

Executive Summary

High-rises have become second nature in today's urban landscape, and Toronto is no exception. With defined geographical borders, the only place for new growth is up. While the growth is supported by Toronto's Official Plan (2015), the shift to vertical growth has created issues for emergency services. One of these issues is in changes to response times because once firefighters arrive at the building; they must travel vertically to the site of the incident with all the equipment needed to respond to the emergency.

This report explores how vertical growth is an issue for one Toronto emergency service, Toronto Fire Services (TFS), and how they can be resolved by examining the following questions:

1. How is the delivery of emergency services by Toronto Fire Services affected by vertical growth in Toronto?
2. To what extent is there a difference between the provision of Fire Services in single detached homes (low density) and high-rise developments?
3. What planning solutions can be implemented to help Toronto Fire Services to continue to provide the public with the best service possible?

A mixed methodology was undertaken to examine these question including GIS analysis, interviews, and case study analysis using three cities.

GIS Findings

The GIS analysis conducted used existing data on fire station locations and data on high-rises, as well as proposed high-rises to examine their distribution across Toronto. While the majority of high-rises are located in the downtown core, the traditional high density area of the city, there are also many pockets throughout the traditional suburbs of Toronto that now are high density. These are areas that the Official Plan (2015) has designated for growth. They also happen to be some of the areas where problems are beginning to emerge for TFS.

A second analysis was conducted that examined service areas around fire stations using the travel time standard (four minutes) and an estimated vertical response time that only included two minutes for travel time. This analysis exposed a large gap in coverage between single detached dwellings and high-rise units.

At the four minute service area, the city has full coverage. TFS can be at the front door of most houses and buildings within four minutes. However, when the vertical element is accounted for in travel time, many high-rises outside of the downtown core are no longer within the standard response time service area, showing that it is harder to maintain the standard four minute response time when the vertical travel time is accounted for.

Case Study Analysis

An examination of three case study cities, New York City, Vancouver and Hong Kong, identified a number of vertical growth considerations for Toronto Fire Services and the City of Toronto as they deal with the challenge it poses to them. Major findings across all three cities included inclusion of the Fire Service in major planning documents (something not found in Toronto) and interdivisional collaboration. Other features that have helped these cities manage their vertical growth included a high density of fire stations to minimize travel times (NYC), the inclusion of firefighter oriented language in their building documents (Vancouver), and requiring refuge floors in all residential buildings to provide a safe space for residents fleeing a fire emergency (Hong Kong).

Interview findings

The interviews with Fire Services, City Planning and the Office of Emergency Management personnel from the City of Toronto revealed both what the issues facing TFS are, and what is being done to resolve them. In many cases, the barriers identified by TFS were outside of their control, and were not necessarily related to the high-rises physical structure but the ancillary impacts of the high-rise including the people who occupied them, the resulting congestion, and other city projects to manage this growth. Key findings are summarized below.

- People were seen as wildcards with regards to how they react in emergencies;
- Narrowing of the right of way for bike lanes, street cars and other multimodal transportation projects creates added congestion and makes it harder for fire trucks to maneuver;
- Construction throughout the city contributes to traffic and limited maneuverability and can close entire routes for emergency response adding to travel times;
- A lack of proactive communication with TFS by other City divisions has led to problems that are not realized until they are experienced.

To work towards solving these issues, TFS is already doing a number of things including working with the public on preventing the fires in the first place and ensuring everyone knows what to do in the event of a high-rise emergency. The proactive conversations with other City divisions are starting to happen but are sometimes still at a high management level with a trickle down to the other management levels.

Other initiatives including investigating storefront stations, and having crews travel their districts to know where construction has blocked routes which has helped mitigate some of the issues. There is also an effort to get included in conversations, and a shift has started to occur where other divisions are inviting TFS to the table for discussions.

Conversations for Change

With all of these barriers and issues, a series of changes that would be beneficial and the conversations that would be necessary for those changes were identified. These included resources, communication, and systemic change. These changes were

discussed with a focus group of various TFS personnel to gather a holistic understanding of how the change can unfold to benefit all of TFS.

Resources, including staff, stations, and apparatus were identified to help TFS cope with current resource strains as well as enhancing the coverage across the City. Barriers to this conversations included a lack of awareness of just how vertical growth impacts TFS response, and the absence of discretionary funds within the existing budget to make these changes on their own.

Another area for change involves enhancing communication with the public, other divisions, and with the Province. Effective and timely communication is vital to TFS being proactive in handling situations before they become issues. Speaking with the public before fires break out is important, but so is other City Divisions starting conversations with TFS when new projects relate to the city's structure are proposed. On a broader scale, having conversations with the province is important so that they will be able to make changes to the Building Code or Fire Code if it becomes necessary in the future to ensure public safety.

Finally, the most important change that needs to occur is in how society views vertical growth. It is a necessary part of Toronto's future relationship with growth, but TFS cannot be expected to manage the issues on their own when it comes to public safety. It will take a concerted effort by everyone in the city to keep everyone safe. At the City level, this means that TFS needs to be able to see what is happening on a city scale with other divisions, which would benefit all involved and allow TFS to work proactively to solve issues before they become problems. Major barriers to this included the current tendency to work alone that exists within divisions which has kept TFS out of the loop on some projects until they become problems that TFS needs to deal with.

The role of Planners

As the ones approving buildings and planning for growth, it is important that the costs of that growth are considered with regards to Fire Services now that the impacts are clearer. There are many things that planners can be doing right now, if they are not already, to start these conversations and make these changes:

- Treat Fire Services as an essential infrastructure during the planning and development approval process to ensure the system is not strained;
- Ensure inclusion of Fire Services in in long range planning documents to ensure that their voice is heard and that they can proactively address challenges;
- Create an Interdivisional Team to ensure that large projects are discussed and planned for in a holistic fashion that takes into account all community needs;
- Ensure the city's development amendment process considers Fire Services again when changes are made to a development plan;
- Finally, the incorporation of a Fire Lens into your everyday work will ensure that the service is given thought even if they are not directly involved at the time.

