Memo



To: Joint Council Committee

From: Dillon Consulting Limited

cc: Ian Laing, Fire Chief

Jeremy Inglis, Deputy Fire Chief

Date: August 10, 2022

Subject: Community Risk Assessments and Fire Master Plan Project Interim Report

Our File: 21-2100

On March 3, 2022, Dillon Consulting Limited (Dillon) presented our preliminary findings to the Central York Fire Master Plan Project Steering Committee. The presentation provided the results of the initial analysis related to the current project to develop a new strategic Fire Master Plan (FMP) document for the Central York Fire Services (CYFS). The preliminary findings presentation also included an overview of the Community Risk Assessments (CRAs) that are also being prepared for the Town of Newmarket and the Town of Aurora in response to new provincial legislation (**Ontario Regulation 378/18**Community Risk Assessments (O. Reg. 378/18)). This new legislation requires municipalities to use the findings from their CRA to inform decisions about the provision of fire protection services. As such the CRA is a valuable tool to identify the needs and circumstances of the communities and to inform the new 10-year strategic FMP.

Following the delivery of the presentation to the Project Steering Committee, Dillon was asked to prepare this Interim Report for the members of the Joint Council Committee (JCC) with regard to the progress of this project, and where applicable, to provide preliminary recommendations for the JCC's consideration as part of the 2023 budget process.

Overview

The CYFS Fire Department Master Plan was last updated in June 2014. Since that time there have been a number of significant changes impacting the delivery of fire protection services in Ontario. Examples of these include the introduction of **Ontario Regulation 378/18 – Community Risk Assessments** on July 1, 2019 and the adoption of the National Fire Protection Association (NFPA) training standards for all firefighters in

Ontario. **Ontario Regulation 343/22 – Firefighter Certification** was also recently adopted on April 14, 2022.

The Fire Protection and Prevention Act, 1997 (FPPA) defines a municipality's legislated responsibilities to provide fire protection services, including that the municipality shall "establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances". To assist municipalities the new O. Reg. 378/18 – Community Risk Assessments includes methodology to support "Every municipality, and every fire department in a territory without a municipal organization, must complete and review a community risk assessment as provided by this regulation, and use its community risk assessment to inform decisions about the provision of fire protection services".

In our view the CYFS is being proactive by conducting this fire master planning process, which includes the preparation of CRAs for both Towns, in order to be compliant with the new **O. Reg. 378/18 – Community Risk Assessment legislation** prior to July 1, 2024 as required. Conducting this planning process at this time will also support existing municipal risk management processes by providing additional tools to identify and manage the fire risks within the respective communities in order to enhance the overall level of fire safety.

Stakeholder Consultation

Initial consultation has been completed with members of the Joint Council Committee/both Councils through a Council Workshop Session and senior corporate and fire department staff, including the Executive Board of the Central York Professional Firefighters Association, through interview sessions. This internal stakeholder consultation process is a core element of the fire master planning project. These initial consultation sessions have provided valuable insight into the current strengths, weaknesses, opportunities and challenges within the CYFS. These elements of the

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¹ Fire Protection and Prevention Act, 1997 Part II Responsibilities for Fire Protection Services, Municipal Responsibilities, 2. (1) (a)(b)

² Ontario Regulation 378/18 Community Risk Assessment, Mandatory Use

consultation process have resulted in a wide range of views and opinions that will be considered within our analysis.

External consultation completed to date includes 12 targeted stakeholder interviews with local community groups, businesses and service providers and the recent completion of an online public survey. The feedback received from these external stakeholders will inform the development of Fire Master Plan.

Project Preliminary Findings

Dillon staff met virtually with the Project Steering Committee on March 3, 2022. The focus of this meeting was for Dillon staff to present an overview of the preliminary analyses of the Community Risk Assessments and the fire master plan development. The objective of this presentation was to provide an opportunity for these key internal stakeholders to provide feedback and comments regarding the analysis conducted to date.

The following provides an overview of the information presented within the Preliminary Findings presentation including the Community Risk Assessments and preliminary recommendations relating to the 2023 budget process.

Community Risk Assessment Preliminary Analysis

Ontario Regulation 378/18 – Community Risk Assessment requires 'every' municipality in the province to prepare a CRA prior to July 1, 2024. Therefore this project includes the development of stand-alone CRAs for the Town of Newmarket and the Town of Aurora. **Table 1** illustrates a comparison of the existing key fire risks within these communities.

Table 1: CRA Key Risks Comparison, Town of Aurora and Town of Newmarket

CRA Key Risk	Town of Aurora	Town of Newmarket
Motor-Vehicle Collisions (MVCs) as a percentage of total rescue calls	82.8%	79.1%
Group C Residential Occupancies – Percentage of Total Building Stock	98.4%	96.7%
Group C Residential Occupancies – Percentage (and number) of Structure Fires (2015-2019)	73.8% (59 fires)	74.6% (103 fires)

CRA Key Risk	Town of Aurora	Town of Newmarket
Number of Buildings with an area (footprint) greater than 50,000 square feet (4,655 square metres (m ²))	58	69
Number of High-rise buildings (6 storeys and greater)	4	25
Number of Vulnerable Occupancies	10	23
Percentage of the population (number of persons) aged 65 and older (senior demographic)	13% (7,235)	13.7 (11,550)
Percentage of the population (number of persons) aged 14 years and younger (youth demographic, target for public education)	17.8% (9,850)	17.6% (14,830)
Percentage of the population (number of persons) aged 45 to 64 (cohort aging towards seniors demographic)	31.8% (17,655)	30.6% (25,750)
Leading cause of unintentional fires – misuse of ignition source ³	26.3% (21 fires)	34.8% (48 fires)
Second leading cause of unintentional fires – mechanical/electrical failure	13.8% (11 fires)	17.4% (24 fires)

In summary, the comparison of the CRA results identifies a number of similarities between the two communities such as motor vehicle collisions (MVC) accounting for a high number of emergency calls (Aurora 82.8% as compared to Newmarket 79.1%) and the highest percentage of the existing building stock within each community being Group C Residential Occupancies (Aurora 98.4% and Newmarket 96.7%). This analysis also highlights a number of significant differences between the existing fire risks in these communities such as the higher number of high-rise buildings in Newmarket and the higher number of vulnerable occupancies in Newmarket. Each of these building types

³ "Misuse of source of ignition refers to primarily accidents involving the source of ignition such things as the misuse/improper extinguishment of smokers' material, inadequate control of open fires, playing with a source of ignition, welding or using a torch too close to a flammable object, etc." Statistics Canada, 2017. Retrieved from: Incident-based fire statistics, by source of ignition and act or omission

presents a higher risk to occupants and firefighters which will be explained within this report.

Fire Master Plan Preliminary Analysis

The preliminary analysis in preparing the FMP has been focused on the Fire Suppression Division, and specifically identifying the historical and existing fire suppression operational capabilities of the CYFS.

Within the Province of Ontario, there is no legislation that requires a municipality to provide a specific level of fire suppression services. The FPPA does require a municipality to determine its local 'needs and circumstances' through applicable analyses which now include preparing a Community Risk Assessment. In our experience municipalities comparable to both the Town of Aurora and the Town of Newmarket commonly refer to the fire suppression standards, authored by the National Fire Protection Association (NFPA), to guide the analysis of their fire suppression services. In our view, the **NFPA**1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments would be considered current industry best practice for evaluating municipal fire suppression services in these municipalities. The NPFA 1710 standard was updated in 2020 to align with the industry transition to utilizing risk-based analyses.

As the Community Risk Assessments for both Aurora and Newmarket identify that Group C-Residential Occupancies account for more than 95% of the existing building stock in both municipalities it is our view that a primary focus should be given to two of the performance measures included in the NFPA 1710 standard. These include the following:

Initial Arriving Company: The Initial Arriving Company is commonly referenced within the fire service as the initial responding apparatus deployed to respond to an emergency incident. Fire service leaders and professional regulating bodies have agreed that until a sufficient number of firefighters are initially assembled on-scene, initiating tactics such as entry into the building to conduct search and rescue, or initiating interior fire suppression operations are not safe practices. If fewer than four firefighters arrive on-scene, they must wait until a second apparatus, or additional firefighters arrive on-scene to have sufficient staff to commence these initial activities.

Within the NFPA 1710 Standard an 'Initial Arriving Company' is referenced as an 'Engine Company' with a minimum staffing of four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue. An initial arriving company of four firefighters once assembled on-scene is typically assigned the following operational functions. The officer in charge shall assume the role of incident commander; one firefighter shall be designated as the pump operator; one firefighter shall complete the task of making the fire hydrant connection, and the fourth firefighter shall prepare an initial fire attack line for operation.

The assembly of four firefighters on the fire scene provides sufficient resources to safely initiate limited fire suppression, or rescue operations. This first crew of four firefighters is also able to conduct the strategic operational priority of "size-up" whereby the officer in charge can evaluate the incident and where necessary, request additional fire suppression resources that may not have been dispatched as part of the initial alarm.

The NFPA 1710 fire suppression deployment model for the initial arriving company requires a minimum of four firefighters arriving on-scene with an 'Engine Company' within a four-minute (240 seconds) travel time to 90% of the fire suppression incidents.

Single-Family Dwelling – Initial Full Alarm Assignment: In comparison to the deployment of an 'Initial Arriving Company', the term 'Initial Full Alarm Assignment' refers to "Those personnel, equipment, and resources ordinarily dispatched upon notification of a structure fire." An initial full alarm assignment represents the 'total' number of firefighters initially deployed to a structure fire.

In this deployment standard a single-family dwelling is defined as "a typical 2,000 square foot (186 square metre) two-storey single-family dwelling without basement and with no exposures." This definition is a further example of the broad definitions utilized by the NFPA that in this instance may not necessarily represent the definition of a typical single-family dwelling in Ontario. For example, in Ontario most single-family dwellings have basements to accommodate heating systems and additional living space. Over the past few decades Ontario has also been transitioning towards higher intensification including reduced lot sizes resulting in smaller special separation between single-family dwellings. In a fire situation this can create a higher risk of exposure from one single-family dwelling to another resulting in an extension of the fire.

The NFPA 1710 fire suppression deployment model for an initial full alarm assignment to a single-family dwelling includes a minimum deployment of 16 firefighters (17 if an

aerial device is used) described as the 'total effective response force' arriving on scene within an eight-minute (480 second) travel time to 90% of the fire suppression incidents in this occupancy type.

As indicated by the identified key risks contained in the CRA's for both communities the initial full alarm assignment capabilities of the CYFS in responding to Group C-Residential Occupancies such as single-family dwellings (Aurora 98.4% and Newmarket 96.7%) is an important element of the department's emergency response capabilities.

Central York Fire Services Historical Fire Suppression Capabilities

Our preliminary analysis of the existing fire suppression capabilities of the CYFS has assessed the annual emergency call volume for the period from January 1st, 2016 to December 31st, 2020. The preliminary analysis also includes Station 4-5, as it is currently scheduled to be operational as of summer 2022.

Our preliminary analysis utilizes the emergency call information as presented by the CYFS in their 2020 Annual Report to Council. This information identifies the types and volume of emergency calls over the five year period from January 1st, 2016 to December 31st, 2020. It is important to note that this information is based on the type of emergency call as initially reported by the public and as responded to by the CYFS. For example, the fire-related category is shown as a total of 916 calls which is broken down into four sub-categories including outdoor burning (145), pre-fire conditions (139), fires (86) and fire alarms (546).

Figure 1 illustrates that from January 1st, 2016 to December 31st, 2020 medical/resuscitator calls accounted for 52% of the emergency call volume representing the highest percentage of emergency call types. Fire-related calls, including fires, prefire conditions, outdoor burning and fire alarms totalled 21%. In addition to medical calls and fire-related calls, CYFS responds to a significant number of rescue calls, which comprised 7% of the total calls during this period. Other responses, which include automatic aid calls, mutual aid call, providing assistance to other agencies, calls relating to illegal drug operations, or cancelled calls comprise 12% of the total emergency call volume for this period.

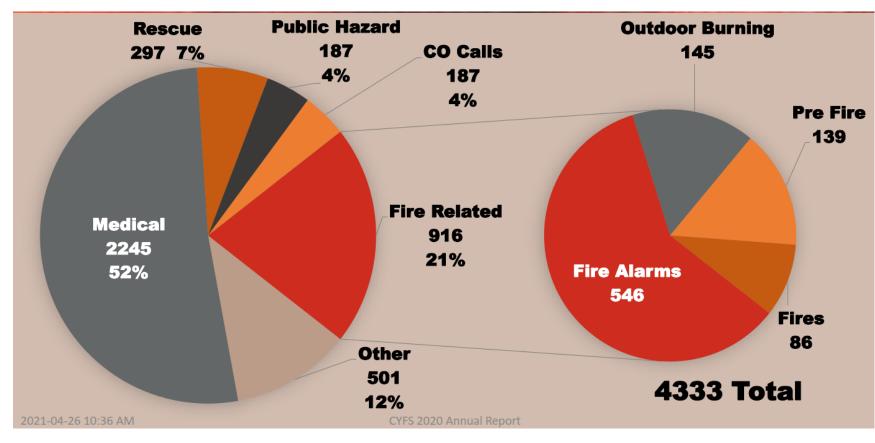


Figure 1: Call Breakdown by Type (2016-2020)

Source: CYFS Annual Report, 2020

To staff front-line apparatus the CYFS utilizes a four platoon system including a total Council-approved complement of 144 firefighters (once Station 4-5 is operational). Firefighters are assigned to a 24-hour shift system to provide emergency response coverage 24 hours per day, 365 days of the year. Under the five station model each of the four platoons will be assigned a Platoon Chief, seven Captains and 28 firefighters for a total platoon complement of 36 firefighters. Once Station 4-5 is operational the CYFS will have the operational capability to deploy a Platoon Chief and seven front-line apparatus, including five engine apparatus and two aerial devices.

The CYFS historical hiring practice has utilized a ratio of 1.25 for every front-line apparatus. This equates to hiring five firefighters for every front-line apparatus in order to maintain a minimum staffing of four firefighters on duty. This hiring practice has been consistent with historical industry best practices to accommodate the absence of firefighters for vacation, illness, Workplace Safety and Insurance Board (WSIB) injuries and other approved absences.

Our research indicates that CYFS and the Central York Professional Fire Fighters Association (CYPFFA) - Local 2511, signed a Letter of Understanding for the term from January 1, 2018 until December 31, 2023. This agreement allows the CYFS to reduce the number of front-line apparatus and number of firefighters on duty under certain conditions. The minimum number of firefighters on duty is 21, reflecting five front-line apparatus staffed with four firefighters, and one Platoon Chief responding. This will continue to be the minimum staffing and minimum front-line apparatus deployment with Station 4-5 in operation.

With five stations in operation, CYFS will strive to operate seven front-line apparatus with a minimum staffing of 29. As required due to staff availability, CYFS can reduce the number of front-line apparatus from seven to as low as five. The number of front-line apparatus in operation is dependent upon how many firefighter arrive for duty. On a given shift, if only 28 staff arrive for duty CYFS will use overtime to call in one additional firefighter to increase the staffing to 29 and operate seven front-line apparatus (plus the Platoon Chief). If 25 to 27 firefighters arrive for duty, CYFS will operate six front-line apparatus (plus the Platoon Chief) and will not require overtime. If 24 staff arrive for duty, CYFS will use overtime to call in one additional firefighter to increase the staffing to 25 and operate six front-line apparatus (plus the Platoon Chief). If 21 to 23 staff arrive for duty, CYFS will operate five front-line apparatus (plus the Platoon Chief) and will not

require overtime. If less than 21 staff arrive for duty, CYFS are required to call in additional staff on overtime to maintain the five front-line apparatus plus the Platoon Chief at a minimum. In our view, this strategy assists the CYFS in managing the utilization of overtime; however, it is also very important that the JCC and members of Council fully understand the impact that this strategy has on fire suppression service levels when it is implemented.

Historically, the CYFS has utilized the flexibility provided by this agreement to manage the use of overtime by reducing the number of front-line apparatus available and as such the number of firefighters on duty.

Table 2 illustrates how often the CYFS reduced the number of front-line apparatus that were in service during the period from January 1st, 2016 to December 31st, 2020. It is important to note that this information does not include Station 4-5 being operational. In 2019 the hiring process was initiated for the staff required to operate Station 4-5. The additional firefighters added between 2019 and present day to prepare for Station 4-5 significantly reduced the number of occurrences where CYFS removed an apparatus from service due to reduced staff availability. During the period reflected in **Table 2** (2016 to 2020) CYFS was operating from a four station model with an approved complement of six front-line apparatus. This analysis highlights that during this period the CYFS was able to operate the full complement of six front-line apparatus on an average of 84.4% of the time. However, for the remaining 15.6% of the time the CYFS was operating with only five front-line apparatus.

Table 2: Summary of Shifts with Five or Six Trucks In-Service (2016-2020)

Year	Number of Shifts with 5 Trucks in Service	% of Shifts with 5 Trucks	Number of Shifts with 6 Trucks in Service	% of Shifts with 6 Trucks	Total Shifts
2016	78	21.1%	291	78.9%	369 ⁴
2017	51	14.0%	314	86.0%	365
2018	32	8.8%	333	91.2%	365
2019	69	18.9%	296	81.1%	365
2020	55	15.0%	311	85.0%	366
Average	57	15.6%	309	84.4%	366

Source: CYFS

⁴ CYFS transitioned from 10 hour and 14 hour shifts to 24 hour shifts started on January 4, 2016.

The historical practice of the CYFS has been to remove an apparatus from service, as provided by the agreement above, based on the available staffing at each station. This practice was also applied only to one of the department's two aerial devices located at Stations 4-2 and 4-3.

The application of this strategy to reduce the number of front-line apparatus available to minimize overtime has no impact on the CYFS initial response capabilities. This is because this strategy, when implemented, only affects the use and availability of the second front-line apparatus. Once Station 4-5 is fully operational, the location of the two aerials (as second front-line apparatus) will determine the scenarios that could be impacted by reducing the number of front-line apparatus from seven apparatus to six apparatus.

Central York Fire Services Existing Fire Suppression Capabilities

Our analysis of the CYFS existing fire suppression capabilities includes the assumption of Station 4-5 being fully operational and the assumption of continuing to reduce the number of front-line apparatus available to assist in managing future overtime costs.

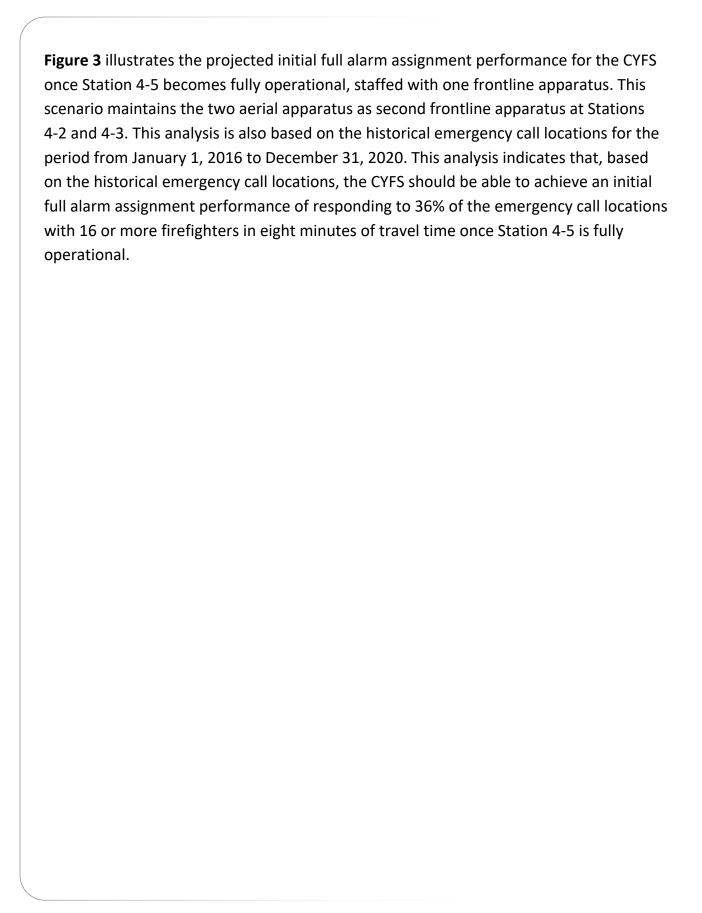
Figure 2 illustrates the projected initial arriving company performance for the CYFS once Station 4-5 (recommended within the 2014 Fire Master Plan⁵) becomes fully operational. This analysis is based on the historical emergency call locations for the period from January 1, 2016 to December 31, 2020. The GIS-based model is built upon the existing road network within the Town of Aurora and Town of Newmarket. The travel speeds of the modelled road network adjust the road speed limits to reflect the historic travel times experienced by CYFS when responding to emergency calls. The adjusted, modelled speed is referred to as network speed. The travel time analysis indicates that based on the historical emergency call locations the CYFS should be able to achieve an initial response performance of responding to 55% of the emergency call locations within four minutes of travel time once Station 4-5 is fully operational.

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⁵ The 2014 CYFS Fire Master Plan modelled a 10% improvement in geographical area covered under the initial response four minute travel time in the planned five station model, compared to the existing four station model.

Figure 2: Existing Conditions, Initial Response GREEN LANE WEST GREEN LANE EAST **CENTRAL YORK FIRE SERVICES** % Area % Calls Covered Covered TOWN OF EAST 4 Minutes 50% 55% CYFS FIRE MASTER PLAN GWILLIMBURY 5 Minutes 72% 78% 92% 6 Minutes 87% **INITIAL ARRIVING COMPANY -**13% > 6 Minutes **EXISTING CONDITIONS** FIGURE 1 DAVIS DRIVE DAVIS DRIVE DAVIS DRIVE WEST No. 4-1 No. 4-2 Existing Fire Station TOWN OF NEWMARKET Future Fire Station Historic Incident (2016-2020) **Travel Time** VIVIAN ROAD MULOCK DRIVE 4 Minutes at Network Speed 5 Minutes at Network Speed 6 Minutes at Network Speed > 6 Minutes at Network Speed No. 4-5 TOWNSHIP **BASE DATA** Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF WHITCHURCH-Railway No. 4-4 STOUFFVILLE ----- Freeway Arterial Road WELLINGTON STREET EAST AURORA ROAD WELLINGTON STREET WEST TOWN OF Road Watercourse No. 4-3 AURORA Waterbody DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: GM, DILLON CONSULTING MAP CHECKED BY: SCD ROAD MAP PROJECTION: NAD 1983 UTM Zone 17N NORTH PROJECT: 21-2100 **BLOOMINGTON ROAD** BLOOMINGTON ROAD STATUS: DRAFT DILLON RICHMOND HILL DATE: 2022-04-21

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GREEN LANE WEST GREEN LANE EAST-**CENTRAL YORK FIRE SERVICES** # of Firefighters On CYFS FIRE MASTER PLAN Scene Within 8 % Area % Calls TOWN OF EAST Minutes of Travel Time Covered Covered GWILLIMBURY **INITIAL FULL ALARM ASSIGNMENT -EXISTING CONDITIONS - SCENARIO 4** >=4 99% 99% >=8 89% 92% 63% 66% >=12 Existing Fire Station DAVIS DRIVE-DAVIS DRIVE >=16 35% 36% AVIS DRIVE WEST >=25 Future Fire Station No. 4-2 Station Staffing TOWN OF Historic Incident (2016-2020) Engine:4 NEWMARKET Engine: 4 Number of Staff On Scene within 8 Aerial: 4 Minutes of Travel Time Engine: 4 4-3 Aerial: 4 ≥ 4 Firefighters VIVIAN ROAD MULOCK DRIVE 4-4 Engine: 4 ≥ 8 Firefighters Platoon Chief: 1 4-5 Engine: 4 ≥ 12 Firefighters Total ≥ 16 Firefighters ≥ 25 Firefighters **BASE DATA** TOWNSHIP OF KING Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF Railway WHITCHURCH-No. 4-4 STOUFFVILLE - Arterial Road AURORA ROAD WELLINGTON STREET WEST WELLINGTON STREET EAST Road TOWN OF Watercourse No. 4-3 AURORA Waterbody DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: GM, DILLON CONSULTING MAP CHECKED BY: SCD MAP PROJECTION: NAD 1983 UTM Zone 17N NORTH PROJECT: 21-2100 **BLOOMINGTON ROAD** BLOOMINGTON ROAD CITY OF STATUS: DRAFT RICHMOND HILL DILLON DATE: 2022-05-02

Figure 3: Existing Conditions, Initial Full Alarm Assignment

The CYFS hiring practice of using the 1.25 ratio has been the historical industry best practice. However, since the introduction of the Workplace Safety and Insurance Act, 1997 Ontario Regulation 253/07: Firefighters, Firefighters presumptive legislation came into effect in 2018, it is evident that the 1.25 ratio is insufficient to manage the longer-term absences associated with this legislation. O. Reg. 253/07 – Firefighters identifies seventeen prescribed diseases that have been directly linked to firefighting. Since the introduction of this legislation, the CYFS has unfortunately experienced a consistent challenge with firefighters being absent from duty for extended periods of time as a result of WSIB claims related to this legislation. Another related change in the industry is the Supporting Ontario's First Responders Act provides for the diagnosis of Post-Traumatic Stress Disorder (PTSD) as a presumed work-related illness, and therefore eligible under WSIB.

At the time of preparing this report, the CYFS reported five firefighters as being off active duty on WSIB for unknown extended periods of time and two firefighters off active duty as a result of other injuries.

Our analysis of the CYFS' existing fire suppression capabilities assumes that the department will continue to utilize the strategy to reduce the number of front-line apparatus, as agreed to with the Central York Professional Fire Fighters Association (CYPFFA) - Local 2511 in the signed Letter of Understanding. The historical minimum onduty staffing within the Collective Bargaining Agreement is based on the staffing required to operate five front-line apparatus and one Platoon Chief, which equates to 21 firefighters. In order to maintain six front-line apparatus in service, a minimum of 25 firefighters (including one Platoon Chief) is required. In order to maintain seven front-line apparatus in service, a minimum of 29 firefighters (including one Platoon Chief) is required. With five stations in operation, CYFS will strive to maintain at least 25 on-duty. If 28 firefighters arrive for duty on a given shift, CYFS will typically use overtime to increase on-duty staffing to 29 firefighters and operate seven front-line apparatus. To manage overtime, if less than 28 firefighters arrive for duty, the department will operate six front-line apparatus for that shift.

Figure 4 and **Figure 5** illustrate the predicted performance of removing one of the aerials from service from their current deployment from either Station 4-2 or 4-3 reducing the number of front-line apparatus from seven to six.

Aerial at Station 4-2 Removed from Service:

This scenario includes removing the aerial assigned to Station 4-2 from service and reducing the number of firefighters on duty from 29 to 25. **Figure 4** indicates that when the aerial at Station 4-2 is taken out of service the initial full alarm assignment capabilities of the CYFS are reduced from 36% to 31% with a large portion of the reduction occurring in the Town of Newmarket.

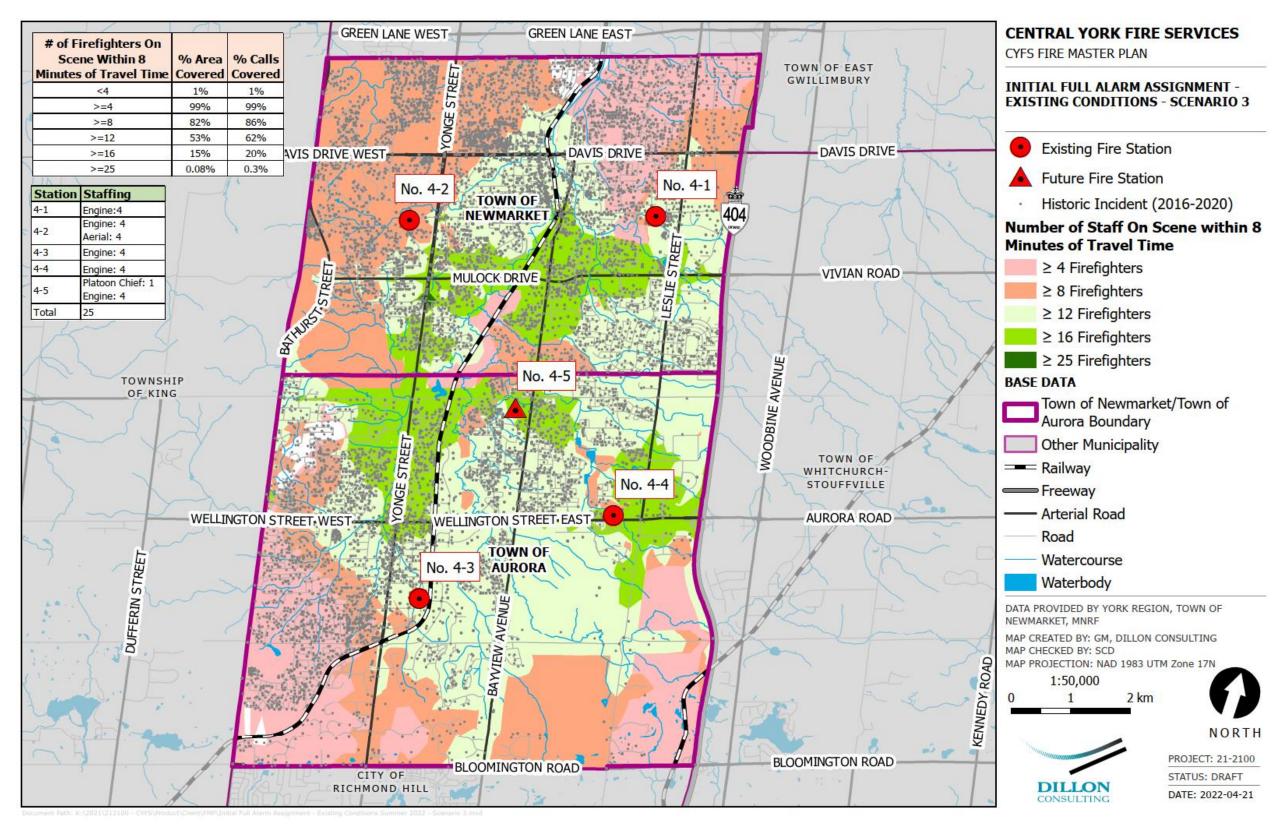
Aerial at Station 4-3 Removed from Service:

This second scenario includes removing the aerial assigned to Station 4-3 from service and reducing the number of firefighters on duty from 29 to 25. **Figure 5** indicates that when the aerial at Station 4-3 is taken out of service the initial full alarm assignment capabilities of the CYFS are reduced from 36% to 20% with an impact on both communities.

GREEN LANE WEST GREEN LANE EAST **CENTRAL YORK FIRE SERVICES** # of Firefighters On CYFS FIRE MASTER PLAN Scene Within 8 % Area % Calls TOWN OF EAST Minutes of Travel Time Covered Covered GWILLIMBURY **INITIAL FULL ALARM ASSIGNMENT -EXISTING CONDITIONS - SCENARIO 5** >=4 99% 99% 74% 73% >=8 >=12 54% Existing Fire Station DAVIS DRIVE DAVIS DRIVE >=16 31% 31% AVIS DRIVE WEST >=25 0.1% 0.3% Future Fire Station No. 4-1 No. 4-2 Station Staffing TOWN OF Historic Incident (2016-2020) Engine:4 NEWMARKET Engine: 4 Number of Staff On Scene within 8 Engine: 4 Minutes of Travel Time 4-3 Aerial: 4 ≥ 4 Firefighters 4-4 Engine: 4 VIVIAN ROAD MULOCK DRIVE Platoon Chief: 1 4-5 ≥ 8 Firefighters Engine: 4 Total ≥ 12 Firefighters ≥ 16 Firefighters ≥ 25 Firefighters **BASE DATA** TOWNSHIP OF KING Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF Railway WHITCHURCH-No. 4-4 STOUFFVILLE - Arterial Road AURORA ROAD WELLINGTON STREET WEST WELLINGTON STREET, EAST Road TOWN OF Watercourse No. 4-3 AURORA Waterbody DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: GM, DILLON CONSULTING MAP CHECKED BY: SCD KENNEDY ROAD MAP PROJECTION: NAD 1983 UTM Zone 17N NORTH PROJECT: 21-2100 **BLOOMINGTON ROAD** BLOOMINGTON ROAD CITY OF STATUS: DRAFT DILLON RICHMOND HILL DATE: 2022-05-05

Figure 4: Existing Conditions - Aerial Removed from Station 4-2

Figure 5: Existing Conditions - Aerial Removed from Station 4-3



With the opening of Station 4-5, there is an opportunity to reassess the location of the second frontline apparatus (aerials). Staffing and deployment of apparatus, as well as station location and configuration will be assessed in detail within the Fire Master Plan, including consideration of planned future growth and development. Through the analysis of the existing conditions, scenarios were modelled which represent the planned relocation of the aerial from Station 4-3 to Station 4-5. The initial full alarm assignment performance of this scenario, including the seven frontline apparatus and 29 firefighter minimum staffing is presented in Figure 6. This analysis is also based on the historical emergency call locations for the period from January 1, 2016 to December 31, 2020. This analysis indicates that based on the historical emergency call locations, the CYFS achieve an initial full alarm assignment performance of responding to 48% of the emergency call locations with 16 or more firefighters in eight minutes of travel time with Station 4-5 fully operational and the second front-line apparatus (aerial) are assigned to Stations 4-2 and 4-5. This scenario results in an improvement of 12% call coverage with 16 or more firefighters compared to the aerials operating from 4-2 and 4-3 shown in **Figure 3**.

Modelling the aerials in the revised locations of Station 4-2 and 4-5 results in the following scenarios, when the seventh truck is removed from service:

Aerial at Station 4-2 Removed from Service:

This scenario includes removing the aerial assigned to Station 4-2 from service and reducing the number of firefighters on duty from 29 to 25. **Figure 7** indicates that when the aerial at Station 4-2 is taken out of service and the aerial at Station 4-5 remains in service the initial full alarm assignment capabilities of the CYFS are reduced from 48% to 44% with a large portion of the reduction occurring in the Town of Newmarket.

Aerial at Station 4-5 Removed from Service:

This scenario includes removing the aerial assigned to Station 4-5 from service and reducing the number of firefighters on duty from 29 to 25. This scenario, with Station 4-5 operational and one aerial in service, located at Station 4-2, is the same as shown above in **Figure 5.** These results indicate that when the aerial at Station 4-5 is taken out of service the initial full alarm assignment capabilities of the CYFS are reduced from 48% to 20% with significant impacts to both communities.

Five Front-Line Apparatus, Minimum Staffing of 21 Firefighters:
This scenario, shown in Figure 8 , reflects the minimum staffing of 21 firefighters and five front-line apparatus (plus the Platoon Chief). This deployment translates to one front-line apparatus operating per station. This staffing and deployment scenario results in an initial full alarm assignment coverage of 15%, a significant reduction from 48% when two front-line apparatus respond from Station 4-2 and Station 4-5 in the seven apparatus model.

Figure 6: Aerial Devices at Stations 4-2 and 4-5 GREEN LANE WEST GREEN LANE EAST **CENTRAL YORK FIRE SERVICES** # of Firefighters On CYFS FIRE MASTER PLAN Scene Within 8 % Area % Calls TOWN OF EAST Minutes of Travel Time | Covered | Covered GWILLIMBURY **INITIAL FULL ALARM ASSIGNMENT -**1% 1% **EXISTING CONDITIONS** 99% 99% >=4 FIGURE 1 86% >=8 83% >=12 55% 63% Existing Fire Station DAVIS DRIVE >=16 48% 48% AVIS DRIVE WEST DAVIS DRIVE 8% >=25 12% Future Fire Station No. 4-1 No. 4-2 Station Staffing TOWN OF Historic Incident (2016-2020) Engine:4 **NEWMARKET** Engine: 4 **Number of Staff On Scene within 8** 4-2 Aerial: 4 **Minutes of Travel Time** 4-3 Engine: 4 4-4 ≥ 4 Firefighters Engine: 4 VIVIAN ROAD MULOCK DRIVE Platoon Chief: 1 ≥ 8 Firefighters Engine: 4 Aerial: 4 ≥ 12 Firefighters Total 29 ≥ 16 Firefighters ≥ 25 Firefighters WOODBINE AVENUE No. 4-5 TOWNSHIP **BASE DATA** OF KING Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF Railway WHITCHURCH-No. 4-4 STOUFFVILLE WELLINGTON STREET WEST Arterial Road AURORA ROAD WELLINGTON STREET EAST Road TOWN OF Watercourse No. 4-3 AURORA Waterbody BAYVIEW AVENUI DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: GM, DILLON CONSULTING MAP CHECKED BY: SCD ROAD MAP PROJECTION: NAD 1983 UTM Zone 17N 1:50,000 NORTH

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STATUS: DRAFT

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Figure 7: Aerial Device at Station 4-5 **CENTRAL YORK FIRE SERVICES** GREEN LANE WEST GREEN LANE EAST # of Firefighters On CYFS FIRE MASTER PLAN Scene Within 8 % Area % Calls TOWN OF EAST Minutes of Travel Time Covered Covered GWILLIMBURY **INITIAL FULL ALARM ASSIGNMENT -EXISTING CONDITIONS - SCENARIO 2** 99% >=4 99% >=8 68% 68% 50% 49% >=12 Existing Fire Station DAVIS DRIVE-DAVIS DRIVE >=16 45% 44% AVIS DRIVE WEST >=25 0.1% 0.3% Future Fire Station 🐼 No. 4-1 No. 4-2 Station Staffing TOWN OF Historic Incident (2016-2020) Engine:4 404 **NEWMARKET** Engine: 4 Number of Staff On Scene within 8 Engine: 4 **Minutes of Travel Time** Engine: 4 ≥ 4 Firefighters Platoon Chief: 1 VIVIAN ROAD MULOCK DRIVE 4-5 Engine: 4 ≥ 8 Firefighters Aerial: 4 Total ≥ 12 Firefighters ≥ 16 Firefighters ≥ 25 Firefighters TOWNSHIP **BASE DATA** OF KING Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF - Railway WHITCHURCH-No. 4-4 STOUFFVILLE - Freeway Arterial Road WELLINGTON STREET WEST AURORA ROAD WELLINGTON STREET EAST Road TOWN OF Watercourse No. 4-3 AURORA Waterbody DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: GM, DILLON CONSULTING MAP CHECKED BY: SCD ROAD MAP PROJECTION: NAD 1983 UTM Zone 17N 1:50,000 NORTH PROJECT: 21-2100 **BLOOMINGTON ROAD** BLOOMINGTON ROAD CITY OF STATUS: DRAFT RICHMOND HILL DILLON DATE: 2022-04-21

Figure 8: Five Front-Line Apparatus, Minimum Staffing 21 Firefighters GREEN LANE WEST GREEN LANE EAST CENTRAL YORK FIRE SERVICES # of Firefighters On CYFS FIRE MASTER PLAN **Scene Within 8** % Calls % Area TOWN OF EAST Minutes of Travel Time Covered Covered GWILLIMBURY **INITIAL FULL ALARM ASSIGNMENT -**<4 1% 1% **EXISTING CONDITIONS - SCENARIO 6** >=4 99% 99% >=8 67% 68% 45% 44% >=12 **Existing Fire Station** DAVIS DRIVE DAVIS DRIVE >=16 12% 15% AVIS DRIVE WEST >=25 0% 0% Future Fire Station No. 4-1 No. 4-2 Station Staffing TOWN OF Historic Incident (2016-2020) Engine:4 NEWMARKET 4-2 Engine: 4 **Number of Staff On Scene within 8** 4-3 Engine: 4 **Minutes of Travel Time** 4-4 Engine: 4 ≥ 4 Firefighters Platoon Chief: 1 VIVIAN ROAD 4-5 MULOCK DRIVE Aerial: 4 ≥ 8 Firefighters Total ≥ 12 Firefighters ≥ 16 Firefighters ≥ 25 Firefighters WOODBINE AVENUE TOWNSHIP BASE DATA OF KING Town of Newmarket/Town of Aurora Boundary Other Municipality TOWN OF WHITCHURCH-Railway No. 4-4 STOUFFVILLE Freeway Arterial Road **AURORA ROAD** WELLINGTON STREET WEST WELLINGTON STREET EAST Road TOWN OF Watercourse No. 4-3 AURORA Waterbody DATA PROVIDED BY YORK REGION, TOWN OF NEWMARKET, MNRF MAP CREATED BY: LK MAP CHECKED BY: SCD ROAD MAP PROJECTION: NAD 1983 UTM Zone 17N 1:50,000 2 km NORTH PROJECT: 21-2100 **BLOOMINGTON ROAD** BLOOMINGTON ROAD CITY OF RICHMOND HILL STATUS: DRAFT DILLON DATE: 2022-08-02

Summary

In our view, this preliminary analysis of the CYFS existing fire suppression deployment capabilities identifies the impact of reducing the minimum number of firefighters on duty at any given time in order to accommodate extended WSIB and other absences. The opening of the new Station 4-5 and the additional firefighters that have been hired for this station sustain the historical 1.25 ratio of firefighters on the department. This means that even with the opening of Station 4-5, there will continue to be reductions in the minimum number of firefighters, and the number of front-line apparatus available to respond.

To manage overtime costs as a result of firefighters' absences, and specifically WSIB-related injuries, the CYFS will still need to reduce the number of front-line apparatus available from seven apparatus to six apparatus and the minimum number of firefighters on duty from 29 to 25. During peak vacation season or when managing higher occurrences of staff absences, CYFS will still need to reduce the number of front-line apparatus to as low as five and the minimum number of firefighters to as low as 21 firefighters on duty. As identified within this preliminary analysis these reductions significantly impact the department's initial full-alarm emergency response deployment capabilities.

In our view the CYFS should consider transitioning to the use of a 1.33 ratio for hiring firefighters as soon as possible. This would result in the need to hire eight additional firefighters (two per platoon). It is our understanding that a similar strategy was recently adopted by the City of Vaughan.

It is our recommendation that the Central York Fire Services consider transitioning to the strategy of utilizing a ratio of 1.33 for the hiring of full-time firefighters as soon as possible.