

## **Fire Service Provision in Growth Strategy**

---

### **EXECUTIVE SUMMARY**

As Calgary grows, infrastructure and services are required. The continuing growth challenges that The City must address include when and where Calgary should grow, when services should be introduced in a new community, and the extent to which new community growth is enabled through both capital and operating budget decisions.

This report responds to Council's direction from 2017 July 31 arising from two previous reports addressing growth in the South Shepard Area Structure Plan. Included within this report, as directed by Council, is an independent consultant's review of the Calgary Fire Department's (Fire) Service Level Response Time Target policy (response target policy), an assessment of residential sprinklers; a review of best practices, policies and performance objectives of fire services in other Canadian municipalities; and a comparison of the response target policy to the standards set by the National and Alberta Building Codes. Although Council's direction was initiated by two reports in the South Shepard Area Structure Plan, the research conducted was not specific to this area of the city. In addition to this analysis, both Administration and the consultants collected input from various key stakeholder groups, including the development and home builder industry and citizens.

Administration recommends that Council adopt a maximum fire response time of 10 minutes, 90 per cent of the time, in new communities as they develop, until the long-term fire service level is funded. This would enable development to commence prior to the area meeting the long-term response target policy. This recommendation will result in a change in fire service levels in future developing communities, until the long-term fire service level is funded. This is a managed risk approach that balances service delivery, citizen safety, The City's financial capacity and enabling private investment through new community development. The response target policy would continue to be a long-term goal so that over time, new communities would receive the same level of service as the rest of the city.

#### **ADMINISTRATION RECOMMENDATIONS:**

Administration recommends that the Standing Policy Committee on Planning and Urban Development:

1. Direct this report to the 2018 March 19 Combined Meeting of Council; and
2. Recommend that Council approve, as an interim measure for new community growth areas, a maximum fire response time of 10 minutes at 90 per cent of the time.

### **PREVIOUS COUNCIL DIRECTION / POLICY**

On 2018 January 31, Council received a verbal report on a New Community Growth Strategy (C2018-0122), and as a result of that report deferred the report back on the two South Shepard reports (item 1 (c) of the 2017 July 31 Council direction) as follows:

Moved by Councillor Demong, Seconded by Councillor Chahal, that with respect to Verbal Report C2018-0122, the following be adopted:

That Council:

### **Fire Service Provision in Growth Strategy**

1. Receive the public presentation with respect to Verbal Report C2018-0122, for information;
2. Defer the South Shepard Reports, CPC2017-270 and PFC2017-0445, to be brought to the Priorities and Finance Committee in 2018 Q2, as part of the analysis of all business cases related to Growth Management Overlay recommendations.

At the public hearing held on 2017 July 31, Council directed that two reports be heard together, namely PFC2017-0445, Strategic Growth and Funding in the South Shepard Area Structure Plan, and CPC2017-270, Policy Amendment, Road Closure And Land Use Amendment, Residual Sub-Area 12c (Ward 12), East Of Stoney Trail SE And North Of Highway 22x, Bylaws 45P2017, 10C2017 and 271D2017. Council heard a presentation on the first report but did not open the public hearing on either of the two reports.

Council referred the two reports back to Administration as follows:

REFER, AS AMENDED, Moved by Councillor Demong, Seconded by Councillor Chu, that Council refer Reports CPC2017-270 and PFC2017-0445, as amended, as follows:

- 1) To the Administration to be brought back no later than the Public Hearing in 2018 March, and direct Administration to:
  - a. Have the Fire Chief, in conjunction with Calgary Building Services and independent consulting, complete a review of the Calgary Fire Department's Service Level Response Time Target policy, including an assessment of the impacts of residential sprinklers in growth areas and report back to Council through the SPC on Planning and Urban Development no later than 2018 March;
  - b. Have the Director of Calgary Building Services, in consultation with the Fire Chief, complete an analysis of best practices, policies and performance objectives for Fire response times in other Canadian Municipalities and provide a comparison in relation to National and Provincial Building Code standards to inform the Service Level Response Time Target policy review, and report back to Council through the SPC on Planning and Urban Development no later than 2018 March;
  - c. Incorporate the results of 1a and 1b, above, to inform the process for strategic growth analysis and decisions and revise recommendations on PFC2017-0445 and CPC2017-270, as necessary.
- 2) Direct Administration to undertake a review of the Calgary Fire Department medical response business model including relationship with Alberta Health Services, and return to Council through the Intergovernmental Affairs Committee no later than 2018 Q2

The responses to the 2017 July 31 Council direction noted above will be provided as follows:

- Response to items 1 (a) and (b) are set out in this report;
- Response to Item 1(c) will be provided to the Priorities and Finance Committee in 2018 Q2, as per the 2018 January deferral recommendation;

## **Fire Service Provision in Growth Strategy**

- Response to Item 2 concerning the medical response business model will be provided in a report to the Intergovernmental Affairs Committee in 2018 May.

In 2014, during Action Plan deliberations, Council directed Fire to maintain its service level through 2018 at the 2014 level, which was to achieve a first response to an emergency in seven minutes, 76 per cent of the time. This target was accepted as a short term performance goal with the long-term target remaining at seven minutes for first response, 90 per cent of the time.

On 2010 May 17 Council adopted Policy CPS033, Integration of Emergency Services into the City of Calgary Land Use, Infrastructure and Mobility Planning Policy, which identified emergency services as leading infrastructure during the development process.

On 2008 January 21, in response to report CPS2008-03, Calgary Fire Department Service Levels and Response Time Benchmarks, Council approved in principle the Calgary Fire Department's fire and rescue incident response time targets and service level benchmarks. This report established the Service Level and Response Time Targets.

### **BACKGROUND**

Calgary is a growing city. As population increases, so does the demand for land development that provides housing, employment lands, services and amenities. The City provides leadership on growth and change on the lands within its jurisdiction. The Municipal Development Plan and other Council policies provide direction and certainty to both business and communities, in support of private sector investment in housing, commercial and industrial developments. It is recognized that investment from the private sector is critical to achieving the vision for growth. For this reason, The City and the development industry are working collaboratively on initiatives related to new communities, established areas and industrial areas. The intent is to deliver outcomes that, facilitate development that meets the needs of Calgarians, and advance the goals of the Municipal Development Plan.

The City creates and encourages safe communities. Emergency protection and routes for response and public evacuation are compatible with sustainable community design, and are a key consideration in designing safe, liveable communities and the services that support them. The City's planning and building authorities work together with emergency service providers and the development industry on policies and initiatives that enhance the safety of Calgary's communities and infrastructure.

In Calgary, there is a guiding principle stated in Council's policy on Integration of Emergency Services into the City of Calgary Land Use, Infrastructure and Mobility Planning (Policy CPS033) that every citizen must have access to an appropriate level of emergency services protection. In new development areas, it is possible to provide interim servicing solutions such as temporary fire stations which may be paid for by developers. The permanent capital infrastructure, when constructed, is funded in part through Community Services charges.

Development in Calgary must comply with The Alberta Building Code 2014 (The Code). The Code is based on The National Building Code 2010 (which is the case for all provincial building codes). The Code does not dictate *where* buildings can or cannot be built. However, The Code does dictate *how* a building must be constructed. It is a stated objective of The Code to prevent the spread of fire to an adjacent structure. This objective is accomplished through exterior wall fire resistance ratings and an identified risk point for fire department response time of 10 minutes 90 per cent of the time. The Code allows for buildings to be constructed outside of a 10

## **Fire Service Provision in Growth Strategy**

---

minute fire department response time so long as the building has additional fire protection measures to prevent spread to adjacent structures.

In managing the risks associated with community building, community safety can be enhanced through design. This means design that controls fire spread, provides access for emergency vehicles, ensures adequate water supply for the fire load and locates emergency service stations and resources within the response guidelines approved by The City.

### **A history of response targets in Calgary**

In 2004 September, an assessment from the Commission on Fire Accreditation International recommended that Fire conduct an extensive analysis to respond to demographic changes and city growth to ensure it is sustainable and efficient. Fire conducted a standards of response coverage study that considered international standards and the unique needs of Calgary. In 2005 November, Fire presented the results of the study to Council (CPS2005-88). Council directed Fire to establish new response targets that were reflective of the leading international standards for response targets established by the National Fire Protection Association. Between 2005 and 2007, Fire completed an evaluation of Calgary's fire services.

As a result, the response target policy was developed and approved by Council in 2008 January (CPS2008-03). The benchmark target requires that the first fire suppression apparatus arrive at the scene of a fire incident within seven minutes, 90 per cent of the time. The response time targets also call for the ability to assemble an effective response force (ERF) of firefighters and equipment at an incident within 11 minutes, 90 per cent of the time. Currently, average Fire response time is seven minutes, 55 seconds city wide. For the purpose of planning for new urban growth and the placement of future fire stations, it is the seven minute response target that is considered as the primary measure.

### **How growth and response targets are related**

In alignment with the Municipal Development Plan, when new development is proposed in developing areas, Administration conducts a review of the application to determine whether there is sufficient capacity of transportation, utilities, and emergency response infrastructure available to support urban development. For infrastructure not yet built, the analysis addresses the means of coordinating development with the funding and financing of City infrastructure and services. Fire takes part in the analysis and advises whether the proposed development adheres to the response target of seven minutes. Historically, development has preceded construction of fire stations; the population threshold at which budget has been allocated for expansion of fire service to serve developing areas has varied widely.

Calgary Fire uses current data about performance, transportation network conditions, and emergency response capabilities citywide to calculate response times in growth areas.

### **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

Council directed Administration to complete a review of Fire's Service Level and Response Time Target policy, an assessment of the impacts of residential sprinklers in growth areas, and an analysis of best practices, policies and performance objectives for fire response times in other municipalities with a comparison to National and Provincial Building Code standards.

Calgary Building Services and Fire worked together, along with an external consultant, to respond to the specific research requests in Council's direction. The results of the streams of

## **Fire Service Provision in Growth Strategy**

---

research and analysis are set out in a number of attachments to this report, and are summarized below.

### **Research Results**

#### **Review of the Service Level Response Time Targets (Kelton, Chertow & Boyd report)**

Administration engaged an independent consultant and completed a review of Fire's response target policy, including an assessment of the impacts of residential sprinklers in growth areas. The consulting firm of Kelton, Chertow & Boyd Inc. (KCB) were engaged to provide a report on these matters. Their report is set out in Attachment 1. Their findings indicate that Calgary's seven minute response target policy is set at a level that is in line with other Canadian municipalities.

As a community develops and population increases, the volume of emergency incidents grows, and the chance of injury to citizens and firefighters rises as well. Those incidents would include structure fires, critical medical intervention incidents, motor vehicle collisions, and others. Within a higher response time window, there is higher risk as emergency response services take longer to arrive, assess the situation, and take action.

The consultant also validated the 11 minute response time target for assembling an effective response force to bring sufficient equipment and staff to the scene where an escalating and serious fire is in progress. KCB commented on the actual performance of Fire in both the time taken to assemble an ERF as well as the number of firefighters assembled and suggested that improvement was required in both of these areas.

For the part of the consultants' report that speaks to residential sprinklers in growth areas, the consultant recommended that all new homes in Calgary should be fitted with sprinklers but did not recommend extending growth beyond the current seven minute response time target based on sprinklering. KCB found that residential sprinklers are not as effective where structure fires start from the outside, nor do they mitigate the risk to citizens from extended response times for other emergency services that Fire provides, including critical medical interventions, motor vehicle collisions, hazardous materials incidents, and others.

#### **Review of other Canadian municipalities**

Administration completed an analysis of best practices, policies and performance objectives for fire response times in other Canadian municipalities and provided a comparison in relation to National and Provincial Building Code standards. This research was conducted through a questionnaire sent to several municipalities across Canada, and through follow up calls to officials in those communities. The results are set out in Attachment 2, "Municipal Comparisons."

Of the municipalities surveyed, Administration found that other municipalities are largely conforming with the National Building Code standard and in some circumstances may exceed a 10 minute fire response in developing areas. Generally, the municipalities surveyed indicate that they plan capital and operating funding growth to cover fire service strategically based on coverage and response time. In two cases, stations were closed and relocated to ensure coverage for growth areas. With one exception, Administration did not find any municipality that deters development of lands that do not meet fire emergency response standards. In all cases,

## **Fire Service Provision in Growth Strategy**

---

each respective fire department participates in the planning process and can identify a need for fire and emergency services, but this is generally not used to make development decisions.

### **Alberta Building Code requirements**

The Code requirements for structures are based on an assumed 10 minute fire response time, 90 per cent of the time. If buildings are constructed in areas where the fire response time exceeds this standard, they must comply with the Code's enhanced construction requirements to mitigate the risk of structure fires. An overview of these requirements is set out in Attachment 3. At a high level, those requirements include:

1. Residential sprinklers – in every room except small bathrooms, closets and garages (attached and detached); or
2. Increased spatial separation of buildings; or
3. Combination of the following mitigations:
  - a) Limits regarding the maximum window area on the side of the building;
  - b) Additional fire resistant materials on interior and exterior walls; and
  - c) Face of the soffit (part of the edge of the roof) cannot be within 18 inches of the property line.

From both Administration's research and from the results of the consultants' report, it has been shown that sprinklers impede fire spread within the structure and increase the ability for occupants of a structure on fire to escape. The other measures (listed under points 2 and 3 above) work to reduce the spread of fire from one structure to another. It is noteworthy that if sprinklers are installed, the other measures are not required, according to the Code.

Despite the research findings regarding residential sprinklers and the other fire mitigation tactics mentioned, Administration was unable to find an enforcement mechanism that would ensure sprinklers were implemented for communities built outside of the current seven minute response areas. Administration would have to rely on a voluntary agreement with industry partners to include sprinklers as part of their development plans, which would be difficult to enforce.

While Administration supports the use of sprinklers to reduce the spread of fire, it cannot be recommended that residential sprinklers be used as a fire mitigation policy to support development beyond the current response target policy, due to the enforcement challenges.

### **Options to consider in making growth decisions**

Council policy requires that The City must consider the provision of emergency services when making growth decisions. It is typically not possible at the outset of new community development to immediately meet the long-term response target policy for fire service; this is a target that should be reached over time. Nonetheless, an acceptable level of emergency services must be provided, as there are risks for the population residing there. In making decisions about how to enable new greenfield growth areas to proceed in Calgary, Administration considered the options outlined in Table 1 below.

To develop the options below, Administration considered the following information:

1. Currently, Calgary Fire adheres to the following response time requirements, as directed by Council:
  - ActionPlan 2015-2018:

### **Fire Service Provision in Growth Strategy**

- Short-term performance target: 7 minute response 76 per cent of the time to fire and rescue incidents for 2015-2018.
- Long-term performance target: 7 minute response 90 per cent of the time for all emergencies.
- Current service level:
  - Current service level meets the Council directed target of 7 minutes, 76 per cent of the time.

Additionally, the following requirements for building are established by the Code as related to fire response:

- 90 per cent of the time, fire response times must be within 10 minutes, or additional mitigations are required for construction, as outlined above under “Code Requirements”.

## Fire Service Provision in Growth Strategy

Table 1: Options for interim response times for new community growth areas

	<i><b>Option A: Not Recommended</b></i> <u>Maintain current fire response targets in new community growth areas</u>	<i><b>Option B: Recommended</b></i> <u>Development area within maximum 10 minute fire response time in new community growth areas</u>	<i><b>Option C: Not Recommended</b></i> <u>Development area beyond maximum 10 minute response time with mitigation, in new community growth areas</u>
<b>Advantages</b>	Does not create different levels of service for different areas  Most closely aligns with fire industry standard for response time  Consistent with current Council direction for Fire	Lack of funding for capital and operating costs to provide fire service will not delay development of land that falls within this response time area*  No construction mitigation required  Lessens demand for capital and operating funding while communities develop	Lack of funding for capital and operating costs to provide fire service will not delay development of land that falls within this response time area*
<b>Disadvantages</b>	Slows development in outlying areas  Required capital and operating funds to maintain this level of service	Increased level of risk for ASPs between a seven and 10 minute response time area  Creates different levels of fire service and risk between currently developing and established communities and future developing communities	Creates increasingly disparate levels of fire service and risk between developing and established communities  By increasing the difference in service levels in developing communities by this magnitude, reaching consistency with the rest of the city will be extremely difficult to achieve  Increases timeline for other leading infrastructure to be viable in developing areas  Construction mitigation as per Code required

\*other factors may delay development of land



## **Fire Service Provision in Growth Strategy**

---

### **Option A (NOT RECOMMENDED): Maintain current fire response targets in new community growth areas**

The first option considered was to uphold the current fire response targets for developing communities. This option aligns with the direction from Council as part of the Strategies and Performance Measures within the 2015-2018 Action Plan.

### **Option B (RECOMMENDED): Development area within maximum 10 minute fire response time in new community growth areas**

Administration is recommending that Council adopt this option: a maximum fire response time of 10 minutes in new communities as they develop. Adopting this servicing standard for fire response in developing greenfield communities will enable growth to occur without requiring additional mitigations. However, it should be noted that this option does increase the risk to the public and property in these areas, as it creates a different response level in new developing communities as compared to established communities. It also changes response levels from current state, so existing developing communities will have a faster emergency response time than future developing communities, if this option is approved.

As part of this option, Administration may be required to bring capital and operating funding requests through annual service planning and budget discussions to support long term fire service provision in newly developing communities. In these cases, land use redesignation would not be granted and development could not proceed in areas beyond the interim response standard until Council approval for capital and operating funding is in place to maintain the long-term Service Level and Response Time Target policy.

This means that when growth in newly developing communities is anticipated to reach 10 minutes, a plan to request budget to support the provision of interim fire service should be in place. If a fire station is then built and staffed, the developing community standard should be maintained or improved upon over the course of community build-out. This will support progress toward the long-term goal of a seven-minute response time and full fire service provision, ensuring that new communities will eventually be provided with service that is consistent with the city wide response target policy.

### **Option C (NOT RECOMMENDED): Development area beyond maximum 10 minute response time with mitigation, in new community growth areas**

This option considers development beyond 10 minutes, with construction mitigations as outlined in the Code. However, the risk to people and property is deemed too high at this service level, and creates a large disparity in service between established and developing communities. The lag in funding for other infrastructure in developing areas compounds the effect of this disparity in service level, and therefore reaching consistency with the rest of the city will be extremely difficult to achieve. It is for these reasons that Administration does not recommend Option C.

### **Implementation**

This recommendation changes the service standard for developing areas from Council's current direction for fire service.

From this report, Council's direction will be incorporated into the analysis of growth management overlay business cases related to new community growth areas. Each business case will need to be analyzed on a case-by-case basis to determine if a 10 minute fire response can be met in the area based on its specific conditions. Recommendations stemming from

## **Fire Service Provision in Growth Strategy**

developer business case submissions will first be brought to Council, through the Priorities and Finance Committee in 2018 Q2.

### **Stakeholder Engagement, Research and Communication**

Several stakeholders were engaged by KCB and City staff including developers and builders, business units within Administration, and the Calgary Firefighters Association Local 255. In addition, a series of meetings were held between Administration and representatives of the development industry over a period of several months.

In general, the major themes of the engagement are that Fire's services are meeting citizen need for emergency fire services, residential sprinklers are seen as having positive effects, and that current levels of service are in line with what citizens expect.

The findings of the engagement, and highlights of the Community Services Citizen Perceptions and Expectations Survey are outlined in Attachment 4. Attachment 5 provides BILD Calgary's responses to each of KCB's recommendations.

### **Strategic Alignment**

Relevant provisions of the Municipal Development Plan include objective 2.5.4 to "create better connectivity in future communities for walking, cycling, and street networks, while also increasing access and reducing response times for emergency services." The Municipal Development Plan notes that "research shows that increased connectivity has a number of benefits, including enhancing public safety by reducing response times for emergency services." This report aligns with Volume 2, Part 1 of the Municipal Development Plan, the New Community Planning Guidebook, which outlines a decision-making process for Council to decide on the coordination of growth and servicing within a plan area. The decision-making process (s.4.3, Urban Growth Policies) provides that emergency services are to be considered in growth decisions.

The report also aligns with the following Council Priorities:

- A Prosperous City: will support the advancement of purposeful growth which will attract private investment and support a competitive land market.
- A Well Run City: promotes alignment of budgets with quality service delivery to achieve City priorities.

### **Social, Environmental, Economic (External)**

This report supports the development of safe communities by providing an interim service standard that will enable growth to occur in newly developing communities.

### **Financial Capacity**

#### ***Current and Future Operating Budget:***

There are no immediate impacts to the current operating budget associated with this report. There will be impacts to future operating budgets associated with operating new fire stations in the future. The interim measures recommended in this report could defer future operating expenditures.

## **Fire Service Provision in Growth Strategy**

---

### ***Current and Future Capital Budget:***

There are no immediate impacts on the current capital budget. There will be impacts to future capital budgets if and when Council approves new fire stations for growth areas in the future. The interim measures recommended in this document could defer future capital expenditures.

### **Risk Assessment**

Approving the recommendations in this report will enable growth to occur in areas that are currently outside the seven-minute target for fire response times. There is a risk that allowing growth in new communities with a longer fire response time will make it difficult to communicate the service level and manage citizen expectations for service in new communities. Citizens moving to those communities may expect fire service which aligns with the rest of the city right away, whereas this recommendations delays that service level.

There is a risk that requested budgets cannot be prioritized at a future date. If the capital and/or operating requests for permanent fire service aligned with long term targets are not granted, the developing community service standard will no longer be met for the areas of the community beyond that range. This could mean that further development would need to be delayed until a station is approved, resulting in an incomplete community; or a lower level of service would become the standard.

There is a risk that there will be a lag between the time that the developing community service threshold is met, and the time that infrastructure is built and operational. If this occurs there will be a lower level of service provided than is specified in the developing community response target and could impact service levels in existing communities. Furthermore, there are communities currently being developed that lie outside the seven-minute target, and are waiting for fire service to be prioritized; approving the recommendations in this report will add to that waiting list.

Approving the recommendations in this report also presents a risk of opening more new communities and creating inefficient service delivery for other City provided services. Additionally, it may result in a disparity in service levels between established and developing communities. The time to reach the goal of complete communities may be extended.

There are risks that remain in developing areas beyond the seven minute response window associated with other incidents that Fire responds to, including motor vehicle accidents, hazardous materials, and critical emergency medical incidents.

Should Council choose not to approve the recommendations in this report, some applications for growth may not be approved, and development of land in Calgary may slow or be deferred until capital and operating funds are available to provide all necessary infrastructure and services. Alternatively, developers may choose to move their focus to other towns or cities around Calgary, or other cities in Canada who do follow the National Building Code standard for fire response times. The associated growth in taxation base could accrue to those other communities instead of Calgary.

Finally, there is a risk that approving this recommendation will have less impact than anticipated on growth areas, as other factors may influence the pace of growth.

**Planning & Development and Community Services Report to  
SPC on Planning and Urban Development  
2018 March 05**

**ISC: UNRESTRICTED  
PUD2018-0173  
Page 12 of 12**

## **Fire Service Provision in Growth Strategy**

### **REASON(S) FOR RECOMMENDATION(S):**

This report provides Council with a framework to approve development ahead of The City having capital and operating funding available for permanent fire response services aligned with the long-term Service Levels and Response Time Targets. This is a practical and interim solution to enable growth to occur.

### **ATTACHMENT(S)**

Attachment 1 – KCB Consulting Final Report  
Attachment 2 – Municipal Comparisons  
Attachment 3 – Alberta Building Code requirements in relation to fire response time  
Attachment 4 – Summary of Stakeholder Engagement  
Attachment 5 – BILD Calgary's Response to KCB's Recommendations