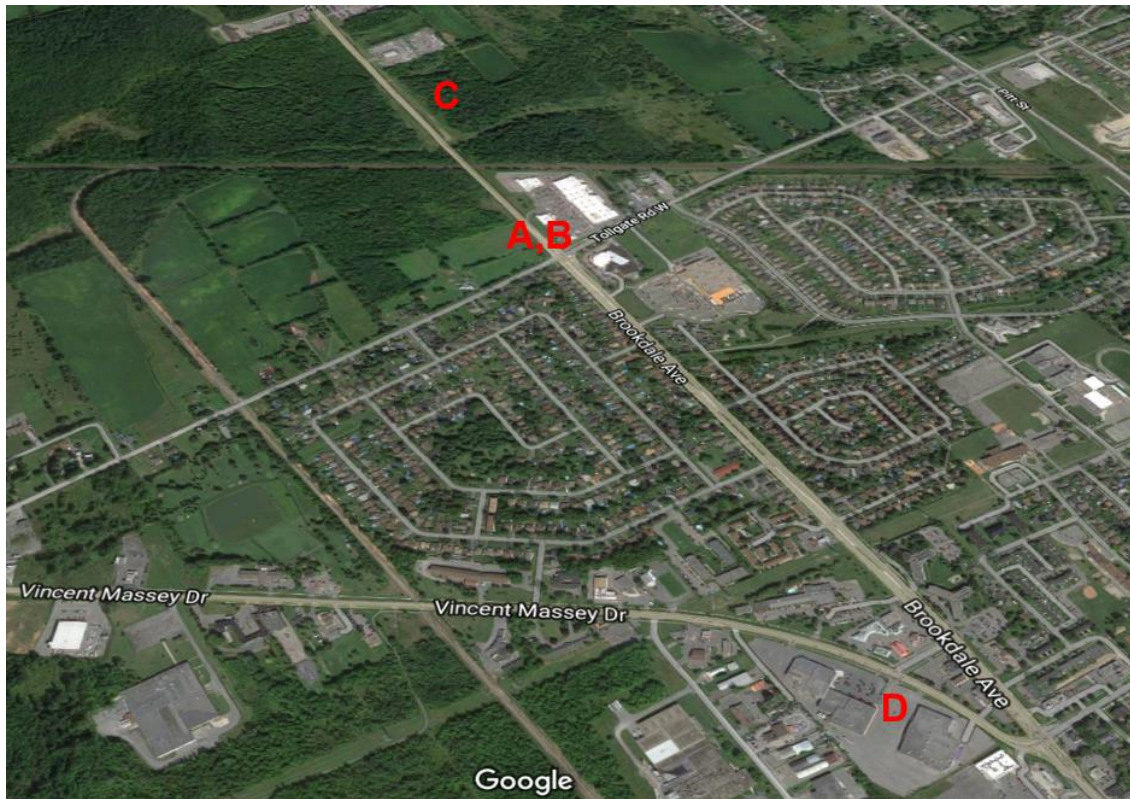
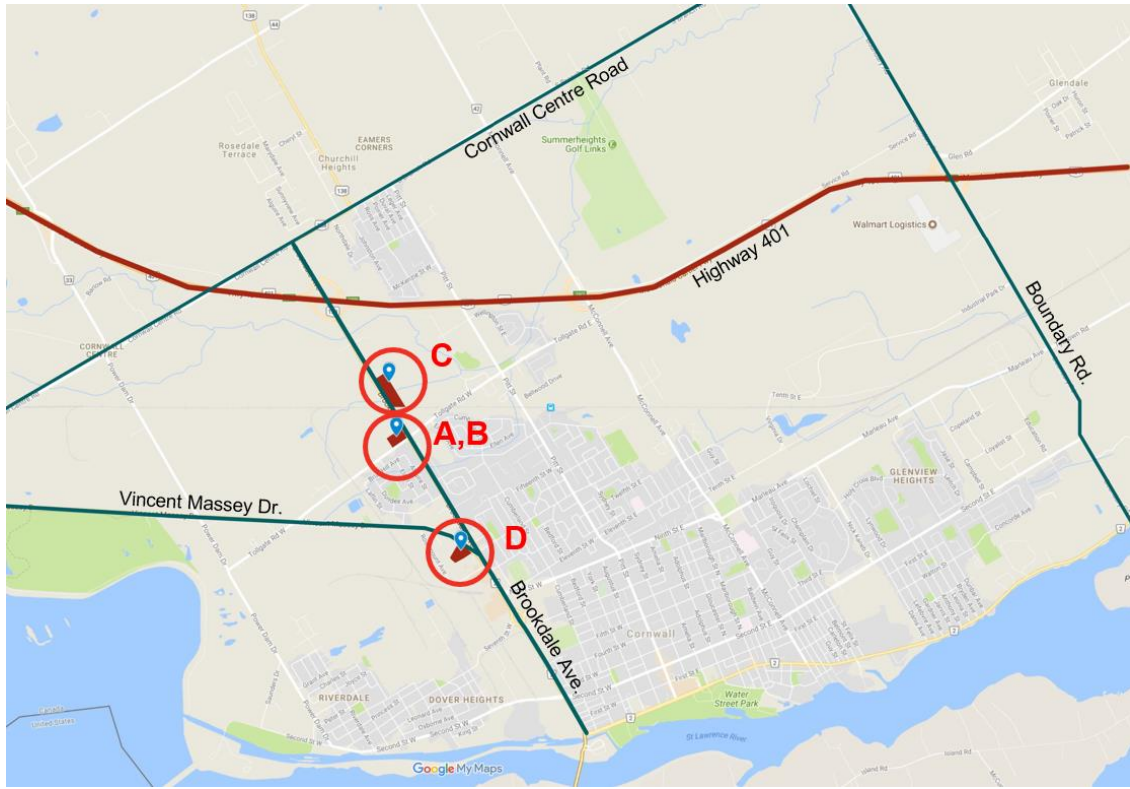
After a thorough market investigation of the general location recommended in the drive-time analysis and having considered many sites by involving Colliers' brokerage division, four privately-owned potential site options were identified. No government owned sites were available in the preferred area, and very few site options were available along Brookdale Avenue. Few site options were able to meet the requirements set forth by CFS' drive-time analysis, including being located along Brookdale Avenue. All sites were evaluated but those which did not meet requirements were excluded from the detailed analysis.

The four site options included the following:

- Site A northwest corner of the Brookdale Avenue and Tollgate Road intersection;
- Site B Tollgate Road, west of the Brookdale Avenue and Tollgate Road intersection;
- Site C Brookdale Avenue, north of the railway tracks; and,
- Site D Vincent Massey Drive (old K-Mart site).

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Figure 8: Potential Site Options in Preferred Area

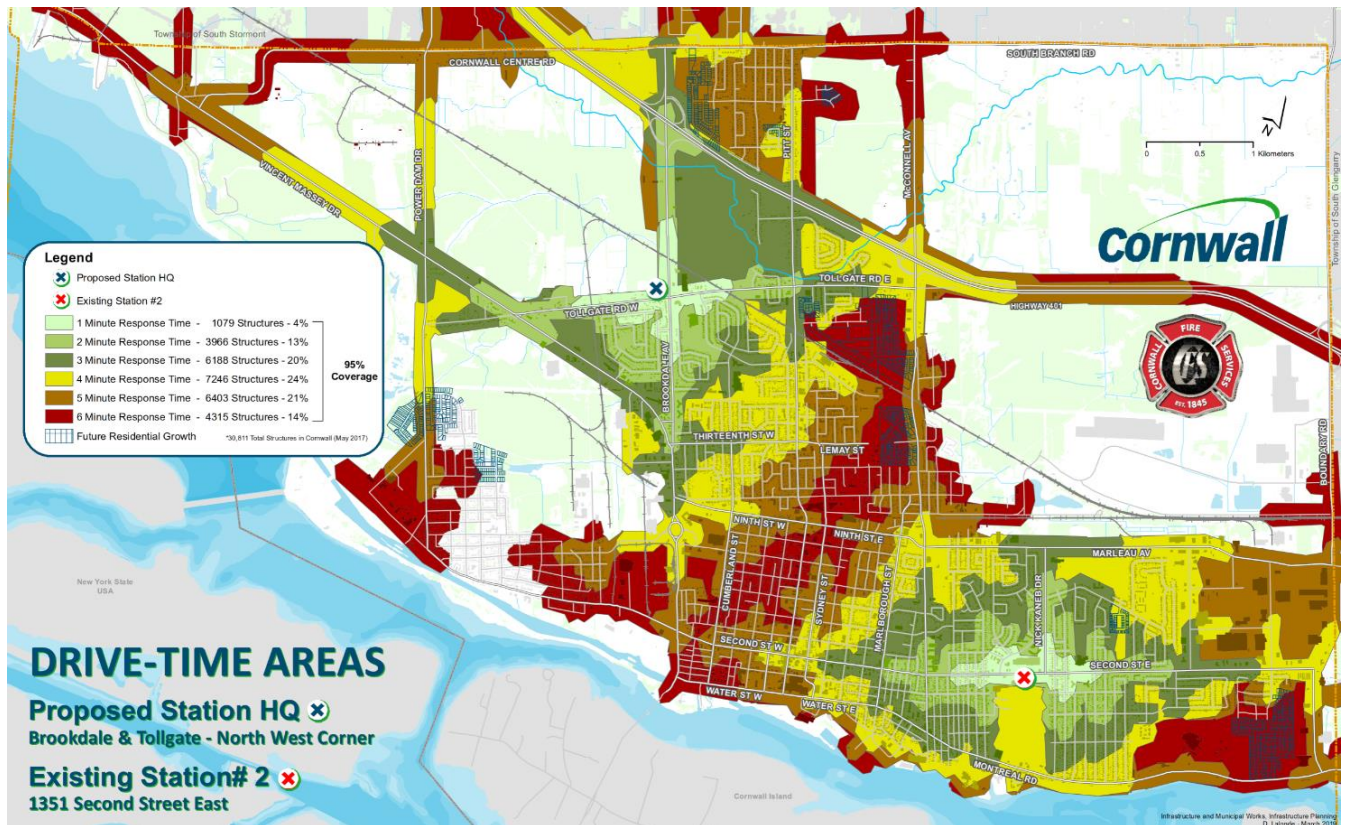


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Table 3: SWOT Analysis Site Option B

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> • Frontage site is located close to the arterial road • Does not abut dense residential / commercial properties • Sufficient land area (4+ acres) • Lower operating costs, savings on rent as it is an ownership option | <ul style="list-style-type: none"> • Privately owned, cost of acquisition • Frontage site not directly on arterial road • Potential delay in acquisition (decision-making hurdles associated with family estate) • High upfront development costs • Located outside urban settlement boundary and does not currently have sanitary sewer connection • Residential / commercial areas in proximity |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Owner is willing to sell large parcel for marginal extra cost, paving the way for potential future expansion or colocation • Plenty of space for future expansion / co-development potential | <ul style="list-style-type: none"> • Potential opposition from residential neighbourhood across the road • Potential traffic congestion during peak hours • Site may not receive sanitary sewer servicing in the near future |

Figure 10: Drive-Time Analysis Map for Site Option A and Site Option B



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3.4.2 Site Option C

Site Option C is located on Brookdale Avenue north of the railway tracks (Figure 11, left side image is site showing ravine running through, image on the right shows parts of the site designated as flood plain in red). The site is privately-owned, available for purchase and is 12 acres in size.

A SWOT analysis of the site is presented in Table 4. Figure 12 shows the approximate response times to various neighbourhoods within the city from the proposed site. This site allows CFS to cover approximately 96% of the area in the first six minutes.

Figure 11: Site Option C

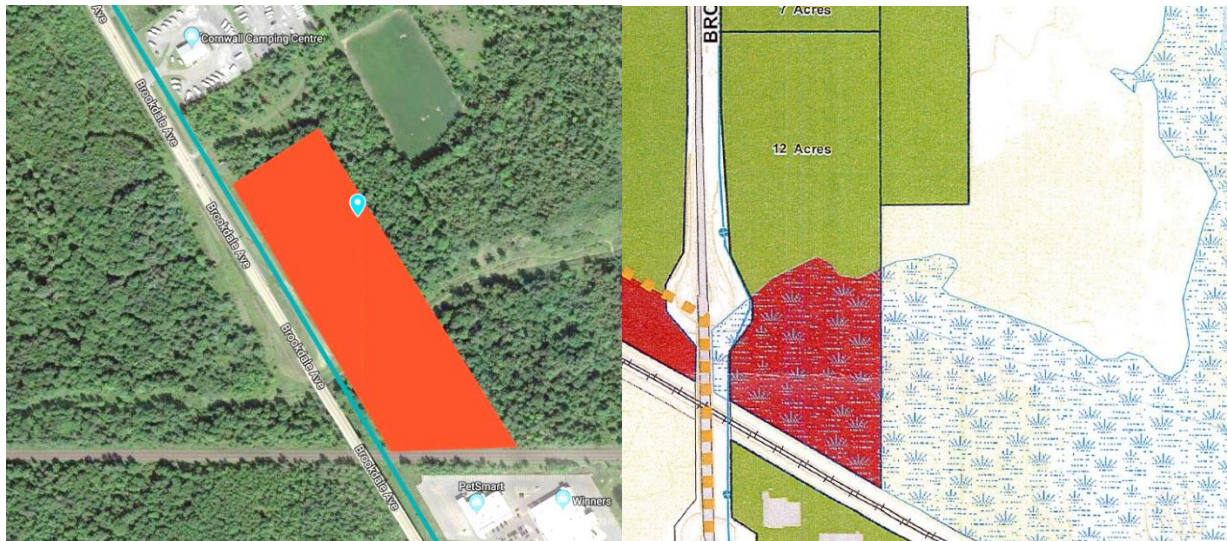
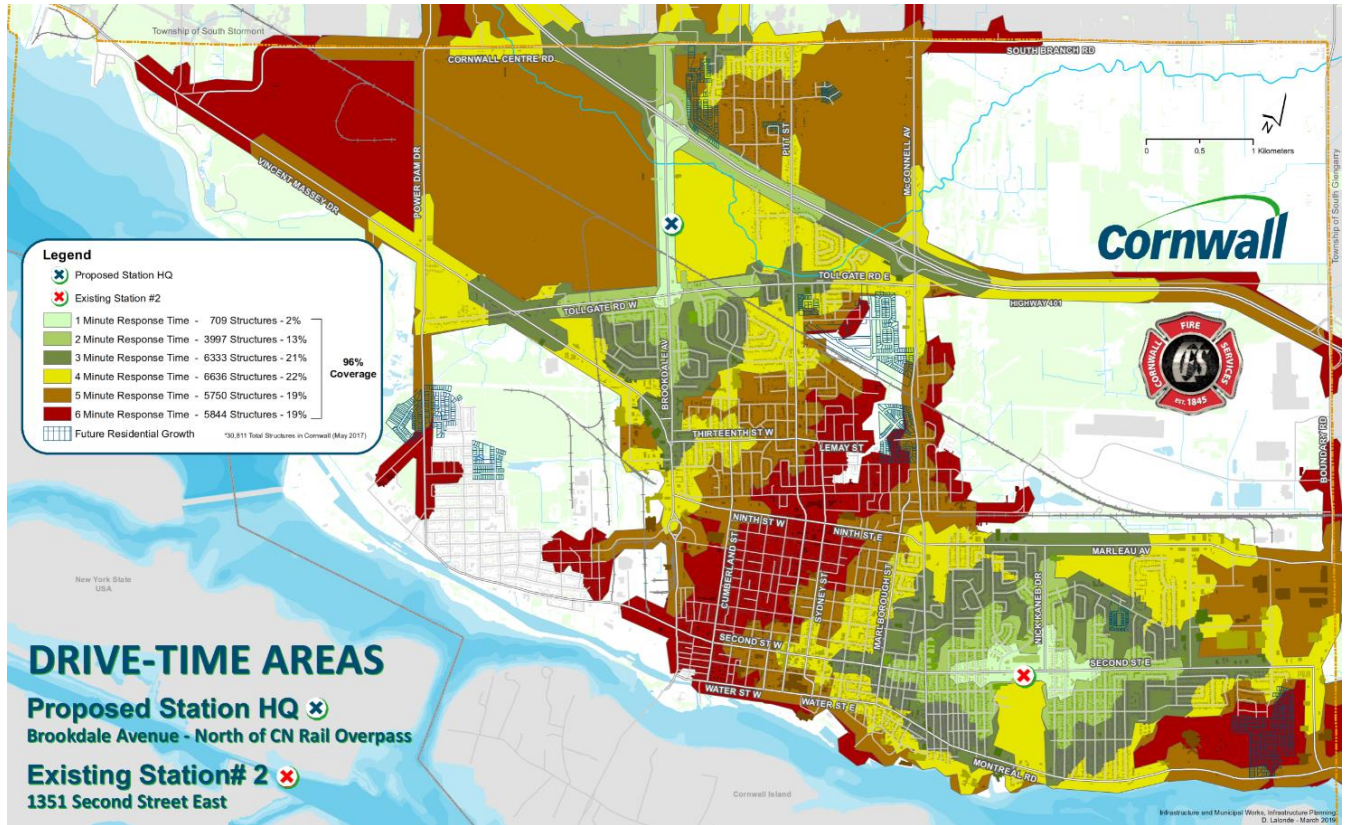


Table 4: SWOT Analysis Site Option C

| Strengths | Weaknesses |
|---|--|
| <ul style="list-style-type: none"> • Located on an arterial road • Away from dense residential / commercial areas • Sufficient land area (4+ acres) • Lower operating costs, savings on rent as it is an ownership option | <ul style="list-style-type: none"> • Privately owned • Cost of acquisition • High upfront development costs • A significant portion (approx. 40%) of the land will be unavailable for development as it is designated as flood plain • Two lane bridge could restrict easy access along Brookdale Avenue should an event occur • Sanitary sewer not available at present |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Plenty of space for future expansion / co-development potential • Site will receive sanitary sewer servicing by summer of 2020 | <ul style="list-style-type: none"> • Flood risk, land partially designated as flood plain • Potential delay in acquisition |

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Figure 12: Drive-Time Analysis Map for Site Option C



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3.4.3 Site Option D

Site Option D is located on Vincent Massey Drive and is the old Kmart site (Figure 13). The site is privately-owned, available for lease only and is 5.9 acres in size.

A SWOT analysis of the site is presented in Table 5. Figure 14 shows the approximate response times to various neighbourhoods within the city from the proposed site. This site allows CFS to cover approximately 93% of the area in the first six minutes.

Figure 13: Site Option D

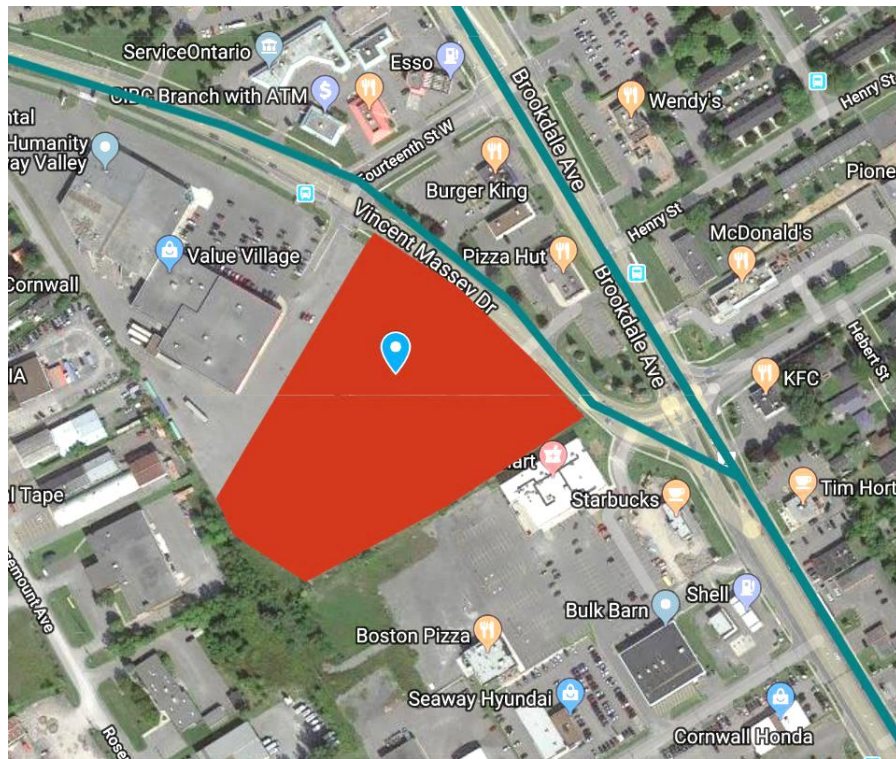
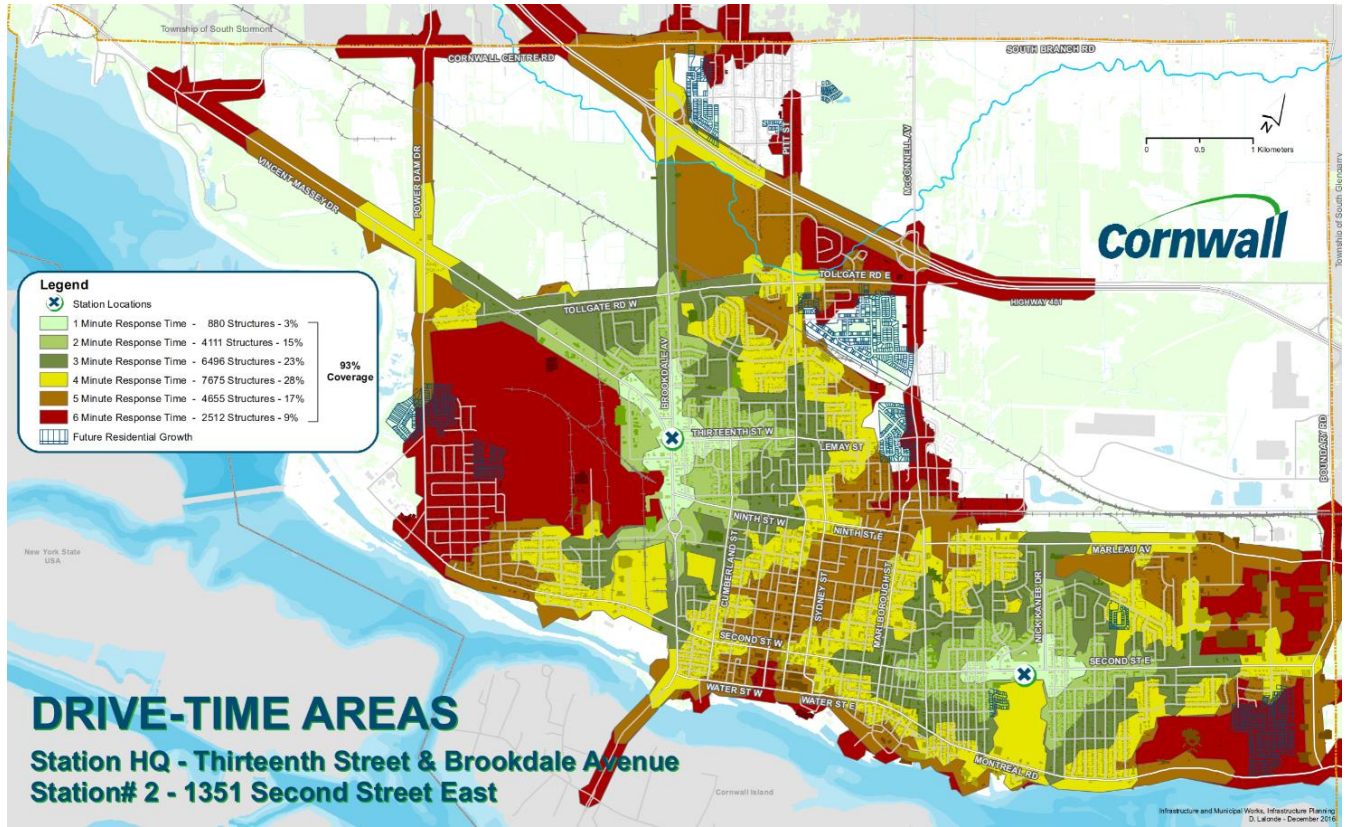


Table 5: SWOT Analysis Site Option D

| Strengths | Weaknesses |
|--|--|
| <ul style="list-style-type: none"> • Easy access to Brookdale and Vincent Massey Drive • Located on arterial road • Sufficient land area (4+ acres) • Fully developed and serviced site • Being a lease option upfront investment will be significantly lower • Early move-in as the facility is already developed | <ul style="list-style-type: none"> • Available for lease only • Close to dense commercial areas • Higher long-term operating costs – rent • Limited space available in comparison to other sites • Limited control over property and therefore limited possibility for expansion and or other changes in the future |
| Opportunities | Threats |
| <ul style="list-style-type: none"> • Potential long-term commitment could help negotiate a better lease terms (lower rent in comparison to market) for CFS, freeing up operating dollars for other critical matters such as equipment and personnel training | <ul style="list-style-type: none"> • Continuity of service disruptions in future due to repair works and renewal of tenure • Lack of control due to leasing model |

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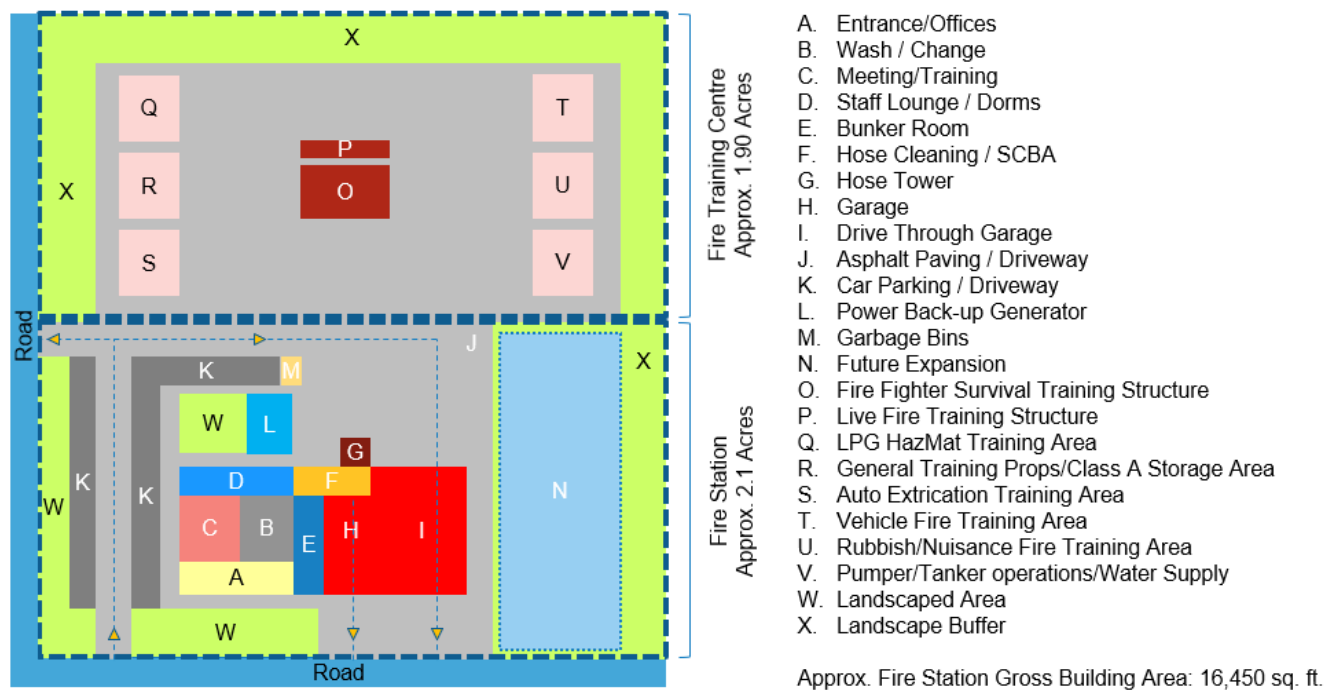
Figure 14: Drive-Time Analysis Map for Site Option D



4.0 Functional Program and Conceptual Design

Based on the information gathered during the facility needs assessment, space requirements were developed for a new facility including approximate room square footages. The functional relationship between spaces for proximity, accessibility, circulation, security and parking requirements was examined. The spaces that make up the proposed Fire Station and Training Centre were identified, and a schematic site plan based on the functional building program was developed (Figure 15).

Figure 15: Schematic Site Plan for Fire Station and Training Centre



An estimation of space needs for the physical make-up of the proposed Fire Station and Training Centre is provided in Tables 6 and 7. The space needs results are applied as inputs to the Options Assessment to determine the financial feasibility of developing the proposed Fire Station and Training Centre on various sites within the preferred area. Both construction and operating cost profiles for all assessed options are driven by the space needs requirements.

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Table 6: Area Breakdown Based on Conceptual Design Site Plan

| Area Type | Space Requirements | Sq. Ft. | Acres |
|---|---|----------------|-------------|
| Fire Station | Fire Station Footprint | 16,450 | 0.38 |
| Fire Station | Other Asphalt Areas | 22,520 | 0.52 |
| Fire Station | Subtotal Fire Station and Other Asphalt Areas | 38,970 | 0.89 |
| Fire Station | Parking and Driveway | 16,195 | 0.37 |
| Fire Station | Landscaped Areas - W | 10,720 | 0.25 |
| Fire Station | Landscaped Areas - X | 8,875 | 0.20 |
| Fire Station | Future Expansion | 16,720 | 0.38 |
| Fire Station | Subtotal Landscaped Areas and Future Expansion Area | 36,315 | 0.83 |
| Fire Station | Total Fire Station | 91,480 | 2.10 |
| Training Centre | Fire Training Installation O | 2,100 | 0.05 |
| Training Centre | Fire Training Installation P | 900 | 0.02 |
| Training Centre | Fire Training Installation Q | 1,760 | 0.04 |
| Training Centre | Fire Training Installation R | 1,760 | 0.04 |
| Training Centre | Fire Training Installation S | 1,760 | 0.04 |
| Training Centre | Fire Training Installation T | 1,760 | 0.04 |
| Training Centre | Fire Training Installation U | 1,760 | 0.04 |
| Training Centre | Fire Training Installation V | 1,760 | 0.04 |
| Training Centre | Subtotal Fire Training Installation | 13,560 | 0.31 |
| Training Centre | Landscaped Areas - X | 26,300 | 0.60 |
| Training Centre | Asphalt Area | 42,905 | 0.98 |
| Training Centre | Total Training Centre | 82,765 | 1.90 |
| Total Fire Station and Training Centre | | 174,245 | 4.00 |

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Table 7: Area Breakdown Based on Conceptual Design Site Plan (Fire Station)

| Area Type | Space Requirements | Sq. Ft. |
|---|---|---------------|
| Apparatus Area | | |
| H | Apparatus Room | 7,800 |
| E | Spare Bunker Gear and Equipment Storage | 280 |
| E | Multi-use Stairs | 170 |
| | Subtotal Apparatus Area | 8,250 |
| Station Personnel and Administration Areas | | |
| A / D | Vestibule | 110 |
| A | Lobby / Public Corridor | 520 |
| A | Reception | 190 |
| A | Fire Prevention / Library | 190 |
| A | Chief's Office | 280 |
| C | Meeting and Training Room | 2,000 |
| D | Kitchen | 310 |
| D | Staff Lounge | 490 |
| D | Storage and Coats | 140 |
| D | Dorm 1 (4 Bunks) | 270 |
| D | Dorm 2 (3 Bunks) | 170 |
| B | Male Change Room (3 showers) | 260 |
| B | Female Change Room (2 showers) | 230 |
| B | Barrier Free Washroom (Public) x2 | 110 |
| B | Staff Washroom | 40 |
| B / D / C | Staff Corridor | 450 |
| A | Duty Officer Office | 190 |
| A | Communications / Data Entry / Radio Office | 190 |
| E | Seasonal Storage | 170 |
| F | Gym / Fitness Centre | 660 |
| | Sub-Total Personnel and Administration Area | 6,970 |
| Mechanical and Specialty | | |
| B | Janitorial Room | 180 |
| F | Hose Cleaning Space | 540 |
| F | SCBA Compressor Room | 170 |
| G | Hose Tower | 150 |
| L | Mechanical and Electrical Room | 190 |
| | Subtotal Mechanical and Specialty | 1,230 |
| | Program Total | 16,450 |

5.0 Options Assessment

The Options Assessment presented in this analysis aims to determine the financial feasibility of constructing and operating the proposed Fire Station and Training Centre. Results from facility needs analysis were incorporated into the Options Assessment.

5.1 Development and Procurement Options

As noted above, four new site options were assessed:

- Site A - northwest corner of the Brookdale Avenue and Tollgate Road intersection;
- Site B - Tollgate Road, west of the Brookdale Avenue and Tollgate Road intersection;
- Site C - Brookdale Avenue, north of the railway tracks; and,
- Site D - Vincent Massey Drive (old K-Mart site).

Four development options were identified from the recommended site options, including:

- Development Option 1 - Develop Site Option A;
- Development Option 2 - Develop Site Option B;
- Development Option 3 - Develop Site Option C; and,
- Development Option 4 - Upgrade Site Option D.

Two procurement options were also identified from the recommended site options based on the procurement method; these include an ownership option and a lease option:

- Procurement Option 1 - Buy land and own Site Option A, B or C; and,
- Procurement Option 2 - Lease existing property on Site Option D.

A baseline 'as is' option was also identified in which the existing Fourth Street Fire Station 1 facility is retained and kept operational through maintenance works over the study period.

5.2 Scenario Definition

Based on the above options, five scenarios were defined for evaluation. These scenarios are outlined in Tables 8 and 9.

Table 8: Scenario Definition Summary

| Existing Site | Site Option A | Site Option B | Site Option C | Site Option D |
|---|--|--|--|---|
| Scenario 1: Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | Scenario 2: City Develops Site Option A and Owns | Scenario 3: City Develops Site Option B and Owns | Scenario 4: City Develops Site Option C and Owns | Scenario 5: Private Owner Upgrades Site Option D, City Leases |

Table 9: Scenario Definition Detailed

| No. | Scenario | Area Assumptions ¹ | Scenario Description |
|-----|--|--|--|
| 1 | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | <ul style="list-style-type: none"> • GSA: 0.62 acres / 26,800 sq. ft. • External Serviced Area: n/a • GBA Fire Station: 0.20 acres / 8,750 sq. ft. • GPA Fire Station: 0.27 acres / 11,560 sq. ft. • Landscaped Area Fire Station: 0.03 acres / 1,134 sq. ft. | <ul style="list-style-type: none"> • City keeps existing HQ Fire Station 1 facility at 10 Fourth Street West • No redevelopment or major upgrade • Future lifecycle maintenance capex provided by City to keep aging facility operational • No Training Centre, staff continue to travel to Ottawa for training |
| 2 | City Develops Site Option A and Owns | <ul style="list-style-type: none"> • GSA: 16 acres / 696,960 sq. ft. • GSA Fire Station: 2.10 acres • GSA Training Centre: 1.90 acres • External Serviced Area: 4.00 acres • GBA Fire Station: 0.38 acres / 16,450 sq. ft. • Internal Serviced Area Fire Station (Other Asphalt Area): 22,520 sq. ft. • Internal Serviced Area Fire Station (GBA + Other Asphalt Area): 38,970 sq. ft. • GPA Fire Station: 0.37 acres / 16,195 sq. ft. • Landscaped Area Fire Station: 0.83 acres / 36,315 sq. ft. • Internal Serviced Area Training Centre (Asphalt): 0.98 acres / 42,905 sq. ft. • Fire Training Installation Areas Training Centre: 0.31 acres / 13,560 sq. ft. • Landscaped Area Training Centre: 0.60 acres / 26,300 sq. ft. | <ul style="list-style-type: none"> • City buys Tollgate Road West corner site zoned "739 Tollgate Road West / South Part of Lot 13 Concession three" (site at northwest quadrant of intersection of Tollgate Road West and Brookdale Avenue) • City develops and owns a new Fire Station • City develops and owns a Training Centre to be shared amongst CFS and CCPS • City also leases Training Centre to external agencies outside of the City i.e. counties, towns, and possibly private entities • Surface parking spaces: 30 constructed • Future lifecycle maintenance capex provided by City |
| 3 | City Develops Site Option B and Owns | <ul style="list-style-type: none"> • GSA: 26.00 acres / 1,132,560 sq. ft. • GSA Fire Station: 2.10 acres • GSA Training Centre: 1.90 acres • External Serviced Area: 4.00 acres • GBA Fire Station: 0.38 acres / 16,450 sq. ft. • Internal Serviced Area Fire Station (Other Asphalt Area): 22,520 sq. ft. • Internal Serviced Area Fire Station (GBA + Other Asphalt Area): 38,970 sq. ft. • GPA Fire Station: 0.37 acres / 16,195 sq. ft. • Landscaped Area Fire Station: 0.83 acres / 36,315 sq. ft. • Internal Serviced Area Training Centre (Asphalt): 0.98 acres / 42,905 sq. ft. • Fire Training Installation Areas Training Centre: 0.31 acres / 13,560 sq. ft. • Landscaped Area Training Centre: 0.60 acres / 26,300 sq. ft. | <ul style="list-style-type: none"> • City buys Tollgate Road West frontage site zoned "739 Tollgate Road West / South Part of Lot 13 Concession three" (site at northwest quadrant of intersection of Tollgate Road West and Brookdale Avenue) • City develops and owns a new Fire Station • City develops and owns a Training Centre to be shared amongst CFS and CCPS • City also leases Training Centre to external agencies outside of the City i.e. counties, towns, and possibly private entities • Surface parking spaces: 30 constructed • Future lifecycle maintenance capex provided by City |

| No. | Scenario | Area Assumptions ¹ | Scenario Description |
|-----|--|--|---|
| 4 | City Develops Site Option C and Owns | <ul style="list-style-type: none"> • GSA: 12.00 acres / 522,720 sq. ft. • GSA Fire Station: 2.10 acres • GSA Training Centre: 1.90 acres • External Serviced Area: 4.00 acres • GBA Fire Station: 0.38 acres / 16,450 sq. ft. • Internal Serviced Area Fire Station (Other Asphalt Area): 22,520 sq. ft. • Internal Serviced Area Fire Station (GBA + Other Asphalt Area): 38,970 sq. ft. • GPA Fire Station: 0.37 acres / 16,195 sq. ft. • Landscaped Area Fire Station: 0.83 acres / 36,315 sq. ft. • Internal Serviced Area Training Centre (Asphalt): 0.98 acres / 42,905 sq. ft. • Fire Training Installation Areas Training Centre: 0.31 acres / 13,560 sq. ft. • Landscaped Area Training Centre: 0.60 acres / 26,300 sq. ft. | <ul style="list-style-type: none"> • City buys Brookdale Avenue site zoned "2495 Brookdale Drive" (site north of the railway tracks and east of Brookdale Avenue) • City develops and owns a new Fire Station • City develops and owns a Training Centre to be shared amongst CFS and CCPS • City also leases Training Centre to external agencies outside of the City i.e. counties, towns, and possibly private entities • Surface parking spaces: 30 constructed • Future lifecycle maintenance capex provided by City |
| 5 | Private Owner Upgrades Site Option D, City Leases | <ul style="list-style-type: none"> • GSA: 5.90 acres / 257,004 sq. ft. • GSA Fire Station: 2.10 acres • GSA Training Centre: 1.90 acres • External Serviced Area: n/a • GBA Fire Station: 0.38 acres / 16,450 sq. ft. • Internal Serviced Area Fire Station (Other Asphalt Area): 22,520 sq. ft. • Internal Serviced Area Fire Station (GBA + Other Asphalt Area): 38,970 sq. ft. • GPA Fire Station: 0.37 acres / 16,195 sq. ft. • Landscaped Area Fire Station: 0.83 acres / 36,315 sq. ft. • Internal Serviced Area Training Centre (Asphalt): 0.98 acres / 42,905 sq. ft. • Fire Training Installation Areas Training Centre: 0.31 acres / 13,560 sq. ft. • Landscaped Area Training Centre: 0.60 acres / 26,300 sq. ft. | <ul style="list-style-type: none"> • Private Owner partially demolishes and upgrades existing building zoned "1400 Vincent Massey Drive" to accommodate Fire Station and Training Centre requirements • City enters into conventional long-term lease agreement with Private Owner • Private Owner debt finances 85% of upgrade construction cost, City repays amortized amount over a 25 year period, in addition to rent • City covers cost of specialty equipment and installation (FFE) for both Fire Station and Training Centre • City shares Training Centre amongst CFS and CCPS • City also leases Training Centre to external agencies outside of the City i.e. counties, towns, and possibly private entities • Surface parking spaces: 30 retained, none constructed • Future lifecycle maintenance capex provided by Private Owner |

¹ Gross Building Area (GBA); Gross Parking Area (GPA); and Gross Site Area (GSA).

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6.0 Assumptions and Inputs

The following tables provide assumptions and inputs for Timing (Table 10), General and Valuation (Table 11), Construction Cost and S-Curve (Tables 12 - 20), Operating Cost (Table 21), Maintenance Capital Expenditure (Table 22) and Qualitative Criteria and Scorecard (Table 23).

6.1 Timing Assumptions

Table 10: Timing Assumptions

| Period Type | Start Date | Duration | End date |
|---------------------|------------|-----------|-------------|
| Construction Period | 1 Jan 2019 | 21 months | 30 Sep 2020 |
| Operation Period | 1 Oct 2020 | 25 years | 30 Sep 2045 |

6.2 General and Valuation Assumptions

Table 11: General and Valuation Assumptions

| Assumption | Value |
|--|--|
| Inflation (growth trend assumed) ² | <ul style="list-style-type: none"> 2.00% (2019-20) 2.25% (2021-22) 2.50% (2023-24) 3.00% (2025+) |
| Risk Free Rate (growth trend assumed) ¹ | <ul style="list-style-type: none"> 2.50% (2019-20) 3.00% (2021-22) 3.50% (2023-25+) |
| Discount Rate | <ul style="list-style-type: none"> 5.0% |
| Senior Debt Gearing | <ul style="list-style-type: none"> 80% Debt (20% Equity) |
| Debt Margin (Spread) ¹ | <ul style="list-style-type: none"> 1.50% (Construction Loan) 1.50% (Operation Permanent Loan) |
| Construction Loan ¹ | <ul style="list-style-type: none"> Base (risk free) rate 2.50% + margin 1.50% = 4.00% |
| Permanent Loan ¹ | <ul style="list-style-type: none"> Base (risk free) rate 2.50% in 2020 rising to 3.50% by 2023, + margin 1.50% = 4.00 to 5.00% |
| Financing Fees and Repayment Terms | <ul style="list-style-type: none"> 1.00% (Upfront Fee) 0.75% (Commitment Fee – 50% of Margin) 25 years (Tenor) 0.5 year (Grace Period) |

¹ Both Infrastructure Ontario (IO) rates as of August 2018 (i.e. IO Construction Loan rate 2.53% and IO 25 year Term Loan rate is 3.60%) and Manulife rates as of August 2018 (i.e. construction loan typically Prime + 1.0% to 1.5% with Lender Fee between 1.0% and 1.5%) have been used as a guide in developing these assumptions.

² Inflation Rate as per Bank of Canada (November 2018) forecast for 2019-20, growth trend assumed.

6.3 Construction Cost Assumptions

Table 12: Construction Cost Assumptions

| Assumption | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 5 ¹⁰ |
|---|-----------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
| Land Acquisition Cost ¹ | CAD | - | 1,500,000 | 500,000 | 1,125,000 | - | - |
| Land Acquisition Cost | CAD per Sq. Ft. | - | 93,750 | 19,231 | 93,750 | - | - |
| Partial Demolition Cost ² | CAD per Sq. Ft. | - | - | - | - | - | 0.50 |
| Site Servicing Cost (Fire Station) ³ | CAD per Sq. Ft. | - | 5.00 | 5.00 | 5.00 | - | 0.96 |
| Landscaping Cost (Fire Station) | CAD per Sq. Ft. | - | 3.00 | 3.00 | 3.00 | - | 3.00 |
| Site Servicing Cost (Training Centre) ⁴ | CAD per Sq. Ft. | - | 5.00 | 5.00 | 5.00 | - | 0.22 |
| Landscaping Cost (Training Centre) | CAD per Sq. Ft. | - | 3.00 | 3.00 | 3.00 | - | 3.00 |
| Surface Parking Space Cost ⁵ | CAD per Space | - | 5,000 | 5,000 | 5,000 | - | - |
| Building Construction Cost (Fire Station) ^{6, 9} | CAD per Sq. Ft. | - | 275 | 275 | 275 | - | 275 |
| Equipment Construction Cost (Training Centre, O Structure) ⁷ | CAD | - | 250,000 | 250,000 | 250,000 | - | - |
| Equipment Construction Cost (Training Centre, P Structure) ⁷ | CAD | - | 30,000 | 30,000 | 30,000 | - | - |
| Equipment Construction Cost (Training Centre, Q,R,S,T,U and V Areas) ⁷ | CAD | - | 50,000 | 50,000 | 50,000 | - | - |
| Equipment Construction Cost (Training Centre) | CAD per Sq. Ft. | - | 5.30 | 5.30 | 5.30 | - | - |
| Furniture, Fixtures and Equipment Cost (Fire Station) ⁸ | CAD | - | 75,000 | 75,000 | 75,000 | 75,000 | - |

¹ For Scenarios 2 and 3, as per indicative pricing information; for Scenario 4, the same price per sq. ft. as Scenario 2 (\$93,750 per sq. ft.) has been applied, assuming it represents a fair market rate for the area.

² Partial demolition cost for upgrade, applied only to the construction cost in Scenario 5; this was used to derive the Tenant Upgrade charge paid by the City to the Private Owner which is rolled into the construction cost (see Operating Cost Assumptions).

³ Site Servicing Cost (Fire Station) refers to internal servicing for the Gross Building Area (16,450 sq. ft.) plus the asphalt area excluding the parking spaces and adjoining driveway and landscaping areas (25,566 sq. ft.), or a total of 42,016 sq. ft.; the cost was derived using Altus 2018 Construction Cost Guide i.e. \$5 per sq. ft. is the low end for "Surface Parking" servicing for Ottawa, range \$5-15 per sq. ft.; a reduced rate (\$0.96 per sq. ft.) was applied to manually adjust the Site Servicing Cost (Fire Station) cost in Scenario 5, in order to derive the Tenant Upgrade charge paid by the City to the Private Owner which is rolled into the construction cost (see Operating Cost Assumptions).

⁴ Site Servicing Cost (Training Centre) refers to internal servicing for the Site Servicing Area (asphalt portion) of the Training Centre (62,291 sq. ft.); the cost was derived using Altus 2018 Construction Cost Guide i.e. \$5 per sq. ft. is the low end for "Surface Parking" servicing for Ottawa, range \$5-15 per sq. ft.; a reduced rate (\$0.22 per sq. ft.) was applied to manually adjust the Site Servicing Cost (Training Centre) cost in Scenario 5, in order to derive the Tenant Upgrade charge paid by the City to the Private Owner which is rolled into the construction cost (see Operating Cost Assumptions).

⁵ Surface Parking Cost is within the \$5-15 per sq. ft. range outlined for Ottawa in the Altus 2018 Construction Cost Guide, which at \$5,000 cost per parking space and 330 sq. ft. per space = \$15 per sq. ft.

⁶ Building Construction Cost (Fire Station) derived using Altus 2018 Construction Cost Guide and referenced against Colliers Pembroke Property Study, April 2018; \$275 per sq. ft is the median for "Fire / EMS Station" for Ottawa, range \$235-310.

⁷ Refer to Space Needs Analysis Conceptual Site Plan for definitions of Training Centre equipment components, cost estimates converted into a rate per sq. ft. in order to capture as "Construction Building Cost – Training Centre" (as opposed to FFE).

⁸ Furniture, Fixtures and Equipment Cost (Fire Station) as per cost estimate provided by CFS.

⁹ Pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase (not available in Design Build contracts); however, many buildings of this nature are delivered through a Design Build contract which is cost effective because the design and building are both done by one entity – and if project delivery was assumed to be a Design Build contract, then there would be cost savings.

¹⁰ Scenario 5 is a leasing scenario in which a Private Owner partially demolishes and upgrades an existing building to accommodate the City, and then recoups the financed portion of the construction cost (which it paid upfront) from the City through an operational phase Tenant Upgrade charge (rolled into the construction cost). To derive the Tenant Upgrade charge in the financial model, construction cost assumptions were included separately in Scenario 5 to calculate the cost in the operational phase and not the construction phase. The construction cost assumptions were adjusted because the site works and construction costs are smaller in Scenario 5 (due to discounting as upgrade construction is not a full construction, and because the Tenant Upgrade charge for which the cost is being calculated excludes the upfront furniture, fixtures and equipment cost).

Table 13: Pre-Construction Cost Estimate for Fire Station – Percent Increase on Total Site Works and Construction Cost

| Assumption ^{1, 3} | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 5 ² |
|--|----------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
| Architect | % gross up of const. cost | - | 7.50% | 7.50% | 7.50% | - | 16.30% |
| Civil Engineering | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 2.17% |
| Structural | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 2.17% |
| Mechanical Consulting | % gross up of const. cost | - | 1.50% | 1.50% | 1.50% | - | 3.26% |
| Electrical Consulting | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 2.17% |
| Communications Engineering | % gross up of const. cost | - | 0.25% | 0.25% | 0.25% | - | 0.54% |
| LEED Certification | % gross up of const. cost | - | - | - | - | - | - |
| Functional Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Geotechnical Consultant | % gross up of const. cost | - | 0.40% | 0.40% | 0.40% | - | 0.87% |
| Environmental Testing Services | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.27% |
| Building Envelope | % gross up of const. cost | - | - | - | - | - | - |
| Fires Safety Plan | % gross up of const. cost | - | - | - | - | - | - |
| Landscaping | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 0.65% |
| Food Services Consultant | % gross up of const. cost | - | - | - | - | - | - |
| FFE Specifications and Procurement Mgmt. | % gross up of const. cost | - | - | - | - | - | - |
| Signage | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.27% |
| Material Testing | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.27% |
| Security Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Cost Consultant | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 0.65% |
| Code Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Infection Control Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Commissioning Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Consultant Contingency | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 2.17% |
| Pre-project Studies | % gross up of const. cost | - | - | - | - | - | - |
| Project Management Fees | % gross up of const. cost | - | 3.00% | 3.00% | 3.00% | - | 6.52% |
| Building Permit Fees | % gross up of const. cost | - | - | - | - | - | - |
| Development Charges | % gross up of const. cost | - | - | - | - | - | - |
| Insurance & Bonding | % gross up of const. cost | - | 2.00% | 2.00% | 2.00% | - | 4.35% |
| Surveys | % gross up of const. cost | - | 0.15% | 0.15% | 0.15% | - | 0.33% |
| Accounting | % gross up of const. cost | - | - | - | - | - | - |
| Legal | % gross up of const. cost | - | 0.15% | 0.15% | 0.15% | - | 0.33% |
| Other Indirect Costs | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.27% |
| Total Pre-construction - Fire Station | % gross up of const. cost | - | 20.05% | 20.05% | 20.05% | - | 43.57% |

¹ Pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase (not available in Design Build contracts); however, many buildings of this nature are delivered through a Design Build contract which is cost effective because the design and building are both done by one entity – and if project delivery was assumed to be a Design Build contract, then there would be cost savings.

² Scenario 5 is a leasing scenario in which a Private Owner partially demolishes and upgrades an existing building to accommodate the City, and then recoups the financed portion of the construction cost (which it paid upfront) from the City through an operational phase Tenant Upgrade charge (rolled into the construction cost). To derive the Tenant Upgrade charge in the financial model, construction cost assumptions were included separately in Scenario 5 to calculate the cost in the operational phase and not the construction phase. The pre-construction cost assumptions were adjusted (inflated) because the pre-construction cost does not change between Scenarios 2, 3, 4 and 5 but yet is derived by grossing-up total site works and construction cost which is smaller in Scenario 5 (due to discounting as upgrade construction is not a full construction, and because the Tenant Upgrade charge for which the cost is being calculated excludes the upfront furniture, fixtures and equipment cost).

³ Sources used as a basis for estimates included: Hanscomb Yardsticks for Costing: Cost Data for the Canadian Construction Industry (for building construction cost benchmarks); and Royal Architectural Institute of Canada (RAIC), A Guide to Determining Appropriate Fees for the Services of an Architect. Also applied was Colliers expert opinion based on industry experience.

Table 14: Pre-Construction Cost Estimate for Training Centre – Percent Increase on Site Works Only

| Assumption ^{1,3} | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 5 ² |
|--|---------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
| Architect ⁴ | % gross up of const. cost | - | - | - | - | - | - |
| Civil Engineering | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Structural | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Mechanical Consulting | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Electrical Consulting | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Communications Engineering | % gross up of const. cost | - | 0.25% | 0.25% | 0.25% | - | 1.24% |
| LEED Certification | % gross up of const. cost | - | - | - | - | - | - |
| Functional Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Geotechnical Consultant | % gross up of const. cost | - | 0.40% | 0.40% | 0.40% | - | 1.99% |
| Environmental Testing Services | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.62% |
| Building Envelope | % gross up of const. cost | - | - | - | - | - | - |
| Fires Safety Plan | % gross up of const. cost | - | - | - | - | - | - |
| Landscaping | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 1.49% |
| Food Services Consultant | % gross up of const. cost | - | - | - | - | - | - |
| FFE Specifications and Procurement Mgmt | % gross up of const. cost | - | - | - | - | - | - |
| Signage | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.62% |
| Material Testing | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.62% |
| Security Consultant | % gross up of const. cost | - | 0.20% | 0.20% | 0.20% | - | 0.99% |
| Cost Consultant | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 1.49% |
| Code Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Infection Control Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Commissioning Consultant | % gross up of const. cost | - | - | - | - | - | - |
| Consultant Contingency | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Pre-project Studies | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 1.49% |
| Project Management Fees | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 4.97% |
| Building Permit Fees | % gross up of const. cost | - | 0.30% | 0.30% | 0.30% | - | 1.49% |
| Development Charges | % gross up of const. cost | - | 0.50% | 0.50% | 0.50% | - | 2.49% |
| Insurance & Bonding | % gross up of const. cost | - | 1.00% | 1.00% | 1.00% | - | 4.97% |
| Surveys | % gross up of const. cost | - | 0.15% | 0.15% | 0.15% | - | 0.75% |
| Accounting | % gross up of const. cost | - | 0.15% | 0.15% | 0.15% | - | 0.75% |
| Legal | % gross up of const. cost | - | 0.15% | 0.15% | 0.15% | - | 0.75% |
| Other Indirect Costs | % gross up of const. cost | - | 0.13% | 0.13% | 0.13% | - | 0.62% |
| Total Pre-construction – Training Centre | % gross up of const. cost | - | 8.00% | 8.00% | 8.00% | - | 39.77% |

¹ Pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase (not available in Design Build contracts); however, many buildings of this nature are delivered through a Design Build contract which is cost effective because the design and building are both done by one entity – and if project delivery was assumed to be a Design Build contract, then there would be cost savings.

² Scenario 5 is a leasing scenario in which a Private Owner partially demolishes and upgrades an existing building to accommodate the City, and then recoups the financed portion of the construction cost (which it paid upfront) from the City through an operational phase Tenant Upgrade charge (which is rolled into the construction cost). To derive the Tenant Upgrade charge in the financial model, construction cost assumptions were included separately in Scenario 5 to calculate the cost in the operational phase and not the construction phase. The pre-construction cost assumptions were adjusted (inflated) because the pre-construction cost does not change between Scenarios 2, 3, 4 and 5 but yet is derived by grossing-up total site works and construction cost which is smaller in Scenario 5 (due to discounting as upgrade construction is not a full construction, and because the Tenant Upgrade charge for which the cost is being calculated excludes the upfront furniture, fixtures and equipment cost).

³ Sources used as a basis for estimates included: Hanscomb Yardsticks for Costing: Cost Data for the Canadian Construction Industry (for building construction cost benchmarks); and Royal Architectural Institute of Canada (RAIC), A Guide to Determining Appropriate Fees for the Services of an Architect. Also applied was Colliers expert opinion based on industry experience.

⁴ Architect's fee for Pre-Construction - Training Centre is assumed to be captured in Pre-Construction – Fire Station.

Table 15: Construction Cost Estimate for Fire Station – Percent of Construction Cost

| Assumption ^{1,3} | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 5 ² |
|-----------------------------------|------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
| Substructure | % of const. cost | - | 7.70% | 7.70% | 7.70% | - | 7.70% |
| Structure | % of const. cost | - | 11.70% | 11.70% | 11.70% | - | 11.70% |
| Exterior Enclosure | % of const. cost | - | 16.70% | 16.70% | 16.70% | - | 8.35% |
| Partitions & Doors | % of const. cost | - | 6.90% | 6.90% | 6.90% | - | - |
| Finishes | % of const. cost | - | 7.90% | 7.90% | 7.90% | - | - |
| Fittings and Equipment | % of const. cost | - | 6.30% | 6.30% | 6.30% | - | - |
| Mechanical | % of const. cost | - | 21.20% | 21.20% | 21.20% | - | 8.48% |
| Electrical | % of const. cost | - | 11.50% | 11.50% | 11.50% | - | 5.75% |
| General Conditions and Allowances | % of const. cost | - | 10.10% | 10.10% | 10.10% | - | - |
| Subtotal | % of const. cost | - | 100.00% | 100.00% | 100.00% | - | 41.98% |
| Design Contingency | % of const. cost | - | 3.20% | 3.20% | 3.20% | - | 3.20% |
| Construction Contingency | % of const. cost | - | 4.00% | 4.00% | 4.00% | - | 4.00% |
| Escalation | % of const. cost | - | 3.00% | 3.00% | 3.00% | - | 3.00% |
| Construction Management Fee | % of const. cost | - | - | - | - | - | - |
| Subtotal | % of const. cost | - | 10.20% | 10.20% | 10.20% | - | 10.20% |
| LEED Premiums | % of const. cost | - | - | - | - | - | - |
| Total | % of const. cost | - | 110.20% | 110.20% | 110.20% | - | 52.18% |

¹ Pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase (not available in Design Build contracts); however, many buildings of this nature are delivered through a Design Build contract which is cost effective because the design and building are both done by one entity – and if project delivery was assumed to be a Design Build contract, then there would be cost savings.

² Scenario 5 is a leasing scenario in which a Private Owner partially demolishes and upgrades an existing building to accommodate the City, and then recoups the financed portion of the construction cost (which it paid upfront) from the City through an operational phase Tenant Upgrade charge (which is rolled into the construction cost). To derive the Tenant Upgrade charge in the financial model, construction cost assumptions were included separately in Scenario 5 to calculate the cost in the operational phase and not the construction phase. The construction cost assumptions were adjusted because the site works and construction costs are smaller in Scenario 5 (due to discounting as upgrade construction is not a full construction, and because the Tenant Upgrade charge for which the cost is being calculated excludes the upfront furniture, fixtures and equipment cost).

³ Sources used as a basis for estimates included: Hanscomb Yardsticks for Costing: Cost Data for the Canadian Construction Industry (for building construction cost benchmarks); and Royal Architectural Institute of Canada (RAIC), A Guide to Determining Appropriate Fees for the Services of an Architect. Also applied was Colliers expert opinion based on industry experience.

Table 16: Construction Cost Estimate for Training Centre (Equipment) – Percent of Construction Cost

| Assumption ^{1,3} | Unit | Scenario 1 ⁴ | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 5 ² |
|-----------------------------------|------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
| Substructure | % of const. cost | - | - | - | - | - | - |
| Structure | % of const. cost | - | - | - | - | - | - |
| Exterior Enclosure | % of const. cost | - | - | - | - | - | - |
| Partitions & Doors | % of const. cost | - | - | - | - | - | - |
| Finishes | % of const. cost | - | - | - | - | - | - |
| Fittings and Equipment | % of const. cost | - | 100.00% | 100.00% | 100.00% | 100.00% | - |
| Mechanical | % of const. cost | - | - | - | - | - | - |
| Electrical | % of const. cost | - | - | - | - | - | - |
| General Conditions and Allowances | % of const. cost | - | - | - | - | - | - |
| Subtotal | % of const. cost | - | 100.00% | 100.00% | 100.00% | 100.00% | - |
| Design Contingency | % of const. cost | - | 3.20% | 3.20% | 3.20% | 3.20% | - |
| Construction Contingency | % of const. cost | - | 4.00% | 4.00% | 4.00% | 4.00% | - |
| Escalation | % of const. cost | - | 3.00% | 3.00% | 3.00% | 3.00% | - |
| Construction Management Fee | % of const. cost | - | - | - | - | - | - |
| Subtotal | % of const. cost | - | 10.20% | 10.20% | 10.20% | 10.20% | - |
| LEED Premiums | % of const. cost | - | - | - | - | - | - |
| Total | % of const. cost | - | 110.20% | 110.20% | 110.20% | 110.20% | - |

¹ Pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase (not available in Design Build contracts); however, many buildings of this nature are delivered through a Design Build contract which is cost effective because the design and building are both done by one entity – and if project delivery was assumed to be a Design Build contract, then there would be cost savings.

² Scenario 5 is a leasing scenario in which a Private Owner partially demolishes and upgrades an existing building to accommodate the City, and then recoups the financed portion of the construction cost (which it paid upfront) from the City through an operational phase Tenant Upgrade charge (which is rolled into the construction cost). To derive the Tenant Upgrade charge in the financial model, construction cost assumptions were included separately in Scenario 5 to calculate the cost in the operational phase and not the construction phase. The construction cost assumptions were adjusted because the site works and construction costs are smaller in Scenario 5 (due to discounting as upgrade construction is not a full construction, and because the Tenant Upgrade charge for which the cost is being calculated excludes the upfront furniture, fixtures and equipment cost).

³ Sources used as a basis for estimates included: Hanscomb Yardsticks for Costing: Cost Data for the Canadian Construction Industry (for building construction cost benchmarks); and Royal Architectural Institute of Canada (RAIC), A Guide to Determining Appropriate Fees for the Services of an Architect. Also applied was Colliers expert opinion based on industry experience.

⁴ Training Centre costs have not been included within Scenario 1 because the property does not currently have the space to house a training component. It is important to note that there are costs associated with sending staff away for training. Additional training costs would typically exist under this scenario, but it would require the added step of selecting a suitable location.

6.4 Construction Cost and S-Curve Assumptions – Development Scenarios

Table 17: Construction Cost and S-Curve Assumptions: Scenario 2 City Develops Site Option A and Owns

| Assumption | Const. Cost | Const. Cost | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | Total | |
|---|-------------|-------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| | % of Tot | CAD | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | |
| Land and Property Acquisition | 17.1% | 1,500,000 | 100 | | | | | | | | | | | | | | | | | | | | | 100 | |
| Demolition | - | - | | 50 | 50 | | | | | | | | | | | | | | | | | | | | 100 |
| Preconstruction - Fire Station | 12.4% | 1,090,513 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Preconstruction - Training Centre | 0.3% | 23,474 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Construction Site Works - Fire Station | 5.2% | 453,795 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Site Works - Training Centre | 3.3% | 293,425 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Fire Station | 56.7% | 4,985,173 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Training Centre (Equipment) | 4.1% | 363,660 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| FF&E - Fire Station | 0.9% | 75,000 | | | | | | | | | | | | | | | | | | | | | 50 | 50 | 100 |
| Total incl contingency | 100% | 8,785,039 | 17.1 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 6.9 | 6.9 | 8.3 | 8.3 | 8.3 | 5.6 | 5.6 | 5.6 | 4.2 | 4.2 | 3.2 | 3.2 | | 100 |

Table 18: Construction Cost and S-Curve Assumptions: Scenario 3 City Develops Site Option B and Owns

| Assumption | Const. Cost | Const. Cost | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | Total | |
|---|-------------|-------------|-----|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| | % of Tot | CAD | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | |
| Land and Property Acquisition | 6.4% | 500,000 | 100 | | | | | | | | | | | | | | | | | | | | | 100 | |
| Demolition | - | - | | 50 | 50 | | | | | | | | | | | | | | | | | | | | 100 |
| Preconstruction - Fire Station | 14.0% | 1,090,513 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Preconstruction - Training Centre | 0.3% | 23,474 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Construction Site Works - Fire Station | 5.8% | 453,795 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Site Works - Training Centre | 3.8% | 293,425 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Fire Station | 64.0% | 4,985,173 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Training Centre (Equipment) | 4.7% | 363,660 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| FF&E - Fire Station | 1.0% | 75,000 | | | | | | | | | | | | | | | | | | | | | 50 | 50 | 100 |
| Total incl contingency | 100% | 7,785,039 | 6.4 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 7.8 | 7.8 | 9.4 | 9.4 | 9.4 | 6.3 | 6.3 | 6.3 | 4.7 | 4.7 | 3.6 | 3.6 | | 100 |

Table 19: Construction Cost and S-Curve Assumptions: Scenario 4 City Develops Site Option C and Owns

| Assumption | Const. Cost | Const. Cost | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | Total | |
|---|-------------|-------------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| | % of Tot | CAD | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | |
| Land and Property Acquisition | 13.4% | 1,125,000 | 100 | | | | | | | | | | | | | | | | | | | | | 100 | |
| Demolition | - | - | | 50 | 50 | | | | | | | | | | | | | | | | | | | | 100 |
| Preconstruction - Fire Station | 13.0% | 1,090,513 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Preconstruction - Training Centre | 0.3% | 23,474 | | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | | | | | | | | | | | | | 100 |
| Construction Site Works - Fire Station | 5.4% | 453,795 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Site Works - Training Centre | 3.5% | 293,425 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Fire Station | 59.3% | 4,985,173 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| Construction Building - Training Centre (Equipment) | 4.3% | 363,660 | | | | | | | | | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | | 100 |
| FF&E - Fire Station | 0.9% | 75,000 | | | | | | | | | | | | | | | | | | | | | 50 | 50 | 100 |
| Total incl contingency | 100% | 8,410,039 | 13.4 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 7.2 | 7.2 | 8.7 | 8.7 | 8.7 | 5.8 | 5.8 | 5.8 | 4.3 | 4.3 | 3.3 | 3.3 | | 100 |

Table 20: Construction Cost and S-Curve Assumptions: Scenario 5 Private Owner Upgrades Site Option D, City Leases

| Assumption | Const. Cost | Const. Cost | M1-M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | Total | Private Owner Upgrade Costs (for Tenant Upgrade charge) | Private Owner Upgrade Costs (for Tenant Upgrade charge) |
|---|-------------|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|---|---|
| | % of Tot | CAD | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % of Tot | CAD |
| Land and Property Acquisition | - | - | | | | | | | | | | | | | | 100 | - | - |
| Demolition | - | - | | | | | | | | | | | | | | 100 | 1.0% | 36,500 |
| Preconstruction - Fire Station | - | - | | | | | | | | | | | | | | 100 | 29.1% | 1,092,102 |
| Preconstruction - Training Centre | - | - | | | | | | | | | | | | | | 100 | 0.9% | 35,102 |
| Construction Site Works - Fire Station | - | - | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 100 | 3.9% | 146,258 |
| Construction Site Works - Training Centre | - | - | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 100 | 2.3% | 88,254 |
| Construction Building - Fire Station | - | - | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 100 | 62.8% | 2,360,493 |
| Construction Building - Training Centre (Equipment) | 82.9% | 363,660 | | 10 | 10 | 12 | 12 | 12 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 100 | - | - |
| FF&E - Fire Station | 17.1% | 75,000 | | | | | | | | | | | | 50 | 50 | 100 | - | - |
| Total incl contingency | 100% | 438,660 | - | 8.3 | 8.3 | 9.9 | 9.9 | 9.9 | 6.6 | 6.6 | 6.6 | 5.0 | 5.0 | 1.9 | 1.9 | 100 | 100% | 3,758,708 |

6.5 Operating Cost Assumptions

Table 21: Operating Cost Assumptions

| Assumption | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|--|----------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases |
| Operating Expense - Fire Station ⁶ | | | | | | |
| Rental Expense - Fire Station ¹ | CAD per Sq. Ft. p.a. | - | - | - | - | 4.00 |
| Tenant Upgrade Received ² | CAD per Sq. Ft. p.a. | - | - | - | - | 13.78 |
| Insurance - Fire Station ³ | CAD per Sq. Ft. p.a. | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| Repair & Maintenance - Fire Station ³ | CAD per Sq. Ft. p.a. | 1.89 | 1.89 | 1.89 | 1.89 | 1.89 |
| Utilities - Fire Station ³ | CAD per Sq. Ft. p.a. | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 |
| Management Fee - Fire Station ³ | CAD per Sq. Ft. p.a. | 1.36 | 0.72 | 0.72 | 0.72 | 0.72 |
| Operating Expense - Training Centre | | | | | | |
| Insurance - Training Centre ⁴ | CAD per Sq. Ft. p.a. | - | 0.04 | 0.04 | 0.04 | 0.04 |
| Repair & Maintenance - Training Centre ⁴ | CAD per Sq. Ft. p.a. | - | 0.16 | 0.16 | 0.16 | 0.16 |
| Utilities - Training Centre ⁴ | CAD per Sq. Ft. p.a. | - | 0.18 | 0.18 | 0.18 | 0.18 |
| Capital Maintenance Reserve Allocation ⁵ | CAD / % | 45,518 | 0.65% | 0.65% | 0.65% | - |
| Operating Revenue - Training Centre | | | | | | |
| Rental Income - Training Centre (no. of days utilized per month) | #Num | - | 5.0 | 5.0 | 5.0 | 5.0 |
| Rental Income - Training Centre (rate per day) | CAD | - | 1,000 | 1,000 | 1,000 | 1,000 |

¹ As per preliminary discussions with Private Owner.

² Tenant Upgrade charge (annuity) paid to Private Owner for debt financing of upgrade construction, assuming the following: 5% p.a. interest rate, 25 year tenor, total construction cost for upgrade of \$\$3,758,708 of which 85% is debt financing and 15% equity contributed by Private Owner, and Gross Building Area of 16,450 sq. ft.

³ As per Existing Fourth Street West Facility Annual Building Operating Expenses and Reserves, December 2017 and escalated to FY2019 at 2% p.a.; except for "Management Fee – Fire Station" in Scenarios 2, 3, 4 and 5 which is adjusted downward so that the calculated charge remains constant with the Existing Facility (fee should not increase with larger facility).

⁴ As per Colliers Advisory Airport Parking Analysis; total Training Area expense of \$125 per car space / 330 sq. ft. = \$0.38 per sq. ft p.a. (\$23,850 p.a. based on Training Centre Site Servicing Asphalt Area of 62,291 sq. ft.); this consists of the following: Insurance \$10 per 330 sq. ft. car space (\$2500 p.a.); R&M and Supplies \$65 + \$5 = \$65 per 330 sq. ft. car space (\$10,000 p.a.); and Utilities \$45 per 330 sq. ft. car space (\$11,350 p.a.).

⁵ As per Existing Fourth Street West Facility Annual Building Operating Expenses and Reserves, December 2017 and escalated to FY2019 at 2% p.a.; for Scenarios 2, 3 and 4, an equivalent amount to Scenario 1 is derived using a percentage of construction cost (including pre-construction, construction site works and construction building costs); for Scenario 5, no amount as it is assumed that future maintenance capital expenditure requirements will be covered by the Private Owner.

⁶ For all scenarios, operating costs are incurred from the Model Start Date, January 1, 2019; the operating cost profile changes, however, for Scenarios 2, 3, 4 and 5 at the end of the Construction Period when the new facility becomes operational.

6.6 Maintenance Capital Expenditure Assumptions

Table 22: Maintenance Capital Expenditure Assumptions

| Calendar Year | Year Type | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---------------|---------------------|------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|---|
| | | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades ¹ | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases |
| 2019 | Construction Year 1 | 2018 CAD (unescalated) | 11,500 | - | - | - | - |
| 2020 | Construction Year 2 | 2018 CAD (unescalated) | 7,200 | - | - | - | - |
| 2021 | Operating Year 1 | 2018 CAD (unescalated) | 27,000 | - | - | - | - |
| 2022 | Operating Year 2 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2023 | Operating Year 3 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2024 | Operating Year 4 | 2018 CAD (unescalated) | 26,000 | - | - | - | - |
| 2025 | Operating Year 5 | 2018 CAD (unescalated) | 24,000 | - | - | - | - |
| 2026 | Operating Year 6 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2027 | Operating Year 7 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2028 | Operating Year 8 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2029 | Operating Year 9 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2030 | Operating Year 10 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2031 | Operating Year 11 | 2018 CAD (unescalated) | 18,600 | - | - | - | - |
| 2032 | Operating Year 12 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2033 | Operating Year 13 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2034 | Operating Year 14 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2035 | Operating Year 15 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2036 | Operating Year 16 | 2018 CAD (unescalated) | 150,000 | 75,000 | 75,000 | 75,000 | - |
| 2037 | Operating Year 17 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2038 | Operating Year 18 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2039 | Operating Year 19 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2040 | Operating Year 20 | 2018 CAD (unescalated) | 150,000 | 125,000 | 125,000 | 125,000 | - |
| 2041 | Operating Year 21 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2042 | Operating Year 22 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2043 | Operating Year 23 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2044 | Operating Year 24 | 2018 CAD (unescalated) | - | - | - | - | - |
| 2045 | Operating Year 25 | 2018 CAD (unescalated) | 150,000 | 125,000 | 125,000 | 125,000 | - |
| | Total | 2018 CAD (unescalated) | 564,300 | 325,000 | 325,000 | 325,000 | - |

¹ Costs in 2019 through to 2031 as per "Building Condition Assessment Fire Station 1" data; all other costs are Colliers estimates based on industry experience.

6.7 Qualitative Criteria and Scorecard Assumptions

Table 23: Qualitative Criteria and Scorecard Assumptions

| Attribute Group / Criteria | Weight | Max Rating | Max Possible Score |
|--|--------|------------|--------------------|
| Physical Factors, Functionality, Management | | | 123 |
| Plot Area (ideal >4.0 Acres) | 5 | 3 | 15 |
| Potential for Future Expansion | 5 | 3 | 15 |
| Ability to achieve AODA compliance | 5 | 3 | 15 |
| Ability to consolidate all functions/dept. at single location | 4 | 3 | 12 |
| Favourable soil, grading | 5 | 3 | 15 |
| Potential Soil Contamination | 4 | 3 | 12 |
| Flooding / Erosion Risk | 5 | 3 | 15 |
| Remoteness from Fire Station 2 to avoid duplication of coverage | 5 | 3 | 15 |
| Multiple road frontage | 3 | 3 | 9 |
| Municipal Services & Zoning | | | 81 |
| Availability of potable water | 5 | 3 | 15 |
| Availability of sewage systems | 5 | 3 | 15 |
| Availability of storm water drainage | 5 | 3 | 15 |
| Availability of Elec. Power Infrastructure | 5 | 3 | 15 |
| Availability of Nat. Gas Infrastructure | 5 | 3 | 15 |
| Presence of Easements | 2 | 3 | 6 |
| Connectivity | | | 84 |
| Easy access to northern areas | 5 | 3 | 15 |
| Maximum coverage in 6 minutes | 5 | 3 | 15 |
| Easy access to major thoroughfares | 5 | 3 | 15 |
| Probability of traffic congestion | 5 | 3 | 15 |
| Travel obstructions - rail, snow route, one-way streets | 5 | 3 | 15 |
| Adequate (onsite or offsite) parking availability | 3 | 3 | 9 |
| Impact on External Entities | | | 39 |
| Location alignment with other emergency services provider needs | 3 | 3 | 9 |
| Co-development potential | 3 | 3 | 9 |
| Visibility and Access | 3 | 3 | 9 |
| Remoteness to Residential and Commercial Areas | 4 | 3 | 12 |
| Ownership Structure | | | 15 |
| Owned by City | 5 | 3 | 15 |
| Owned by private entities | 3 | 3 | 9 |
| Other Considerations | | | 45 |
| Move-in time | 3 | 3 | 9 |
| Ability to ensure continuity of services in the future | 3 | 3 | 9 |
| Effective real estate management | 4 | 3 | 12 |
| Potential to be embraced as a public resource, political support | 5 | 3 | 15 |
| Total Qualitative Analysis Score | | | 387 |

Note: Total Quantitative Analysis Score is equally weighted at 387, so the maximum Combined Score is 774.

7.0 Results

7.1 Quantitative Analysis Results

The quantitative options analysis results are presented below as follows:

- Project NPV with a 5% discount rate and excluding debt service assumptions (ungeared); and,
- Project NPV with a 5% discount rate and including debt service assumptions (geared).

Gearing refers to the level of a project's debt relative to its equity capital, expressed as a percentage. Scenario results with gearing are presented to understand the project return impact when 80% debt financing is used to pay for development costs. Scenario results with gearing are not used to determine the quantitative scores of scenarios; only the ungeared scenario results are used to determine scores.

A summary of the quantitative options analysis results excluding debt service (ungeared) is presented in Table 24.

Table 24: Summary of Scenario Evaluation Results – Project Net Present Cost (Ungeared)

| No. | Scenario | Project NPV @ 5.0% (Ungeared) |
|-----|---|-------------------------------------|
| | | CAD |
| 1 | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | (1,571,997) |
| 2 | City Develops Tollgate Road West Corner Site and Owns | (10,359,325) |
| 3 | City Develops Tollgate Road West Frontage Site and Owns | (9,312,542) |
| 4 | City Develops Brookdale Avenue Site and Owns | (9,965,323) |
| 5 | Private Owner Upgrades Vincent Massey Drive (Old Kmart) Site, City Leases | (5,910,698) |

- Scenario 1 “Keep Existing Fourth Street West Facility ‘As Is’ with Minor Upgrades” had the lowest project return impact (Net Present Cost \$1,571,997).
 - No capital costs for development were assumed for the Fire Station in this baseline scenario, and only a limited amount of regular repair and maintenance and major capital expenditure (\$884,439 over the study period, which is the expected minimum amount required to keep the existing building functional but will not address the current shortcomings of the building). This estimate is based on the building condition assessment conducted by the City.
 - Operational costs for the Fire Station continue as in prior years (\$105,126 in 2019) adjusted year on year for cost inflation; this includes total expenses of \$64,278 in 2020 (Operational Year 1) up to \$128,159 by 2045, and a \$45,518 per annum capital maintenance reserve provision.
 - This scenario does not include development of a Training Centre, further limiting both the capital and operational cost impact on project return.
- Scenario 5 “Private Owner Upgrades Site Option D, City Leases” was the strongest performing and most attractive development scenario with a Net Present Cost impact of \$5,910,698 – substantially less than the Net Present Cost results for the other development scenarios

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(Scenarios 2, 3 and 4). The result was achieved through both upfront capital cost benefits and operational advantages associated with running a revenue-generating Training Centre.

- Upfront capital costs in Scenario 5 were substantially reduced compared to the other development scenarios (\$451,078 versus \$8,043,969 to \$9,097,262, respectively); and no maintenance capital expenditure was incurred. This scenario assumes that the Private Owner pays for an upgrade to the existing 'Old Kmart' facility upfront, providing the minimal amount of construction works needed at a reduced construction cost (\$3,758,708) to meet the requirements of the City for a Fire Station and Training Centre; and covers all future maintenance capital expenditure requirements. The Private Owner contributes equity of 15% of the total upgrade construction cost and obtains financing for 85% of the remaining cost. The Private Owner then recoups the debt serving charges (monthly principal and interest annuity payments amortized over a 25 year operational period with a 5% per annum interest rate) from the City in the form of a Tenant Upgrade charge (totalling \$13.78 per square foot per annum). In addition, the Private Owner also charges the City a facility rental fee of \$4.00 per square foot per annum escalated over the study period. Compared to the other development scenarios, the City benefits in this scenario from a reduced construction cost (\$3,758,708 for an upgrade versus \$6,846,379 for a new development), a cost subsidy of 15% (\$563,806) injected by the Private Owner, no upfront land acquisition cost, and no future maintenance capital expenditure requirement. The cost of furniture, fixtures and equipment for both the Fire Station and Training Centre (\$438,660) is covered by the City.
- Scenario 5 net operational costs excluding rent and the Tenant Upgrade charge remain the same as for the other development scenarios (\$112,448 in Operational Year 2), and only slightly higher when compared to Scenario 1 (\$105,126 in Operational Year 2). Although the upgraded facility area is almost twice the size of the current facility in Scenario 1 (16,450 sq. ft. versus 8,750 sq. ft., respectively), much of the additional cost for operating the new larger facility is offset by net income generated by the Training Centre (in Operating Year 2, the Training Centre is expected to generate \$63,213 in revenue and \$17,307 in expense, giving a net income to the City of \$45,906).
- Net Present Cost results for Scenario 2 "City Develops Site Option A and Owns", Scenario 3 "City Develops Site Option B and Owns" and Scenario 4 "City Develops Site Option C and Owns" were comparatively similar, varying from strongest to weakest by \$1,046,783.
 - The best performing of the three scenarios was Scenario 3 with a Net Present Cost impact of \$9,312,542. The construction and operational cost profiles for each of these three scenarios were the same, except for costs relating to land acquisition.
 - The variance in Net Present Costs between the three scenarios is explained by the variance in land acquisition costs. The construction cost for each scenario incurred by the City was \$7,285,039, excluding construction loan interest and financing fees. Additionally, maintenance capital expenditure totalling \$609,574 over the study period was incurred by the City in each scenario; this cost is slightly less than that for Scenario 1 which includes more immediate maintenance costs (a further \$274,864) given the age and condition of the existing facility.
 - The operating cost profile was the same as that for Scenario 5 described above, with the exclusion of lease-related rent and tenant upgrade charges.

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- Development scenarios 2, 3 and 4 represent costly ownership options for the City when compared against the leasing option Scenario 5 (which provides value for money but less control).

A summary of the quantitative options analysis results including debt service (geared) is presented in Table 25.

Table 25: Summary of Scenario Evaluation Results – Project Net Present Cost (Geared)

| No. | Scenario | Project NPV @ 5.0% (Geared) |
|-----|---|-----------------------------------|
| | | CAD |
| 1 | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | (1,571,997) |
| 2 | City Develops Site Option A and Owns | (17,095,331) |
| 3 | City Develops Site Option B and Owns | (15,265,498) |
| 4 | City Develops Site Option C and Owns | (16,406,315) |
| 5 | Private Owner Upgrades Site Option D, City Leases | (6,244,133) |

- Project return results for Scenario 1 “Keep Existing Fourth Street West Facility ‘As Is’ with Minor Upgrades” remained unchanged, as this scenario did not contain any construction or permanent (operating) debt financing assumptions. There are capital maintenance works assumed over the study period (\$884,439), but these are completed using capital maintenance reserve account funds.
- Debt servicing had a mild impact on project return for Scenario 5 “Private Owner Upgrades Site Option D, City Leases”. This was due to a small amount of financing assumed (\$350,928) for furniture, fixtures and equipment for the Fire Station and Training Centre. Most of the upfront capital costs for upgrade construction in this scenario are carried by the Private Owner and recouped from the City during the operational phase in the form of a Tenant Upgrade charge.
- A significant project return impact was observed for the remaining development scenarios: Scenario 2 “City Develops Site Option A and Owns”; Scenario 3 “City Develops Site Option B and Owns”; and Scenario 4 “City Develops Site Option C and Owns”. Net Present Cost results for these scenarios increased 64-65% when 80% debt financing for the total land acquisition and construction costs was assumed. Although quantitative scoring in this analysis is based on the ungeared project returns described above, it should be noted, however, that the impact of debt servicing on these three development scenarios significantly altered the results, and especially when considering the mild impact observed in Scenario 5.

Detailed scenario Net Present Cost results excluding and including debt service assumptions and other key scenario metrics are presented in Table 26. Discount rate sensitivities were tested in the financial model for low (2.5%) and high (7.5%) discount rates; no material variances or changes in the ranking of options were observed.

A summary of scenario evaluation results outlining Construction Phase costs, Funding, Operational Phase income and expenses and Project Returns is presented in Table 27.

Cash Flow Forecasts for all scenarios are also presented Tables 31 to 35 in Appendix 1.

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Table 26: Scenario Evaluation Results

| No. | Scenario | Project NPV @ 5.0% (Ungeared) | Project NPV @ 5.0% (Geared) | Annual Cash Flow Available For Equity After 12 Months | Closing Cash After 12 Months | Land and Property Cost | Total Capital Cost | Net Annual Occupancy Expense (Op Year 2) | Total Maintenance Capex (whole period) |
|-----|---|-------------------------------|-----------------------------|---|------------------------------|------------------------|--------------------|--|--|
| | | CAD | CAD | CAD | CAD | CAD | CAD | CAD | CAD |
| 1 | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | (1,571,997) | (1,571,997) | (38,346) | (84,849) | - | - | (105,126) | 884,439 |
| 2 | City Develops Site Option A and Owns | (10,359,325) | (17,095,331) | (539,873) | (448,099) | 1,500,000 | 9,097,262 | (112,448) | 609,574 |
| 3 | City Develops Site Option B and Owns | (9,312,542) | (15,265,498) | (482,325) | (401,220) | 500,000 | 8,043,969 | (112,448) | 609,574 |
| 4 | City Develops Site Option C and Owns | (9,965,323) | (16,406,315) | (518,192) | (430,437) | 1,125,000 | 8,700,783 | (112,448) | 609,574 |
| 5 | Private Owner Upgrades Site Option D, City Leases | (5,910,698) | (6,244,133) | (24,505) | (19,962) | - | 451,078 | (364,806) | - |

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Table 27: Detailed Scenario Evaluation Results

| Assumption | Unit | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|--|---------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|
| | | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases |
| Construction Phase | | | | | | |
| Land Acquisition | CAD | - | 1,500,000 | 500,000 | 1,125,000 | - |
| Total Construction Costs - Fire Station | CAD | - | 6,529,480 | 6,529,480 | 6,529,480 | - |
| Total Construction Costs - Training Centre | CAD | - | 680,559 | 680,559 | 680,559 | 363,660 |
| FF&E - Fire Station | CAD | - | 75,000 | 75,000 | 75,000 | 75,000 |
| Construction Interest | CAD | - | 184,147 | 141,354 | 166,263 | 5,294 |
| Financing Fees | CAD | - | 128,076 | 117,576 | 124,481 | 7,125 |
| Total Construction Costs | CAD | - | 9,097,262 | 8,043,969 | 8,700,783 | 451,078 |
| Funding | | | | | | |
| Equity Contributions (Initial Equity) | CAD | - | 1,757,008 | 1,557,008 | 1,682,008 | 87,732 |
| Construction Drawdowns (Loan) | CAD | - | 7,028,032 | 6,228,032 | 6,728,032 | 350,928 |
| Interest Capitalized (Loan) | CAD | - | 312,223 | 258,930 | 290,744 | 12,418 |
| Total Funding | CAD | - | 9,097,262 | 8,043,969 | 8,700,783 | 451,078 |
| Permanent Loan (Operation) | CAD | - | 7,340,254 | 6,486,961 | 7,018,775 | 363,346 |
| Operational Phase (Annual Year 2) | | | | | | |
| Revenue - Fire Station | CAD | - | - | - | - | - |
| Revenue - Training Centre | CAD | - | 64,288 | 64,288 | 64,288 | 64,288 |
| Total Revenue | CAD | - | 64,288 | 64,288 | 64,288 | 64,288 |
| Expense - Fire Station | CAD | 66,780 | 114,304 | 114,304 | 114,304 | 411,493 |
| Expense - Training Centre | CAD | - | 17,602 | 17,602 | 17,602 | 17,602 |
| Total Expense | CAD | 66,780 | 131,906 | 131,906 | 131,906 | 429,094 |
| Net Operating Income - Fire Station | CAD | (66,780) | (114,304) | (114,304) | (114,304) | (411,493) |
| Net Operating Income - Training Centre | CAD | - | 46,686 | 46,686 | 46,686 | 46,686 |
| Total Net Operating Income | CAD | (66,780) | (67,618) | (67,618) | (67,618) | (364,806) |
| Capital Maintenance Reserve Allocation | CAD | (45,518) | (44,830) | (44,830) | (44,830) | - |
| Total Net Occupancy Expense | CAD | (112,298) | (112,448) | (112,448) | (112,448) | (364,806) |
| Gross Building Area - Fire Station | Sq. Ft. | 8,750 | 16,450 | 16,450 | 16,450 | 16,450 |
| Total Net Occupancy Expenses per sq. ft. | CAD | 12.83 | 6.84 | 6.84 | 6.84 | 22.18 |
| Cash Flow Available For Debt Service | CAD | (35,964) | (44,830) | (44,830) | (44,830) | - |
| Debt Service | CAD | - | (495,035) | (437,488) | (473,354) | (24,504) |
| Net Cash Flow | CAD | (35,964) | (539,865) | (482,318) | (518,184) | (24,504) |
| Cash Balance Closing | CAD | (119,401) | (943,227) | (843,567) | (905,680) | (42,437) |
| Project Return | | | | | | |
| NPV (ungeared) | CAD | (1,571,997) | (10,359,325) | (9,312,542) | (9,965,323) | (5,910,698) |
| NPV (geared) | CAD | (1,571,997) | (17,095,331) | (15,265,498) | (16,406,315) | (6,244,133) |

7.2 Qualitative Options Results

7.2.1 Qualitative Options Analysis Scorecard

An option will typically display a wide variety of physical attributes that allow it to effectively deliver services to its client base. A qualitative analysis attempts to measure these attributes and gauge the potential for an option to meet program requirements and deliver services to its client.

The criteria selected to measure option attributes are presented in the Qualitative Options Analysis Scorecard in Table 28. The attribute groups presented in this analysis are as follows:

- Physical Factors, Functionality, Management;
- Municipal Services and Zoning;
- Connectivity;
- Business Opportunity;
- Ownership Structure; and,
- Other Considerations.

An option's performance by criterion is represented as the product (score) of its relevance (weight) and ability to satisfy that criterion (rating).

Each criterion is assigned a Weight ranging from 1 to 5, as follows:

- 5 Very Important;
- 4 Important;
- 3 Somewhat Important;
- 2 Not Important; and,
- 1 Irrelevant.

Each criterion is assigned a Rating ranging from 0 to 3, as follows:

- 3 Excellent - meets and exceeds basic requirements;
- 2 Meets all basic requirements;
- 1 Acceptable - potential to meet basic requirements with additional work; and,
- 0 Impossible to meet basic requirements, not applicable.

The score is then calculated by multiplying the weight of a criterion by the rating for that criterion.

Criteria scores are summed by attribute group and then again overall to provide a qualitative performance score for an option. This qualitative performance score represents 50% (weighting) of the total combined score, with the quantitative performance score equally weighted. A summary of qualitative performance scores by criteria, attribute group and overall for the six scenarios is presented in Table 28. A detailed explanation of qualitative attribute groups, criteria, weightings and rating logic is provided in Appendix 2.

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7.2.2 Qualitative Scorecard Results

Qualitative performance results demonstrated the following:

- Scenario 2 “City Develops Site Option A and Owns” scored highest (309), rating strongly across most attribute groups which presented a strong case. The adjacent site assessed in Scenario 3 “City Develops Site Option B and Owns” had a similar but slightly weaker score (293) than Scenario 2. High ratings were observed in both scenarios for the following:
 - physical factors / functionality / management (scores were strengthened compared to Scenario 4 by the lack of flooding / erosion risk and, specifically for Scenario 2, the advent of multiple road frontage being a corner lot);
 - municipal services and zoning (existing potable water, gas and electricity service capacity confirmed by the City to be adequate for the core program and no easements);
 - connectivity (maximum fire response coverage in six minutes, easy access to major thoroughfares, occasional but not heavy traffic congestion and adequate parking availability);
 - impact on external entities (reasonable location alignment with other emergency services provider needs through construction of the Training Centre, good co-development potential with ample space / control / Police interest in sharing the capital and operating costs of the Training Centre and possible interest from EMS, and good visibility and access being situated on (Scenario 2) or near (Scenario 3) a primary arterial road;
 - other considerations like ability to ensure continuity of services in the future and effective real estate management (ownership options free from the challenges of lack of control and uncertainty posed by lease agreements); and,
 - potential to be embraced as a public resource / political support (having the benefit of being perceived as a public asset situated in the community and importance to ensuring safety of the residents and businesses).
- Scenarios 2 and 3, however, displayed comparative weaknesses around the following:
 - municipal services and zoning (the sites used to define these scenarios presently have access to potable water, gas and electricity but not sanitary sewer, so they scored poorly; the City’s Urban Settlement Boundary bisects the site west of Brookdale Ave. and north of Tollgate Rd. to form the sites for Scenarios 2 and 3. The Scenario 2 portion of the site falls inside the boundary and sanitary sewer servicing is expected in 2020. The Scenario 3 portion falls outside the boundary and servicing is not expected anytime in the near future); for this reason, Scenario 3 is ranked the lowest across all criteria for municipal services and zoning;
 - additionally, an option exists in Scenario 2 for the site to immediately tap into the existing sewage and storm water systems which currently terminate across the intersection at Tollgate Road and Brookdale, but not for the site in Scenario 3 which lies outside the Urban Settlement Boundary;
 - impact on external entities, particularly remoteness to residential and commercial areas (these sites are closer to such areas than Scenario 4 which led to lower scores due to higher potential for disturbances);
 - ownership structure (these privately-owned sites ranked lower than Scenario 4 because they are a family-owned estate and decision-making hurdles could be expected); and,
 - as with Scenario 4, move-in time would be compromised (acquiring land, closing a land sale and building a new development with statutory approvals are processes which are expected to take time).

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- A similar qualitative score was recorded for Scenario 4 “City Develops Site Option C and Owns” (298), lagging just behind Scenario 2 in ranking with equal or near equal performance for attribute groups such as:
 - municipal services and zoning (existing potable water, gas and electricity service capacity confirmed by the City to be adequate for the core program and no easements);
 - connectivity (maximum fire response coverage in six minutes, easy access to northern areas and major thoroughfares, and adequate parking availability);
 - impact on external entities (reasonable location alignment with other emergency services provider needs through construction of the Training Centre, good co-development potential with ample space / control / Police interest in sharing the capital and operating costs of the Training Centre and possible interest from EMS, good visibility and access being situated on a primary arterial road, and good remoteness from commercial and residential areas which minimizes the impact of disturbances); and,
 - other considerations like ability to ensure continuity of services in the future and effective real estate management (an ownership option free from the challenges of lack of control and uncertainty posed by lease agreements which bodes well for continuity and property management);
 - potential to be embraced as a public resource / political support (having the benefit of being perceived as a public asset situated in the community and importance to ensuring safety of the residents and businesses); and,
 - a slightly weaker but still significant rating for physical factors / functionality / management (ample land area, good potential for future expansion, ownership control to carry out modifications in the future, and space and control to allow consolidation of functions / departments at one location).
- Observed weaknesses included:
 - ownership structure (the land is privately-owned by an individual and although it is readily available for acquisition at current market prices, a publicly owned site is considered desirable);
 - flooding risk (approx. 40% of the 12-acre site is designated as a flood plain which is not expected to be used for future development but also not allowed to be used without first conducting a successful environmental impact assessment through agency consultation);
 - no multiple road frontage (the site is a frontage lot);
 - municipal services and zoning (the sites used to define these scenarios presently have access to potable water, gas and electricity but not sanitary sewer, so they scored poorly; for the site in Scenario 4, sanitary sewer servicing is expected in 2020;
 - probability of traffic congestion (some potential for traffic congestion given proximity to Brookdale Avenue, a primary arterial road, and the overpass on Brookdale Avenue presents a traffic bottleneck for the site to access areas south of Tollgate Road);
 - to enter Brookdale Ave. from this site and efficiently manage traffic during emergencies a traffic signal will need to be installed; and,
 - move-in time (acquiring land, closing a land sale and building a new development with statutory approvals are processes which are expected to take time).
- Scenario 5 “Private Owner Upgrades Site Option D, City Leases, City Leases” was the weakest performing development option (270). Scenario 5 rivalled the strengths of Scenario 4 with equal scores for the attribute groups of municipal services and zoning and connectivity:

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- municipal services and zoning (existing service capacity confirmed by the City to be adequate for the core program and no easements);
 - connectivity (maximum fire response coverage in six minutes, easy access to major thoroughfares, occasional but not heavy traffic congestion and adequate parking availability);
 - other notable strengths including: no flooding or erosion risk present;
 - remoteness from Fire Station 2 to avoid duplication of coverage (located within the area expected to provide optimal response coverage);
 - multiple road frontage (a corner lot located at the intersection of primary arterial roads);
 - effective visibility and access (again due to ideal proximity to primary arterial roads);
 - location alignment with other emergency services provider needs (reasonable through construction of the Training Centre which can be shared); and importantly,
 - move-in time (Scenario 5 is a lease option for which the signing of a lease agreement and streamlined development process (upgrade modifications versus new build) would be quicker than for ownership and development options).
- Scenario 5, however, presented a significant number of weaknesses around the attribute groups of physical factors / functionality / management, impact on external entities, and other considerations:
 - plot area (Scenario 5 was comparatively the smallest site of all four development scenarios tested at only 5.9 acres, so with less space available it scored less);
 - potential for future expansion (limited to an extent by the smaller plot area);
 - ability to achieve Accessibility for Ontarians with Disabilities Act (AODA) compliance (in a lease option, the landlord may have little incentive to carry out such modifications and given the existing layout it may also be infeasible);
 - consolidation of functions at a single location (a lease option with limited control over space and a comparatively smaller space);
 - co-development potential (Scenario 5 is a lease option in which a user has limited control over the facility and is subject to the landlord's management decisions when exploring third-party co-development opportunities, which is not ideal);
 - remoteness to residential and commercial areas (Scenario 5 is more remote than Scenario 1 but still the closest to such areas when compared to the other development scenarios);
 - ability to ensure continuity of services in the future (a lease option in which control over the premises is limited, so the renewal of contract tenure and resulting changes in lease terms is an impediment to ensuring continuity of services in the future);
 - ownership structure (the land is privately-owned by a company and although it is readily available for leasing at current market prices, a publicly owned site is considered desirable);
 - effective real estate management (again, in a leasing scenario, the level of freedom or control a user has is defined and limited by the lease agreement, and so uncertainty exists over maintaining the same favourable terms upon lease renewal and the user of the space is limited by management decisions of an external entity – a critical shortcoming of any lease option; the other development scenarios assume ownership of the premises and are therefore rated strongly for this criterion); and,
 - potential to be embraced as a public resource / political support (with the City operating out of a privately-owned facility, the perception of being part of the community could be

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diminished to some extent; also, options that require large investment benefitting private landlords have a higher potential to attract public attention and scrutiny).

- Scenario 1 “Keep Existing Fourth Street West Facility ‘As Is’ with Minor Upgrades” resulted in the lowest qualitative score (213) highlighting that the existing Fire Station facility, critically, does not meet the needs of the City and the community it serves. Low scores resulted from weak physical factors / functionality / management, poor connectivity, impact on external entities and limited ability to ensure continuity of services in the future. Significant weaknesses were observed for the following:
 - plot area (Scenario 1 was the smallest site of all scenarios tested and at 0.6 acres it falls below the minimum plot area of 4.0 acres);
 - potential for future expansion (has no space available for future expansion);
 - consolidation of functions at a single location (the site is space constrained and has no capacity to accommodate others or meet the space requirement for onsite live fire training, instead personnel are required to travel to neighbouring Ottawa for training);
 - remoteness from Fire Station 2 to avoid duplication of coverage (does not provide optimal fire response coverage as it is located too close to Fire Station 2 and presents coverage duplication);
 - multiple road frontage (is situated just before an urban intersection on the frontage of Fourth Street West though it is also accessible from the back-parking area);
 - easy access to northern areas (as established by drive-time studies, the existing Fire Station 1 has poor response times and reach to the northern areas of the city);
 - maximum coverage in 6 minutes (as established by drive-time studies, the existing Fire Station 1 has poor response times and does not meet this requirement; response times are inadequate, area coverage in 6 minutes is only 69% and response times to northern areas are high);
 - easy access to major thoroughfares (is situated on a one-way street with poor arterial access which is considered one of the biggest bottlenecks of the current site);
 - travel obstructions - rail, snow route, one-way streets (is situated on a one-way street with poor arterial road access, and experiences occasional traffic congestion);
 - adequate (onsite or offsite) parking availability (the existing facility is a space constrained option and parking availability is not ideal);
 - location alignment with other emergency services provider needs (a space constrained facility which has no capacity to accommodate others or meet the space requirement for onsite live fire training, instead personnel are required to travel to neighbouring Ottawa for training; a training facility and / or shared staffing areas which may be used by other emergency services providers (Police, EMS, etc.) are not possible);
 - co-development potential (a space constrained site and has no co-development opportunities with other public or private entities);
 - visibility and access (limited, the existing facility is located on a secondary one-way road);
 - remoteness to residential and commercial areas (the existing facility is near residential and commercial areas);
 - ability to ensure continuity of services in the future (given the age of the existing Fire Station 1 building and requirement for immediate and future disruptive maintenance works, the ability to ensure continuity of services has been compromised); and,
 - potential to be embraced as a public resource / political support (it has been established that the existing Fire Station 1 does not meet the needs of the CFS and community, so

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comparatively it rated a little weaker for this criterion - despite it being a City-owned building).

- Scenario 1 scored well for municipal services and zoning, ownership structure and for some other considerations:
 - municipal services and zoning (the existing facility has municipal services connections and the City has confirmed that the existing service capacity should be adequate for the core program; and no easements);
 - ownership structure (existing Fire Station 1 is owned by the City, so it rated high for this criterion whereas the other scenarios rated low because they are privately owned;
 - move-in time (Scenario 1 is an 'as is' option which requires no work to ready the space); and,
 - effective real estate management (existing Fire Station 1 is owned by the City which has complete control over the facility and thus would be capable of managing it most effectively).

7.3 Combined Scorecard Results

7.3.1 Combined Scorecard

A quantitative performance score for an option is also determined within the scorecard using the Project NPV derived through cash flow modelling and a calculated performance ratio. The performance ratio is calculated as follows:

$$\text{Performance Ratio} = \frac{\text{Highest NPV}}{\text{NPV of Option Under Consideration}}$$

The performance ratio is then multiplied by the weighted maximum score to provide an equally-weighted quantitative score for the option. A stronger NPV will therefore have a higher performance ratio, which in turn will generate a higher quantitative score. A summary of quantitative scores is presented in the Quantitative Options Analysis Scorecard in Table 29.

The overall performance is measured as an option's combined performance in both qualitative and quantitative analysis. When calculating the combined total score, the same weighting or relative importance has been assigned to both qualitative and quantitative scores (half of the combined score is determined by the qualitative result and half by the quantitative result). An option that achieves the highest combined score would be deemed most ideal for the new development. A summary of the combined scores is presented in the Combined Options Analysis Scorecard in Table 30.

7.3.2 Combined Scorecard Results

Combined qualitative and quantitative performance results demonstrated the following:

- Baseline Scenario 1 "Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades" resulted in the highest combined score (600).
 - The quantitative score for Scenario 1 was dramatically higher than the other scenarios; this was no surprise given no assumptions for development.
 - The qualitative score for Scenario 1, however, presented a much less desirable situation: weaknesses around physical factors / functionality / management, poor connectivity, high

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- impact on external entities and limited ability to ensure continuity of services in the future demonstrated that the existing Fire Station 1 facility does not meet the needs of the CFS and the fire response service needs of the community it serves.
- Despite its overshadowing quantitative and combined scores, the dismal qualitative result of Scenario 1 validates findings that the current locations of fire stations are problematic and that a well considered two station model would adequately address the City's fire response service needs.
 - Scenario 5 "Private Owner Upgrades Site Option D, City Leases" was the strongest development option when the combined score was considered (373). Scenario 5 recorded the strongest quantitative score amongst the development scenarios, highlighting the attractiveness of both upfront capital cost benefits and operational advantages associated with running a revenue-generating Training Centre.
 - Upfront capital costs were minimized in this leasing scenario by having a private landlord upgrade an existing facility at a reduced construction cost, provide a subsidized tenant upgrade financing facility, and agree to cover all lifecycle building maintenance costs in the future. Additionally, operational costs in the new facility are offset to an extent by expected net income generated from the Training Centre.
 - However, as is typically the case in a leasing scenario, the loss of control becomes a qualitative disadvantage to the user. Sacrifices are made in ability to expand in the future, co-develop, achieve Accessibility for Ontarians with Disabilities Act (AODA) compliance, consolidate functions, ensure continuity of services in the future and effectively manage the property. The qualitative score was challenged further by diminished potential to be embraced as a public resource / political support and proximity to commercial and residential areas, weighing down on its combined result.
 - Scenario 5 is a leasing option that provides the best value for money option for the City, whereas development Scenarios 2, 3 and 4 represent costly ownership options.
 - The combined result for Scenario 2 "City Develops Site Option A and Owns" (368) was very close to that of leasing Scenario 5 (373) and provided the superior development and ownership option.
 - Scenario 2, as with Scenarios 3 and 4, had a weak quantitative score that was limited by high capital costs for land acquisition and new development/construction; however, its qualitative score was the strongest across all five scenarios.
 - Scenario 2 excelled across many qualitative attribute groups, winning points for lack of flooding / erosion risk and multiple road frontage, existing municipal services and an immediate option to rectify for the missing sanitary sewer services, good connectivity, good visibility / access and remoteness, and other considerations like service continuity, effective real estate management and potential for public / political support.
 - However, Scenario 2 was compromised by a potentially more complicated collective (versus individual) ownership structure with greater expected decision-making hurdles that may affect acquisition of the property by the City, a slightly weaker remoteness score and, despite some possible work-arounds, the issue of current unavailability of sanitary sewer.
 - Scenario 2 may not necessarily be the best option from a capital cost perspective for the City, but it does represent the most qualitatively sound option and therefore best value in the long term.

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- The combined score for Scenario 3 “City Develops Site Option B and Owns” (358) lagged Scenario 2 and represented the weakest result of all development options.
 - Scenario 3 had a weak quantitative score that was limited by capital costs for land acquisition and new development/construction; its quantitative score was a little higher than that for Scenario 2 given the reduced price of land).
 - The qualitative profile for Scenario 3 was very similar to that of Scenario 2, but with several deductions for visibility / access being a frontage lot and, more significantly, being situated outside the Urban Settlement Boundary without sanitary sewer servicing.

- Scenario 4 “City Develops Site Option C and Owns” represented the second weakest combined result among the development options (359).
 - The quantitative score for Scenario 4 was weak due to high capital costs for land acquisition and new development/construction, as was the case with Scenarios 2 and 3.
 - Scenario 4 also had a similar qualitative profile to Scenarios 2 and 3, winning some points for existing municipal services, good connectivity, good visibility / access and remoteness, a potentially less burdensome private ownership structure and other considerations like service continuity, effective real estate management and potential for public / political support.
 - Scenario 4 fell short predominantly on the flooding risk (partial flood plain), lack of multiple road frontage and a higher probability of traffic congestion given both its proximity to a primary arterial road and the potential for traffic bottlenecks caused by the overpass on Brookdale Avenue.

Table 28: Qualitative Options Analysis Scorecard Results

| Attribute Group / Criteria | Weight | Max Rating | Max Possible Score | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
|--|--------|------------|--------------------|---|------------|---|------------|---|------------|---|------------|---|------------|
| | | | | R | S | R | S | R | S | R | S | R | S |
| Physical Factors, Functionality, Management | | | 123 | | 59 | | 118 | | 115 | | 105 | | 90 |
| Plot Area (ideal >4.0 Acres) | 5 | 3 | 15 | - | - | 3 | 15 | 3 | 15 | 3 | 15 | 2 | 10 |
| Potential for Future Expansion | 5 | 3 | 15 | - | - | 3 | 15 | 3 | 15 | 3 | 15 | 2 | 10 |
| Ability to achieve AODA compliance | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 |
| Ability to consolidate all functions/dept. at single location | 4 | 3 | 12 | - | - | 3 | 12 | 3 | 12 | 3 | 12 | 2 | 8 |
| Favourable soil, grading | 5 | 3 | 15 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 |
| Potential Soil Contamination | 4 | 3 | 12 | 2 | 8 | 3 | 12 | 3 | 12 | 3 | 12 | 2 | 8 |
| Flooding / Erosion Risk | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 | 3 | 15 |
| Remoteness from Fire Station 2 to avoid duplication of coverage | 5 | 3 | 15 | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 |
| Multiple road frontage | 3 | 3 | 9 | 2 | 6 | 3 | 9 | 2 | 6 | 2 | 6 | 3 | 9 |
| Municipal Services & Zoning | | | 81 | | 56 | | 46 | | 36 | | 46 | | 56 |
| Availability of potable water | 5 | 3 | 15 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 |
| Availability of sewage systems | 5 | 3 | 15 | 2 | 10 | 1 | 5 | - | 0 | 1 | 5 | 2 | 10 |
| Availability of storm water drainage | 5 | 3 | 15 | 2 | 10 | 1 | 5 | - | 0 | 1 | 5 | 2 | 10 |
| Availability of Elec. Power Infrastructure | 5 | 3 | 15 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 |
| Availability of Nat. Gas Infrastructure | 5 | 3 | 15 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 |
| Presence of Easements | 2 | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 |
| Connectivity | | | 84 | | 36 | | 74 | | 74 | | 69 | | 74 |
| Easy access to northern areas | 5 | 3 | 15 | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 |
| Maximum coverage in 6 minutes | 5 | 3 | 15 | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 |
| Easy access to major thoroughfares | 5 | 3 | 15 | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 |
| Probability of traffic congestion | 5 | 3 | 15 | 2 | 10 | 2 | 10 | 2 | 10 | 1 | 5 | 2 | 10 |
| Travel obstructions - rail, snow route, one-way streets | 5 | 3 | 15 | 1 | 5 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 |
| Adequate (onsite or offsite) parking availability | 3 | 3 | 9 | 2 | 6 | 3 | 9 | 3 | 9 | 3 | 9 | 3 | 9 |
| Impact on External Entities | | | 39 | | 13 | | 32 | | 29 | | 36 | | 26 |
| Location alignment with other emergency services provider needs | 3 | 3 | 9 | 1 | 3 | 2 | 6 | 2 | 6 | 2 | 6 | 2 | 6 |
| Co-development potential | 3 | 3 | 9 | - | - | 3 | 9 | 3 | 9 | 3 | 9 | 1 | 3 |
| Visibility and Access | 3 | 3 | 9 | 2 | 6 | 3 | 9 | 2 | 6 | 3 | 9 | 3 | 9 |
| Remoteness to Residential and Commercial Areas | 4 | 3 | 12 | 1 | 4 | 2 | 8 | 2 | 8 | 3 | 12 | 2 | 8 |
| Ownership Structure | | | 15 | | 15 | | 3 | | 3 | | 6 | | 6 |
| Owned by City | 5 | 3 | 15 | 3 | 15 | - | - | - | - | - | - | - | - |
| Owned by private entities | 3 | 3 | 9 | - | - | 1 | 3 | 1 | 3 | 2 | 6 | 2 | 6 |
| Other Considerations | | | 45 | | 34 | | 36 | | 36 | | 36 | | 18 |
| Move-in time | 3 | 3 | 9 | 3 | 9 | 1 | 3 | 1 | 3 | 1 | 3 | 2 | 6 |
| Ability to ensure continuity of services in the future | 3 | 3 | 9 | 1 | 3 | 2 | 6 | 2 | 6 | 2 | 6 | 1 | 3 |
| Effective real estate management | 4 | 3 | 12 | 3 | 12 | 3 | 12 | 3 | 12 | 3 | 12 | 1 | 4 |
| Potential to be embraced as a public resource, political support | 5 | 3 | 15 | 2 | 10 | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 |
| Total Qualitative Analysis Score | | | 387 | | 213 | | 309 | | 293 | | 298 | | 270 |

Table 29: Quantitative Options Analysis Scorecard Results

| Criteria | Weight | Max Possible Score | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 |
|------------------------------|--------|--------------------|--------|------|-----|---------|------|----|--------|------|----|---------|------|----|--------|------|-----|
| | | | NPV | PR | S | NPV | PR | S | NPV | PR | S | NPV | PR | S | NPV | PR | S |
| Financial Performance | 1.00 | 387 | (1.6m) | 1.00 | 387 | (10.4m) | 0.15 | 59 | (9.3m) | 0.17 | 65 | (10.0m) | 0.16 | 61 | (5.9m) | 0.27 | 103 |

Table 30: Combined Options Analysis Scorecard Results

| Result / Score | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|-----------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|---|
| | Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades | City Develops Site Option A and Owns | City Develops Site Option B and Owns | City Develops Site Option C and Owns | Private Owner Upgrades Site Option D, City Leases |
| NPV (ungeared) | (1,571,997) | (10,359,325) | (9,312,542) | (9,965,323) | (5,910,698) |
| Quantitative | 387 | 59 | 65 | 61 | 103 |
| Qualitative | 213 | 309 | 293 | 298 | 270 |
| Total | 600 | 368 | 358 | 359 | 373 |

8.0 Key Findings and Preferred Option

8.1 Key Findings

Stakeholders and the community were consulted to determine the needs and desires for a new Fire Station and Training Centre. A facility needs assessment was then conducted which outlined space requirements for a new Fire Station facility of 2.1 acres and building footprint of 16,450 sq. ft., and a Training Centre of 1.9 acres. Space requirements were evaluated through an Options Assessment to determine the quantitative and qualitative feasibility of various locations and building types. Class D capital cost and operational cost profiles were developed for each scenario using space requirements from the conceptual drawings and elements unique to each scenario.

A baseline 'as is' option plus four development and ownership / procurement options across four site options in the preferred response area were tested:

- Scenario 1: Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades;
- Scenario 2: City Develops Site Option A and Owns;
- Scenario 3: City Develops Site Option B and Owns;
- Scenario 4: City Develops Site Option C and Owns; and,
- Scenario 5: Private Owner Upgrades Site Option D, City Leases.

A summary of the key findings is presented below:

- Baseline Scenario 1 "Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades" had the highest quantitative and combined scores, but its dismal qualitative result validates findings that the current locations of fire stations are problematic and that a well considered two station model would adequately address the City's fire response service needs.
 - Scenario 1 presented a less than desirable situation with weaknesses around physical factors / functionality / management, poor connectivity, high impact on external entities and limited ability to ensure continuity of services in the future.
 - Moreover, the strong financial performance result for this scenario skewed the quantitative results because no capital costs for development were assumed. Only limited remedial maintenance measures (versus a costly major upgrade) were applied to keep a building functional which has already reached the end of its useful life and which fails to meet the needs of the CFS and community. The existing Fire Station 1 site does not currently have an onsite live training facility, or the space to develop one in the future. It also has limited space for operational or program expansion and no opportunities for colocation or co-development including cost sharing and potential new revenue streams. There are also the issues of coverage area duplication resulting from the existing configuration of the City's two fire stations, high service response times and poor reach to northern areas with only 69% coverage in under six minutes and poor access to arterial roads.
 - The existing Fire Station 1 is also situated on a valuable parcel of land which if redeveloped according to the highest and best use principle could deliver property tax revenue to the City.
 - For these reasons, the current state baseline Scenario 1 was deemed untenable and excluded from the analysis as a potential option for consideration.

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- Scenario 5 “Private Owner Upgrades Site Option D, City Leases” achieved the highest combined score amongst the four development options; it provides better value for money to the City compared to the costly development and ownership options. However, Scenario 5 remained challenged on several qualitative criteria, especially those related to the limited control over future expansion, which is characteristic of leased premises.
- Scenario 2 “City Develops Site Option A and Owns” provided a superior development and ownership option with the qualitative strengths and strategic alignment to meet the needs of the CFS and community. The unavailability of sanitary sewer was a problem, but an immediate solution exists if required. It should be noted, however, that Scenario 2 is a high capital cost option.
- Scenario 3 “City Develops Site Option B and Owns” had the weakest result due to high capital costs and qualitative issues associated with the availability of sanitary sewer servicing, inadequate visibility and access, and a complicated collective estate ownership structure.
- Scenario 4 “City Develops Site Option C and Owns” also had a weak result due to high capital costs and qualitative issues associated with the immediate availability of sanitary sewer services, potential flooding risk (the site is a partially designated flood plain and approximately 40% of the land is unusable), lack of multiple road frontage and a higher probability of traffic congestion. The Scenario 4 site also requires installation of traffic lights unlike the other sites.

8.2 Preferred Option

The preferred option for a Fire Station and Training Centre in Cornwall is as follows:

- Scenario 2 “City Develops Site Option A and Owns” achieved a high combined score and provided a superior development and ownership option. This option demonstrated the qualitative strengths and strategic alignment to adequately address the concerns highlighted in the City’s Fire Master Plan and to meet the long-term fire response service needs of the CFS and community.
- Results from this study may present opportunities to mitigate some qualitative limitations and enhance the attractiveness of options, for example:
 - immediate rectification of missing sanitary sewer services by tapping into nearby existing infrastructure;
 - an expedited land sale settlement process or construction timeline to mitigate weakness in ownership structure and improve move-in time; and / or,
 - through design decisions and / or innovative approaches to traffic management.
- Quantitative enhancements may also be investigated to improve the project return / value for money proposition, for example:
 - pre-construction and construction costs have been estimated based on assumptions for a traditional Design Bid Build contract, which is a lengthy and expensive process but gives the owner better control and decision-making ability over the design phase; however, many buildings of this nature are delivered through a Design Build contract which is cost

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- other innovative ways to reduce capital costs or reduce operating costs (cost sharing or offsetting cost with revenue).
- Scenario 5 “Private Owner Upgrades Site Option D, City Leases” is an interesting option that provides value for money but has qualitative deficiencies. Opportunities to mitigate qualitative limitations may enhance the attractiveness of this option. For example, a stronger lease agreement with better terms for compliance, and more control over potential disruptions, tenure and real estate management. In this regard, there may be potential to improve the social value proposition of Scenario 5.

8.3 Operating Models and Funding Opportunities

8.3.1 Operating Models

Colliers understands through stakeholder discussions with the City’s Fire Master Plan Committee that the City council will be exploring potential shared co-development / co-location models with other City departments. Agencies cited with potential to co-locate with the proposed facility included Police Services (CCPS) and Emergency Medical Services (EMS).

Colliers conducted stakeholder interviews with CCPS, EMS and Social and Housing Services to determine if capital and operating cost savings achieved through co-development and / or co-location opportunities would be factored into consideration for co-locating at the proposed Fire Station and Training Centre:

- CCPS recognizes that a new facility would be ideal, but does not need a new facility, nor does it foresee relocating its headquarter station west of Brookdale Avenue or north of Ninth Street. CCPS has a drop-in satellite station in the SE quadrant of the City; and there is a possibility that it could open a similar station in the northwest quadrant of the City. CCPS would be interested in sharing capital and operating costs of the proposed Training Centre, but it would be dependent on the magnitude of the costs. CCPS understands the value of having access to a dedicated training facility as it is currently using vacant premises such as public schools for training purposes.
- EMS may require some staff areas at the proposed Fire Station and Training Centre and a process is currently underway to have this confirmed.
- The City’s Social Services department views potential operating cost savings as important but emphasized that factors that improve service delivery are paramount. The current office is adequate now but is not expected to be when additional staff is hired in the future. Social Services is currently co-located with CCPS. Social Services would prefer being located adjacent to CCPS in a central location that would optimize customer service.
- Discussions have also been held with the Economic Development Department about housing Cornwall Tourism in the proposed Fire Station building.

8.3.2 Funding Opportunities

Potential sources of funding will include provincial contributions, reserves, Infrastructure Ontario loans and private debt. Based on the City’s Asset Management Plan (2016) and as per the Long-Term

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Financial Plan (2017), funding set aside by the City for a Fire HQ and Training Centre is \$5.0 million in 2020. The City Council recently approved the collection of development charges in October 2018. However, development charges have not been included in this analysis. It should be noted that development charges represent a potential source of funding for the City, as these charges, once applied, will reduce the tax base funding requirement. To demonstrate the benefit of how development charges will apply: in 2019, a \$1.5 million purchase for land may be funded with \$1.329 million from the tax base and \$171,000 from development charges.

8.4 Private vs. Public Sector Funding

Colliers explored interest in the local development community for public private partnership opportunities for this project. Two residential property developers were contacted, but no expressions of interest were received.

A private developer may be sought through an expression of interest to build the proposed Fire Station and Training Centre with some contribution from the City of Cornwall. However, the City may not benefit from the use of private funds because the cost of capital is expected to be higher. The City has access to public grants and lower interest loans, whereas the private developer does not. The City would be able to build the proposed Fire Station and Training Centre for less capital cost than would a private developer alone, or in partnership with a private developer.

Appendix 1 CASH FLOW FORECAST RESULTS

Table 31: Cash Flow Forecast Results: Scenario 1 Keep Existing Fourth Street West Facility 'As Is' with Minor Upgrades

| Assumption | Unit | Total 2019 to 2045 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|-------|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Construction Phase | | | | | | | | | | | | |
| Land Acquisition | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Training Centre | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| FF&E - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Construction Interest | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Financing Fees | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Construction Costs | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Funding | | | | | | | | | | | | |
| Equity Contributions (Initial Equity) | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Construction Drawdowns (Loan) | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Interest Capitalized (Loan) | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Funding | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Operational Phase | | | | | | | | | | | | |
| Revenue - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Training Centre | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Revenue | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Expense - Fire Station | CAD m | (2.45) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) |
| Expense - Training Centre | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Expense | CAD m | (2.45) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) |
| Net Operating Income - Fire Station | CAD m | (2.45) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) |
| Net Operating Income - Training Centre | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Net Operating Income | CAD m | (2.45) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) |
| Maintenance Capex | CAD m | 0.88 | 0.01 | 0.01 | 0.03 | - | - | 0.03 | 0.03 | - | - | - |
| Capital Maintenance Reserve Allocation | CAD m | (1.22) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) |
| Cash Flow Available For Debt Service | CAD m | (0.33) | (0.03) | (0.04) | (0.02) | (0.05) | (0.05) | (0.02) | (0.02) | (0.05) | (0.05) | (0.05) |
| Debt Service | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Net Cash Flow | CAD m | (0.33) | (0.03) | (0.04) | (0.02) | (0.05) | (0.05) | (0.02) | (0.02) | (0.05) | (0.05) | (0.05) |
| Cash Balance Closing | CAD m | - | (0.03) | (0.07) | (0.09) | (0.13) | (0.18) | (0.20) | (0.21) | (0.26) | (0.30) | (0.35) |

Table 32: Cash Flow Forecast Results: Scenario 2 City Develops Site Option A and Owns

| Assumption | Unit | Total 2019 to 2045 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|-------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Construction Phase | | | | | | | | | | | | |
| Land Acquisition | CAD m | (0.50) | (0.50) | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Fire Station | CAD m | (6.53) | (2.83) | (3.70) | - | - | - | - | - | - | - | - |
| Total Construction Costs - Training Centre | CAD m | (0.68) | (0.23) | (0.45) | - | - | - | - | - | - | - | - |
| FF&E - Fire Station | CAD m | (0.08) | - | (0.08) | - | - | - | - | - | - | - | - |
| Construction Interest | CAD m | (0.14) | (0.01) | (0.13) | - | - | - | - | - | - | - | - |
| Financing Fees | CAD m | (0.12) | (0.11) | (0.01) | - | - | - | - | - | - | - | - |
| Total Construction Costs | CAD m | (8.04) | (3.68) | (4.36) | - | - | - | - | - | - | - | - |
| Funding | | | | | | | | | | | | |
| Equity Contributions (Initial Equity) | CAD m | 1.56 | 1.56 | - | - | - | - | - | - | - | - | - |
| Construction Drawdowns (Loan) | CAD m | 6.23 | 2.12 | 4.10 | - | - | - | - | - | - | - | - |
| Interest Capitalized (Loan) | CAD m | 0.26 | - | 0.26 | - | - | - | - | - | - | - | - |
| Total Funding | CAD m | 8.04 | 3.68 | 4.36 | - | - | - | - | - | - | - | - |
| Operational Phase | | | | | | | | | | | | |
| Revenue - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Training Centre | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Total Revenue | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Expense - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Expense - Training Centre | CAD m | (0.62) | - | (0.00) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Total Expense | CAD m | (4.74) | (0.06) | (0.08) | (0.13) | (0.13) | (0.14) | (0.14) | (0.14) | (0.15) | (0.15) | (0.16) |
| Net Operating Income - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Net Operating Income - Training Centre | CAD m | 1.64 | - | 0.01 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| Total Net Operating Income | CAD m | (2.48) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) | (0.08) |
| Maintenance Capex | CAD m | 0.61 | - | - | - | - | - | - | - | - | - | - |
| Capital Maintenance Reserve Allocation | CAD m | (1.12) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Cash Flow Available For Debt Service | CAD m | (0.51) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Debt Service | CAD m | (11.34) | - | (0.07) | (0.40) | (0.44) | (0.46) | (0.46) | (0.46) | (0.46) | (0.46) | (0.46) |
| Net Cash Flow | CAD m | (11.85) | - | (0.08) | (0.45) | (0.48) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) |
| Cash Balance Closing | CAD m | | - | (0.08) | (0.52) | (1.00) | (1.51) | (2.01) | (2.51) | (3.02) | (3.52) | (4.03) |

Table 33: Cash Flow Forecast Results: Scenario 3 City Develops Site Option B and Owns

| Assumption | Unit | Total 2019 to 2045 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|-------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Construction Phase | | | | | | | | | | | | |
| Land Acquisition | CAD m | (0.50) | (0.50) | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Fire Station | CAD m | (6.53) | (2.83) | (3.70) | - | - | - | - | - | - | - | - |
| Total Construction Costs - Training Centre | CAD m | (0.68) | (0.23) | (0.45) | - | - | - | - | - | - | - | - |
| FF&E - Fire Station | CAD m | (0.08) | - | (0.08) | - | - | - | - | - | - | - | - |
| Construction Interest | CAD m | (0.14) | (0.01) | (0.13) | - | - | - | - | - | - | - | - |
| Financing Fees | CAD m | (0.12) | (0.11) | (0.01) | - | - | - | - | - | - | - | - |
| Total Construction Costs | CAD m | (8.04) | (3.68) | (4.36) | - | - | - | - | - | - | - | - |
| Funding | | | | | | | | | | | | |
| Equity Contributions (Initial Equity) | CAD m | 1.56 | 1.56 | - | - | - | - | - | - | - | - | - |
| Construction Drawdowns (Loan) | CAD m | 6.23 | 2.12 | 4.10 | - | - | - | - | - | - | - | - |
| Interest Capitalized (Loan) | CAD m | 0.26 | - | 0.26 | - | - | - | - | - | - | - | - |
| Total Funding | CAD m | 8.04 | 3.68 | 4.36 | - | - | - | - | - | - | - | - |
| Operational Phase | | | | | | | | | | | | |
| Revenue - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Training Centre | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Total Revenue | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Expense - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Expense - Training Centre | CAD m | (0.62) | - | (0.00) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Total Expense | CAD m | (4.74) | (0.06) | (0.08) | (0.13) | (0.13) | (0.14) | (0.14) | (0.14) | (0.15) | (0.15) | (0.16) |
| Net Operating Income - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Net Operating Income - Training Centre | CAD m | 1.64 | - | 0.01 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| Total Net Operating Income | CAD m | (2.48) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) | (0.08) |
| Maintenance Capex | CAD m | 0.61 | - | - | - | - | - | - | - | - | - | - |
| Capital Maintenance Reserve Allocation | CAD m | (1.12) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Cash Flow Available For Debt Service | CAD m | (0.51) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Debt Service | CAD m | (11.34) | - | (0.07) | (0.40) | (0.44) | (0.46) | (0.46) | (0.46) | (0.46) | (0.46) | (0.46) |
| Net Cash Flow | CAD m | (11.85) | - | (0.08) | (0.45) | (0.48) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) |
| Cash Balance Closing | CAD m | | - | (0.08) | (0.52) | (1.00) | (1.51) | (2.01) | (2.51) | (3.02) | (3.52) | (4.03) |

Table 34: Cash Flow Forecast Results: Scenario 4 City Develops Site Option C and Owns

| Assumption | Unit | Total 2019 to 2045 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|-------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Construction Phase | | | | | | | | | | | | |
| Land Acquisition | CAD m | (1.13) | (1.13) | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Fire Station | CAD m | (6.53) | (2.83) | (3.70) | - | - | - | - | - | - | - | - |
| Total Construction Costs - Training Centre | CAD m | (0.68) | (0.23) | (0.45) | - | - | - | - | - | - | - | - |
| FF&E - Fire Station | CAD m | (0.08) | - | (0.08) | - | - | - | - | - | - | - | - |
| Construction Interest | CAD m | (0.17) | (0.02) | (0.15) | - | - | - | - | - | - | - | - |
| Financing Fees | CAD m | (0.12) | (0.11) | (0.01) | - | - | - | - | - | - | - | - |
| Total Construction Costs | CAD m | (8.70) | (4.32) | (4.38) | - | - | - | - | - | - | - | - |
| Funding | | | | | | | | | | | | |
| Equity Contributions (Initial Equity) | CAD m | 1.68 | 1.68 | - | - | - | - | - | - | - | - | - |
| Construction Drawdowns (Loan) | CAD m | 6.73 | 2.64 | 4.09 | - | - | - | - | - | - | - | - |
| Interest Capitalized (Loan) | CAD m | 0.29 | - | 0.29 | - | - | - | - | - | - | - | - |
| Total Funding | CAD m | 8.70 | 4.32 | 4.38 | - | - | - | - | - | - | - | - |
| Operational Phase | | | | | | | | | | | | |
| Revenue - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Training Centre | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Total Revenue | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Expense - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Expense - Training Centre | CAD m | (0.62) | - | (0.00) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Total Expense | CAD m | (4.74) | (0.06) | (0.08) | (0.13) | (0.13) | (0.14) | (0.14) | (0.14) | (0.15) | (0.15) | (0.16) |
| Net Operating Income - Fire Station | CAD m | (4.12) | (0.06) | (0.08) | (0.11) | (0.11) | (0.12) | (0.12) | (0.12) | (0.13) | (0.13) | (0.14) |
| Net Operating Income - Training Centre | CAD m | 1.64 | - | 0.01 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| Total Net Operating Income | CAD m | (2.48) | (0.06) | (0.06) | (0.07) | (0.07) | (0.07) | (0.07) | (0.07) | (0.08) | (0.08) | (0.08) |
| Maintenance Capex | CAD m | 0.61 | - | - | - | - | - | - | - | - | - | - |
| Capital Maintenance Reserve Allocation | CAD m | (1.12) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Cash Flow Available For Debt Service | CAD m | (0.51) | - | (0.01) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Debt Service | CAD m | (12.27) | - | (0.07) | (0.43) | (0.47) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) | (0.50) |
| Net Cash Flow | CAD m | (12.78) | - | (0.08) | (0.48) | (0.52) | (0.54) | (0.54) | (0.54) | (0.54) | (0.54) | (0.54) |
| Cash Balance Closing | CAD m | - | - | (0.08) | (0.56) | (1.08) | (1.62) | (2.16) | (2.70) | (3.24) | (3.78) | (4.33) |

Table 35: Cash Flow Forecast Results: Scenario 5 Private Owner Upgrades Site Option D, City Leases

| Assumption | Unit | Total 2019 to 2045 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|-------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Construction Phase | | | | | | | | | | | | |
| Land Acquisition | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Total Construction Costs - Training Centre | CAD m | (0.36) | (0.12) | (0.25) | - | - | - | - | - | - | - | - |
| FF&E - Fire Station | CAD m | (0.08) | - | (0.08) | - | - | - | - | - | - | - | - |
| Construction Interest | CAD m | (0.01) | - | (0.01) | - | - | - | - | - | - | - | - |
| Financing Fees | CAD m | (0.01) | (0.01) | (0.00) | - | - | - | - | - | - | - | - |
| Total Construction Costs | CAD m | (0.45) | (0.12) | (0.33) | - | - | - | - | - | - | - | - |
| Funding | | | | | | | | | | | | |
| Equity Contributions (Initial Equity) | CAD m | 0.09 | 0.09 | - | - | - | - | - | - | - | - | - |
| Construction Drawdowns (Loan) | CAD m | 0.35 | 0.03 | 0.32 | - | - | - | - | - | - | - | - |
| Interest Capitalized (Loan) | CAD m | 0.01 | - | 0.01 | - | - | - | - | - | - | - | - |
| Total Funding | CAD m | 0.45 | 0.12 | 0.33 | - | - | - | - | - | - | - | - |
| Operational Phase | | | | | | | | | | | | |
| Revenue - Fire Station | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Training Centre | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Total Revenue | CAD m | 2.26 | - | 0.02 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 |
| Expense - Fire Station | CAD m | (12.26) | (0.06) | (0.15) | (0.41) | (0.41) | (0.42) | (0.42) | (0.43) | (0.43) | (0.44) | (0.45) |
| Expense - Training Centre | CAD m | (0.62) | - | (0.00) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Total Expense | CAD m | (12.88) | (0.06) | (0.15) | (0.43) | (0.43) | (0.44) | (0.44) | (0.45) | (0.45) | (0.46) | (0.47) |
| Net Operating Income - Fire Station | CAD m | (12.26) | (0.06) | (0.15) | (0.41) | (0.41) | (0.42) | (0.42) | (0.43) | (0.43) | (0.44) | (0.45) |
| Net Operating Income - Training Centre | CAD m | 1.64 | - | 0.01 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| Total Net Operating Income | CAD m | (10.63) | (0.06) | (0.14) | (0.36) | (0.37) | (0.37) | (0.37) | (0.38) | (0.38) | (0.39) | (0.39) |
| Maintenance Capex | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Capital Maintenance Reserve Allocation | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Cash Flow Available For Debt Service | CAD m | - | - | - | - | - | - | - | - | - | - | - |
| Debt Service | CAD m | (0.63) | - | (0.00) | (0.02) | (0.02) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) |
| Net Cash Flow | CAD m | (0.63) | - | (0.00) | (0.02) | (0.02) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) |
| Cash Balance Closing | CAD m | - | - | (0.00) | (0.03) | (0.05) | (0.08) | (0.10) | (0.13) | (0.15) | (0.18) | (0.20) |

Appendix 2 DETAILED QUALITATIVE SCORECARD

Results are printed and appended as a separate document in A3 paper size format.

| Attribute Group / Criteria | W | MR | MPS | Criteria Description | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | Comments |
|---|---|----|-----|--|---|----|---|-----|---|-----|---|-----|---|----|---|
| | | | | | R | S | R | S | R | S | R | S | R | S | |
| Physical Factors, Functionality, Management | | | 123 | This Attribute Group examines a site's physical size (area, dimensions and shape), topography, orientation, soil condition etc. as it directly relates to the feasibility of development and upfront costs involved. | | 59 | | 118 | | 115 | | 105 | | 90 | Physical Factors, Functionality, Management |
| Plot area (ideal >4.0 acres) | 5 | 3 | 15 | <ul style="list-style-type: none"> This is the minimum site area required to accommodate the core program in a single location. If there are other co-located developments planned, then the site area requirement would increase based on the parameters. A site area above the minimum acres is considered ideal and would be assigned a rating of "3". A site that has an area slightly above the minimum but has the option of increasing the area through acquisition of an adjacent property will receive a rating of "2". If there is no such possibility, then the site will receive a rating of "1". As this criterion could have an impact on the new premises' long term viability it is assigned a weight of "5". | 0 | 0 | 3 | 15 | 3 | 15 | 3 | 15 | 2 | 10 | <ul style="list-style-type: none"> Scenario 1 is rated "0" as at 0.6 acres it falls below the minimum plot area of 4.0 acres. Scenarios 2, 3 and 4 are all rated "3" given ample availability of space. Scenario 5 is rated "2" because at 5.9 acres (just above the 4.0 acre minimum) there is comparatively less space available than with 2, 3 and 4. |
| Potential for future expansion | 5 | 3 | 15 | <ul style="list-style-type: none"> It is measured as the ratio of land area remaining after accommodating the entity's core program and other related regulatory requirements such as parking and landscaping, to the total site area. Future Expansion Potential = Area of Site Under Consideration – (Building Footprint + Parking Area + Landscaping) / Minimum Site Area Required. The higher the ratio, the better the rating. As this criterion could have an impact on the new premises' long-term viability it is assigned a weight of "5". | 0 | 0 | 3 | 15 | 3 | 15 | 3 | 15 | 2 | 10 | <ul style="list-style-type: none"> Scenario 1 has no space available for future expansion, so it is rated "0". Scenarios 2, 3 and 4 have ample space available, so these are rated "3". Scenario 5 is rated "2" because at 5.9 acres there is comparatively less space available than with 2, 3 and 4. |
| Ability to achieve AODA compliance | 5 | 3 | 15 | <ul style="list-style-type: none"> The AODA (Accessibility for Ontarians with Disabilities Act) compliance requires individuals and organizations in various industries and capacities to follow accessibility standards in five areas of doing business or interacting with the public. This criterion is dependent on the extent of control that the user has over its premises. To carry out modifications required for achieving complete compliance, the user will need to make significant modifications (for e.g. installation of wheelchair accessible doorways, toilets, elevators, ramps etc.). This could be exceedingly difficult to achieve when the premises are part of a leased facility that houses multiple tenants who don't require the same level of compliance. The landlord in this scenario will not have an incentive to take the initiative and carry out these modifications unless duly compensated through a higher rental rate. In an ownership scenario, the user has complete control over the facility to implement whatever features they want. AODA compliance will allow the new premises to maintain efficiency of its day-to-day operations by facilitating easy access to the public and staff (administration) with special needs, therefore it is assigned a weight of "5". | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 | <ul style="list-style-type: none"> All ownership scenarios allow the requisite control to carry out compliance related modifications, so Scenarios 1, 2, 3 and 4 are rated "3". Scenario 5 is a lease option and the landlord doesn't require the same level of compliance and has no incentive to carry out such modifications, so it is rated "1". |
| Ability to consolidate all functions / departments at a single location | 4 | 3 | 12 | <ul style="list-style-type: none"> Consolidation of functions / locations requires finding a space that can accommodate the combined space needs. If the space does not have the capacity to accommodate the needs of multiple parties, then it will receive a rating of "0". Lease options provide limited control to the tenant (CFS) over the space and therefore accommodating other parties may be a challenge. In an ownership option, the owner has full control to modify the facility to suit its needs, and typically receives a higher rating, of "2". Depending on whether it is a new build or an adaptive re-use of an existing facility, there could be challenges and opportunities. If an ownership option involved construction of a new facility, then it would receive the highest rating of "3". This criterion is important, but it is second only to accommodating the core functions of the fire station hence it is assigned a weight of "4". | 0 | 0 | 3 | 12 | 3 | 12 | 3 | 12 | 2 | 8 | <ul style="list-style-type: none"> The existing Fire Station 1 is space constrained and has no capacity to accommodate others or meet the space requirement for onsite live fire training (instead personnel are required to travel to neighbouring Ottawa for training); so Scenario 1 is rated "0". Scenarios 2, 3 and 4 are ownership and development options providing full design and modification control over the facility and ample availability of space, so it is rated "3". Scenario 5 is a lease option with limited control over space and a comparatively smaller space than 2, 3 and 4, so it is rated "2". |
| Favourable soil, grading | 5 | 3 | 15 | <ul style="list-style-type: none"> A preliminary visual assessment of surface soil condition is conducted to ascertain if it is prone to erosion, water logged, filled, loose, granular, rocky, clayey etc. Loose, filled earth or clayey soil conditions are considered the least desirable. Natural earth, primarily granular soil, would be deemed ideal. A flat site is preferred to a site that has undulating terrain. The ideal site will have at least 70% of the (contiguous) land area flat; the idea being that if the remaining 30% is undulating terrain, it can be designated as landscaped area. This criterion has a direct impact on the upfront capital costs and the feasibility of building the proposed new premises, therefore it is assigned a weight of "5". | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | <ul style="list-style-type: none"> All scenarios are deemed equally favourable for soil and grading, so all are rated "2". |
| Potential soil contamination | 4 | 3 | 12 | <ul style="list-style-type: none"> As it is difficult to ascertain the exact level of contamination or remediation work required without conducting a Phase I and II Environmental Site Assessment, this criterion will be used to measure and report the possibility of potential contamination by studying the historic use of a site. If there is clear evidence of severe contamination, then the site would be rated "0". If there is evidence of contamination and can be ascertained that it can be remediated at a reasonable cost, then the site would be rated "1". If the site has been subject to commercial uses in the past and there is no evidence of contamination, then the site would be rated "2". If the site is a greenfield site, then it would be rated "3". This criterion has a direct impact on the upfront capital costs, but unlike the soil type or grading, does not impact the feasibility of building the proposed new premises, therefore it is assigned a weight of "4". | 2 | 8 | 3 | 12 | 3 | 12 | 3 | 12 | 2 | 8 | <ul style="list-style-type: none"> Scenarios 2, 3 and 4 are Greenfield sites and therefore no history or possibility of contamination, so these are rated "3". There is a minor possibility of contamination for Scenarios 1 and 5 having been used as a vehicle garage and parking area; however nothing significant would be expected, so these scenarios are rated "2". here too. |
| Flooding / erosion risk | 5 | 3 | 15 | <ul style="list-style-type: none"> Presence of a natural drain crossing the site or adjacent to the plot boundary can be a cause of concern as it can result in additional upfront costs such as dewatering during construction and periodic upgrades to waterproofing during operating phase. Sites that contain topographical features that promote natural drainage need to be addressed during the design stage itself. Ravines and natural springs can significantly add to the construction cost of the facility. The building should be positioned based on the location of the natural drain and adequate provisions should be made to ensure that its natural course is not disrupted, as it can cause flooding of the site and building which affects the proper functioning of the future facility. The rating will be assigned based on the probability and scale of damages, effort and costs incurred to address the problems faced during the construction and operation of the facility due to such natural features. If there is a high probability of flooding / erosion issues arising from natural features of the site, then it would be rated "0"; and if there is a very low probability of issues, then it would be rated "3". This criterion has a direct impact on the upfront capital costs, future operations and the overall feasibility of building the proposed new premises, therefore it is assigned a weight of "5". | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 | 3 | 15 | <ul style="list-style-type: none"> Scenarios 1, 2, 3 and 5 were rated "3" as no flooding or erosion risk is present. However, a portion of the 12 acre site for Scenario 4 is designated as a flood plain and is therefore rated "1". The flood plain portion is not expected to be used, nor is it allowed to be used – any future development of the flood plain would only be possible following agency consultation and a successful environmental impact assessment. |
| Remoteness from Fire Station 2 to avoid duplication of coverage | 5 | 3 | 15 | <ul style="list-style-type: none"> A drive time analysis demonstrates that two fire stations located close together will result in a duplication of response coverage. The relative remoteness of locations of two fire stations from one another is thereby considered ideal. If the site under consideration is situated in proximity to the ideal location recommended by the drive time analysis (i.e. intersection of Vincent Massey Drive and Brookdale Avenue), then the site would be rated "3". If the converse is true, the site would receive a rating of "0". | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | <ul style="list-style-type: none"> The existing Fire Station 1 does not provide optimal fire response coverage as it is located too close to Fire Station 2 and presents coverage duplication. For this reason, Scenario 1 is rated "1". |

| Attribute Group / Criteria | W | MR | MPS | Criteria Description | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | Comments |
|---|---|----|-----|--|---|----|---|----|---|----|---|----|---|----|---|
| | | | | | R | S | R | S | R | S | R | S | R | S | |
| | | | | <ul style="list-style-type: none"> This criterion has a direct impact on the effectiveness of the future facility / location, which is also the primary objective of this project therefore it is assigned a weight of "5". | | | | | | | | | | | <ul style="list-style-type: none"> Scenarios 2, 3, 4 and 5 are considered remote from Fire Station 2 and are located within the area expected to provide optimal response coverage, so these are rated "3". |
| Multiple road frontage | 3 | 3 | 9 | <ul style="list-style-type: none"> Multiple road frontage provides visibility and accessibility to a facility. It would naturally draw the public to the facility. It also allows the facility to have separate entrances from the two roads keeping the internal fire truck traffic and visitor / car traffic separated. A site that is located at the intersection of two primary urban high capacity arterial roads would receive the highest rating of "3". A site located on a primary road with an additional secondary or tertiary road access or located at the intersection of two secondary roads would receive a rating of "2". A site with two separate secondary or tertiary road frontages would receive a rating of "1". A site that does not have multiple road frontage would receive the lowest rating of "0". This is a desirable feature, but not critical to the functioning of the fire station, therefore it is assigned a weight of "3". | 2 | 6 | 3 | 9 | 2 | 6 | 2 | 6 | 3 | 9 | <ul style="list-style-type: none"> The existing Fire Station 1 facility is situated just before an urban intersection on the frontage of Fourth Street West but is also accessible from the back-parking area between Fourth Street and Third Street, so Scenario 1 is rated "2". Scenarios 3 and 4 are also rated "2" as both options are frontage lots. Scenarios 2 and 5 are both corner lots located at the intersections of primary arterial roads and therefore are rated "3". |
| Municipal Services and Zoning | | | 81 | This Attribute Group examines the presence of key municipal services connections to the site. A site that is not fully serviced will have to allow for additional installation costs. Also examines the zoning and other statutory regulations applicable to sites. | | 56 | | 46 | | 36 | | 46 | | 56 | Municipal Services and Zoning |
| Availability of potable water | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the presence of potable water connection to the site under consideration. If the site does not have potable water connection and it is impossible to obtain a connection, the site will be rated "0". If the site does not have potable water connection or has potable water connection but does not have adequate service capacity, but it is possible to obtain a connection or increase capacity, by paying a reasonable connection fee, then it will receive a rating of "1". If the site already has potable water connection and the service capacity is adequate for an entity's core program, the site will be rated "2". If the site has potable water connection and the service capacity is more than adequate to service the entity, the site will be rated "3". Having sufficient supply of water at all times is critical to CFS' operations, therefore it is assigned a weight of "5". | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | |
| Availability of sewage systems | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the presence of sewer connection to the site under consideration. If the site does not have sewer connection and it is impossible to obtain a connection, the site will be rated "0". If the site does not have sewer connection or the existing connection does not have adequate service capacity, but it is possible to obtain a connection or increase the service capacity by paying a reasonable connection fee, then it will receive a rating of "1". If the site already has sewer connection and the service capacity is adequate for the entity's core program, the site will be rated "2". If the site already has sewer connection and the service capacity is more than adequate to service the entity, the site will be rated "3". This is related to the above criteria and important to CFS' operations, therefore it is assigned a weight of "5". | 2 | 10 | 1 | 5 | 0 | 0 | 1 | 5 | 2 | 10 | <ul style="list-style-type: none"> Scenarios 1 and 5 already have municipal services connections and the City has confirmed that the existing service capacity should be adequate for the core program, so these scenarios are rated "2". |
| Availability of storm water drainage | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the presence of storm water drainage connection to the site under consideration. If the site does not have storm water drainage connection and it is impossible to obtain a connection, the site will be rated "0". If the site does not have storm water drainage connection or has sewer connection but does not have adequate service capacity, but it is possible to obtain a connection or increase the service capacity by paying a reasonable connection fee, then it will receive a rating of "1". If the site has storm water drainage connection and the service capacity is adequate for the entity's core program, the site will be rated "2". If the site has storm water drainage connection and the service capacity is more than adequate to service the entity, the site will be rated "3". Availability of stormwater drainage is critical to CFS' operations, particularly its need to maintain operational readiness during emergencies, therefore it is assigned a weight of "5". | 2 | 10 | 1 | 5 | 0 | 0 | 1 | 5 | 2 | 10 | <ul style="list-style-type: none"> The sites used to define Scenarios 2, 3 and 4 presently have access to potable water, gas and electricity but not sanitary sewer servicing, so they scored poorly. The City's Urban Settlement Boundary bisects the site west of Brookdale Ave. and north of Tollgate Rd. to form the sites for Scenarios 2 and 3. The Scenario 2 portion falls inside the boundary and sanitary sewer servicing is expected in 2020 (and so rated "1"); and the Scenario 3 portion is outside the boundary and servicing is not expected anytime in the near future; for this reason, Scenario 3 was ranked the lowest (rated "0"). Sanitary sewer servicing is also expected in 2020 for Scenario 4 and therefore it was rated "1". |
| Availability of electric power infrastructure | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the presence of electrical power infrastructure at the site under consideration. If the site does not have electrical power infrastructure and it is impossible to obtain a connection the site will be rated "0". If the site does not have electrical power infrastructure or has electrical power infrastructure but does not have adequate service capacity, but it is possible to obtain a connection or increase the service capacity by paying a reasonable connection fee, then it will receive a rating of "1". If the site has electrical power infrastructure and the service capacity is adequate for the entity's core program, the site will be rated "2". If the site has electrical power infrastructure and the service capacity is more than adequate to service the entity, the site will be rated "3". Availability of sufficient electrical power supply (capacity) is critical to CFS' operations, therefore it is assigned a weight of "5". | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | |
| Availability of natural gas infrastructure | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the presence of natural gas infrastructure at the site under consideration. If the site does not have natural gas infrastructure and it is impossible to obtain a connection the site will be rated "0". If the site does not have natural gas infrastructure or has natural gas infrastructure but does not have adequate service capacity, but it is possible to obtain a connection or increase the service capacity by paying a reasonable connection fee, then it will receive a rating of "1". If the site has natural gas infrastructure and the service capacity is adequate for the entity's core program, the site will be rated "2". If the site has natural gas infrastructure and the service capacity is more than adequate to service the entity, the site will be rated "3". Availability of natural gas supply ensures lower heating costs for CFS in the long-term, therefore it is assigned a weight of "5". | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | |
| Presence of easements | 2 | 3 | 6 | <ul style="list-style-type: none"> This criterion examines the presence of easements and the impact on the site under consideration. If there are easements that severely affect the proper functioning of the facility in the short and long term, the site will receive a rating of "0". If there are easements and the impact due to the same can be mitigated through additional agreements or other legal means, then the site would receive a rating of "1". If the easements do not affect the proper functioning of the proposed facility in any way, then the site would receive a rating of "2". If there are no easements currently at the site under consideration, then a rating of "3" would be assigned. Presence of easements can sometimes cause disruption of regular operations. But as requirements arising out of easements are mostly of the nature of periodic inspection or repairs, it can be managed by ensuring sufficient notice is provided in advance. As it does not heavily impact CFS' operations, this criterion is assigned a weight of "2". | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 | 3 | 6 | <ul style="list-style-type: none"> The City's planning department has verified that there are no easements, so all scenarios are rated "3". |
| Connectivity | | | 84 | This Attribute Group examines the various modes of access from a site to other areas and vice versa at all times. | | 36 | | 74 | | 74 | | 69 | | 74 | Connectivity |
| Easy access to northern areas of the city | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the ability of a site to provide reach to the northern areas of the city where response times have historically been poor. A site that is deemed to provide easy access to corridors to northern areas is rated "3"; and a site that provides poor access is rated "2" or "1". This criterion has a direct impact on the effectiveness of the future facility / location in achieving better service efficiency. It is also one of the primary objectives of this project, therefore it is assigned a weight of "5". | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | <ul style="list-style-type: none"> As established by drive time studies, the existing Fire Station 1 has poor response times and reach to the northern areas of the city, so Scenario 1 is rated "1". All development scenarios are located within the area expected to provide optimal response coverage and are therefore each rated "3". |

| Attribute Group / Criteria | W | MR | MPS | Criteria Description | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | Comments |
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| Maximum response coverage in six minutes | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the location of a site as it relates to the response times outlined in the drive time analysis. A site that provides maximum response coverage in less than six minutes is rated "3"; and a site that requires greater than six minutes to achieve the same coverage is rated "2" or "1". This criterion has a direct impact on the effectiveness of the future facility / location in achieving better service efficiency. It is also one of the primary objectives of this project, therefore it is assigned a weight of "5". | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | <ul style="list-style-type: none"> As established by drive time studies, the existing Fire Station 1 has poor response times and does not meet this requirement; response times are inadequate, area coverage in 6 minutes is only 69% and response times to northern areas are high; Scenario 1 is therefore rated "1". All development scenarios are located within the area expected to provide optimal response coverage and are therefore each rated "3". |
| Easy access to major thoroughfares | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the proximity of a proposed site to major thoroughfares (primary high capacity urban roads). Close proximity to major thoroughfares provides better response times. A site located more than one kilometer from the major thoroughfares would receive a rating of "0"; and within one kilometer would receive a rating of "1". A site located on one of the major thoroughfares would receive a rating of "2". If the site is located at the intersection of two major thoroughfares, then a rating of "3" would be assigned. This criterion has a direct impact on the effectiveness of the future facility / location in achieving better service efficiency, therefore it is assigned a weight of "5". | 1 | 5 | 3 | 15 | 3 | 15 | 3 | 15 | 3 | 15 | <ul style="list-style-type: none"> The existing Fire Station 1 is situated on a one-way street with poor arterial access which is considered one of the biggest bottlenecks of the current site; Scenario 1 is therefore rated "1". All development scenarios are located on corner lots at intersections of primary arterial roads (2 and 5) or on frontage lots near intersections of primary arterial roads (3 and 4), facilitating better response times; all are rated "3". |
| Probability of traffic congestion | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the potential for a facility to cause or be adversely affected by traffic congestion in the locality. A site that is located on a tertiary road, surrounded by lands zoned for high density occupancies and is known to experience traffic congestions throughout the day would be rated "0". A site that is located on a secondary road, surrounded by lands zoned for low to medium density occupancies and is known to experience traffic congestions occasionally would be rated "1". A site that is located on a primary road, surrounded by lands zoned for low to medium density occupancies and is known to experience traffic congestions occasionally would be rated "2". A site that is located on a main arterial road, surrounded by lands zoned for low to medium density occupancies and is known to experience very minimal traffic congestions would be rated "3". This criterion has a direct impact on the effectiveness of the future facility / location in achieving better service efficiency, therefore it is assigned a weight of "5". | 2 | 10 | 2 | 10 | 2 | 10 | 1 | 5 | 2 | 10 | <ul style="list-style-type: none"> The existing Fire Station 1 is situated in a low density residential and commercial area known to experience occasional traffic congestion; it also has poor arterial road access; therefore Scenario 1 is rated "2". As all development scenarios are located on primary arterial roads which can be expected to experience occasional traffic congestion, they are rated "2" except for Scenario 4 which is rated "1" because the overpass on Brookdale Avenue presents a traffic bottleneck for the site to access areas south of Tollgate Road. |
| Travel obstructions - rail, snow route, one-way streets | 5 | 3 | 15 | <ul style="list-style-type: none"> This criterion examines the potential severity in accessing a facility because of occasional traffic disruptions due to the presence of certain vehicular uses or constraints. The presence of a railroad crossing across the main arterial road leading to a facility with the potential to disrupt normal flow of traffic throughout the year, or traffic congestion at intersections during peak hours forcing emergency vehicles to bypass and thereby increasing response times, would result in a rating of "0". The presence of a snow route across the main arterial road leading to a facility with the potential to disrupt normal flow of traffic during certain months of the year would result in a rating of "1". If there are no other obstructions but the site is located on a one-way street causing additional travel distance and time to reach the facility, then it would be rated "2". If a site does not face any such constraints, then it would be rated "3". This criterion has a direct impact on the effectiveness of the future facility / location in achieving better service efficiency, therefore it is assigned a weight of "5". | 1 | 5 | 2 | 10 | 2 | 10 | 2 | 10 | 2 | 10 | <ul style="list-style-type: none"> The existing Fire Station 1 is situated on a one-way street with poor arterial road access; it also experiences occasional traffic congestion, so this scenario is rated "1". All other scenarios are located on or in proximity to Brookdale Avenue which is the City's primary arterial road. Brookdale Avenue has a railroad crossing just north of the proposed sites, but this does not pose a travel obstruction because there is an overpass. As these sites may also experience occasional traffic congestion, the scenarios are rated "2". |
| Adequate parking availability (onsite or offsite) | 3 | 3 | 9 | <ul style="list-style-type: none"> This criterion examines the capacity of the site to provide an adequate number of parking spaces for a facility (i.e. sufficient parking spaces for its staff and minimum requirement mandated by the City for visitors). If a site does not have enough space to provide the minimum required parking within its boundaries or offsite or through acquisition of an adjacent property, then it would be rated "0". If a site does not have enough space to provide the minimum required parking within its boundaries but can provide space offsite or through acquisition of an adjacent property, then it would be rated "1". If a site has adequate space to provide the minimum required parking within its boundaries, then it would be rated "2". If a site has adequate space to provide more than the minimum required parking within its boundaries, then it would be rated "3". This is a desirable feature, but as the fire station's operations are initiated through its despatch centre and not as a result of face-to-face interactions with the public, it does not have a need to receive visitors. Hence this is not critical to the functioning of the fire station, and therefore it is assigned a weight of "3". | 2 | 6 | 3 | 9 | 3 | 9 | 3 | 9 | 3 | 9 | <ul style="list-style-type: none"> Scenario 1 is a space constrained option and parking availability is not ideal, it has enough space to provide the minimum required parking within its boundaries, so it is rated "2". All development scenarios have adequate space to provide more than the minimum required parking within boundaries, so these are rated "3". |
| Impact on External Entities | | | 39 | This Attribute Group examines a site's impact on external entities. | | 13 | | 32 | | 29 | | 36 | | 26 | Impact on External Entities |
| Location alignment with other emergency services provider needs | 3 | 3 | 9 | <ul style="list-style-type: none"> This criterion examines a site's location alignment with other emergency services providers' needs, such as those of EMS and Police. This is a desirable feature, but not critical to the functioning of the fire station, therefore it is assigned a weight of "3". | 1 | 3 | 2 | 6 | 2 | 6 | 2 | 6 | 2 | 6 | <ul style="list-style-type: none"> The existing Fire Station 1 is a space constrained facility and has no capacity to accommodate others or meet the space requirement for onsite live fire training (instead personnel are required to travel to neighbouring Ottawa for training); a training facility and / or shared staffing areas which may be used by other emergency services providers (Police, EMS, etc.) are not possible with Scenario 1, so it is rated "1". All development scenarios include construction of a Training Centre which can be accessed / shared by other emergency services providers (if needed), so these are rated "2". |
| Co-development potential | 3 | 3 | 9 | <ul style="list-style-type: none"> This criterion examines the possibility of development and operational cost sharing opportunities through shared use or co-location with other public or private entities. If the location of the site or its size does not allow exploring potential co-development opportunities with other public or private entities the site would be rated "0". If it does, then the site would be rated "3". | 0 | 0 | 3 | 9 | 3 | 9 | 3 | 9 | 1 | 3 | <ul style="list-style-type: none"> Scenario 1 is a space constrained site and has no co-development opportunities with other public or private entities; it is therefore rated "0". |

| Attribute Group / Criteria | W | MR | MPS | Criteria Description | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | Comments |
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| | | | | | R | S | R | S | R | S | R | S | R | S | |
| | | | | <ul style="list-style-type: none"> This is a desirable feature, but not critical to the functioning of the fire station, therefore it is assigned a weight of "3". | | | | | | | | | | | <ul style="list-style-type: none"> Scenarios 2, 3 and 4 are development and ownership options with ample space availability and control; Police have expressed an interest in sharing the capital and operating costs of a Training Centre, and a process is underway to confirm whether EMS will require some staff areas; these scenarios are all rated "3". Scenario 5 is a lease option in which a user has limited control over the facility and is subject to the landlord's management decisions when exploring third-party co-development opportunities, which is not ideal; it is therefore rated "1". |
| Visibility and access | 3 | 3 | 9 | <ul style="list-style-type: none"> A site that is viable for enhancing the perception of safety for residents and businesses should be visible and accessible to the community. If a site is located on a tertiary road removed from the main corridors of transit the site will be rated "0". If the site is located on a secondary road but has sufficient public transit connectivity, then the site will receive a rating of "2". If a site is located on a primary arterial road that is also a high capacity urban road with good transit connectivity and traffic volume, then the site will be rated "3". This is a desirable feature, but as the fire station's operations are initiated through its despatch centre and not as a result of face-to-face interactions with the public, it does not have a need to be visible or to receive visitors. Hence this is not critical to the functioning of the fire station, and therefore it is assigned a weight of "3". | 2 | 6 | 3 | 9 | 2 | 6 | 3 | 9 | 3 | 9 | <ul style="list-style-type: none"> Scenario 1 is located on a secondary one-way road, so it is rated "2". Scenario 3 is a frontage lot located on Tollgate Road, a secondary road, so it too is rated "2". The neighbouring Scenario 2 is located at the intersection of Tollgate Road and Brookdale Avenue with arterial road frontage and thus better visibility / connectivity / accessibility, so it is rated "3". Scenarios 4 and 5 are also located on primary arterial roads, so these scenarios are rated "3". |
| Remoteness to residential and commercial areas | 4 | 3 | 12 | <ul style="list-style-type: none"> This criterion examines a facility's remoteness to residential and commercial areas, as it relates to minimizing the impact of noise disturbances on those areas. If a site is in close proximity to these areas, then it would be rated "1". If a site is separated from these areas by a road / intersection, then it would be rated "2". If a site is in an area well removed of residential and commercial areas, then it would be rated "3". This is important to consider, even though it is not critical to the functioning of the fire station's operations. This criterion is critical to ensuring public support for the project, especially since one of the components is the fire / survival training centre, which in addition to the noise disturbances caused by the fire station can be assumed to create fire and smoke simulations most days of the month. As this is important to gaining public support for the project but not critical to the functioning of the fire station, it is assigned a weight of "4". | 1 | 4 | 2 | 8 | 2 | 8 | 3 | 12 | 2 | 8 | <ul style="list-style-type: none"> The existing Fire Station 1 is near residential and commercial areas, so it is rated "1". Scenario 5 is more remote than Scenario 1 but still the closest to such areas when compared to the other development scenarios (2, 3 and 4), so it is rated "2". Scenarios 2 and 3 are separated from a residential area by Tollgate Road West, which is not ideal; it is rated "2". Scenario 4 is the most remote from such areas so the impact of disturbances will be minimized; it is therefore rated "3". |
| Ownership Structure | | | 15 | This Attribute Group tests the ease of acquisition with respect to the type of ownership. It is understood that the sites owned by public / government entities would take considerable time to acquire, often spanning years, in comparison to those owned by private owners where the timeframe would be a few months. Even though there is always a possibility of acquiring publicly owned lands free of cost, the cost, time and effort involved in processing these transactions are known to very high in comparison to privately owned lands. | | 15 | | 3 | | 3 | | 6 | | 6 | Ownership Structure |
| Owned by City | 5 | 3 | 15 | <ul style="list-style-type: none"> A site owned by a public sector entity would receive the highest rating of "3", and if not, then a score of "0" would apply. A publicly owned site is highly desired in comparison to a privately owned one as it could be acquired free of cost and will not create an unfavourable public perception of any private entity unduly benefiting from the transaction. For these reasons it is assigned a weight of "5". | 3 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <ul style="list-style-type: none"> The existing Fire Station 1 is owned by the City, so it is rated "3". All development scenarios are privately owned, so these are rated "0". |
| Owned by private entities | 3 | 3 | 9 | <ul style="list-style-type: none"> It is believed that sites owned by private entities would be the easiest to acquire. One does not have to deal with the level of uncertainty that is a common characteristic of the publicly owned sites, where ascertaining the availability of sites itself could take more than a year. Therefore, a site available for acquisition from a private entity at a price higher than the existing market price will receive a rating of "1"; a similar site available at the current market price would receive a rating of "2"; and the one available at a discount or free of cost would receive a score of "3". A privately-owned site has its advantages, especially in terms of establishing its availability and processing the acquisition. However, it is also always more expensive than a publicly owned site, which diminishes its relative advantage. For this reason, it is assigned a weight of "3". | 0 | 0 | 1 | 3 | 1 | 3 | 2 | 6 | 2 | 6 | <ul style="list-style-type: none"> The existing Fire Station 1 is not owned by a private entity, so it is rated "0". Scenarios 2 and 3 are privately owned sites but because they are a family estate and lengthy decision-making hurdles could be expected, they are rated "1". Scenarios 4 and 5 are privately owned (by an individual and a company, respectively) and are therefore considered readily available for acquisition / lease at current market prices, so these are rated "2". |
| Other Considerations | | | 45 | This Attribute Group examines other important considerations such as move-time, ability to ensure continuity of services in the future, effective real estate management and potential to be embraced as a public resource / political support. | | 34 | | 36 | | 36 | | 36 | | 18 | Other Considerations |
| Move-in time | 3 | 3 | 9 | <ul style="list-style-type: none"> This criterion is dependent on the level of work involved in getting the space ready for its intended function. Normally a leased space requires less amount of time from start, i.e. finding the space, to move-in, compared to an owned space. In any market, it is much easier to find a property for lease than finding and acquiring an existing property or land that fits one's needs; and then there are steps such as signing the lease agreement which is easy versus closing an ownership sale which are more complicated. With a lease option, the design and construction work required to make the space suitable for the end user is relatively less compared to an ownership option; ownership may require a new building to be constructed or significant modifications carried out on an existing building. Also, the timeframe for obtaining mandatory statutory approvals could be much higher for an ownership option, adding to the overall move-in time. This is a desirable feature, but not critical to the operations of a fire station or the feasibility of developing the new premises, therefore it is assigned a weight of "3". | 3 | 9 | 1 | 3 | 1 | 3 | 1 | 3 | 2 | 6 | <ul style="list-style-type: none"> Scenario 1 is an 'as is' option which requires no work to ready the space, so it is rated "3". Scenarios 2, 3 and 4 and development and ownership options which require acquisition and closing of sale processes, and new buildings to be constructed with statutory approvals; this can be expected to take time, and so these scenarios are rated "1". Scenario 5 is a lease option for which the signing of a lease agreement and streamlined development process (upgrade modifications versus new build) would be quicker when compared to 2, 3 and 4; it is therefore rated "3". |
| Ability to ensure continuity of services in the future | 3 | 3 | 9 | <ul style="list-style-type: none"> Under this criterion, an option with the lowest possibility of disrupting ongoing operations receives the highest rating. One of the critical shortcomings of a lease option is uncertainty over renewal of the lease agreement and the possibility of maintaining the same favourable lease terms upon renewal. | 1 | 3 | 2 | 6 | 2 | 6 | 2 | 6 | 1 | 3 | <ul style="list-style-type: none"> Given the age of the existing Fire Station 1 building and requirement for immediate and future maintenance works (operational |

| Attribute Group / Criteria | W | MR | MPS | Criteria Description | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | Comments |
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| | | | | | R | S | R | S | R | S | R | S | R | S | |
| | | | | <ul style="list-style-type: none"> An ownership option does not have challenges relating to uncertainty; there is an ability to ensure continuity of services in the future effectively. That said, ownership options could incur significant capital works, such as roof or HVAC system replacements, every two decades or so affecting continuity of services to some extent. This is a desirable feature, and even though it has the potential to disrupt operations of the fire station in the future, it does not affect the feasibility of developing the new premises, therefore it is assigned a weight of "3". | | | | | | | | | | | <ul style="list-style-type: none"> disruptions), the ability to ensure continuity of services has been compromised; Scenario 1 is therefore rated "1". Scenario 5 is also rated "1" because it is a lease option in which control over the premises is limited; the renewal of contract tenure and resulting changes in lease terms is an impediment to ensuring continuity of services in the future. Scenarios 2, 3 and 4 are development and ownership options which are free from the challenges of lack of control and uncertainty posed by lease agreements; these scenarios can ensure continuity of services more effectively than Scenario 5 and thus are all rated "2". |
| Effective real estate management | 4 | 3 | 12 | <ul style="list-style-type: none"> Effective real estate management of a facility is key to the efficient delivery of services (including cleaning, repairs and maintenance, modifications, additions, subletting, etc.). The ability to provide effective real estate management is dependent upon the level of control the user has over the premises. In a lease scenario, the level of freedom or control a user has is defined and limited by the lease agreement. One of the critical shortcomings of a lease option is uncertainty over renewal of the lease agreement and the possibility of maintaining the same favourable lease terms upon renewal. An ownership option does not have these challenges and therefore uncertainty is minimal. The user has complete control over the facility and can plan the use of the space whichever way they choose for an indefinite period. A user is not limited by the management decisions of other external entities and would be capable of managing the facility most effectively. A rating of "0" means an option does not allow effective management / control of premises; "1" means that the option allows minimal control / management of premises; "2" means that reasonable control over management of space is possible (e.g. a lease option whereby the user leases an entire building and has complete control over the operations); "3" refers to complete independence in managing premises, including the ability to make additions or reductions in space used. Even though the ability to influence the upkeep and management of the property may not have direct impact to the feasibility of developing the new premises, it can have a direct impact to the quality of the operations and long term viability of the facility. Therefore, this criterion is assigned a weight of "4". | 3 | 12 | 3 | 12 | 3 | 12 | 3 | 12 | 1 | 4 | <ul style="list-style-type: none"> Scenario 5 is a lease option whereby the level of freedom or control the user of a space has is defined and limited by the lease agreement; and so uncertainty exists over maintaining the same favourable terms upon lease renewal and the user is limited by management decisions of an external entity – a critical shortcoming of any lease option and the reason for a rating of "1". All other scenarios assume ownership of the premises; the user has complete control over the facility and would be capable of managing it most effectively; these scenarios are therefore rated strongly for this criterion with "3". |
| Potential to be embraced as a public resource, political support | 5 | 3 | 15 | <ul style="list-style-type: none"> A public sector owned property is often well received by the public if it can justify its purpose. The services provided by the public sector owner imparts social and economic value to the property which may come to be viewed as an integral part of the community. When a public sector entity operates out of (leases) a privately owned facility, there is a risk that the perception of being viewed as part of the community could be diminished. Public sector resources, if well managed, will also help to garner public support for future endeavours. Moving into a certain type of facility could attract public attention and scrutiny. Options with projects that require large investment benefitting private landlords have a higher potential to attract public attention and scrutiny are rated low compared to options that do not. In a lease option, public perception of being viewed as part of the community may be diminished because there are private landlords entering into lucrative low risk deals from which they benefit for a long term. A public sector owned facility is considered ideal for a public sector operator, and this option would receive a "3". In a lease scenario, renewing an existing lease is assumed to attract the least amount of public attention, hence this option would receive a rating of "3" or "2". A new lease option has the potential to attract public attention: if the cost variance to an existing lease is not high then the challenges are deemed to be not significant, so this option would receive a rating of "2"; however, if there was no existing lease and a new lease option is presented in which a private landlord is entering into a lucrative low risk deal with long-term benefit, then it would be expected to attract a significant level of public scrutiny, this option would receive a rating of "1". As this is a publicly funded project, this criterion is crucial to ensuring public support. Therefore, it is assigned a weight of "5". | 2 | 10 | 3 | 15 | 3 | 15 | 3 | 15 | 1 | 5 | <ul style="list-style-type: none"> With the City operating out of a privately-owned facility, the perception of being part of the community could be diminished to some extent; also, options that benefit private owners for a long term have potential to attract public attention and scrutiny; for these reasons Scenario 5 is rated "1". Conversely, Scenarios 2, 3 and 4 being ownership options have the benefit of being perceived as a public asset situated in the community. Also, the importance to ensuring safety of the residents and businesses helps it to be well received as a public resource. Hence, these three scenarios are rated "3". Scenario 1 is rated "2" given that it has been established that the existing City-owned Fire Station 1 does not meet the needs of the CFS and community. Even though Scenario 1 is an ownership option, it is rated a "2" due to these factors. |
| Total Qualitative Analysis Score | | | 387 | | | 213 | | 309 | | 293 | | 298 | | 270 | Total Qualitative Analysis Score |