

Fire Department
Deployment Models to
Address Southwest
Growth Node and
Citywide Response
Capacity

August 27, 2024



Fredericton

Fredericton Public Safety Committee: April 11, 2024

Acknowledging the Fire Service Review received August 2023, and as an initial step towards developing a Fire Master Plan, mayor and council direct the Fire Chief to work in collaboration with the CAO and Treasurer to develop multiple deployment options, for presentation to this committee, to address the growth experienced in the City of Fredericton, with impacts on risk, finances and staffing.

Bottom Line



Up Front

1. Station 4 (Royal Road) will need renovation or replacement within the next 20 years.
2. Depending on future growth, the northeast growth node may eventually justify an additional fire station in the Barker's Point area.
3. Fredericton needs an additional fire station to serve the southwest growth node and to contribute to the Fredericton Fire Department's citywide response capacity.

2024 Fire Department Master Plan Process:



- August 2023: (Met with council) Fire Service Review, Community Risk Assessment

- Early 2024: Reviewing data, drafting framework

- Early-Mid 2024: Fire Station Arrangement Study

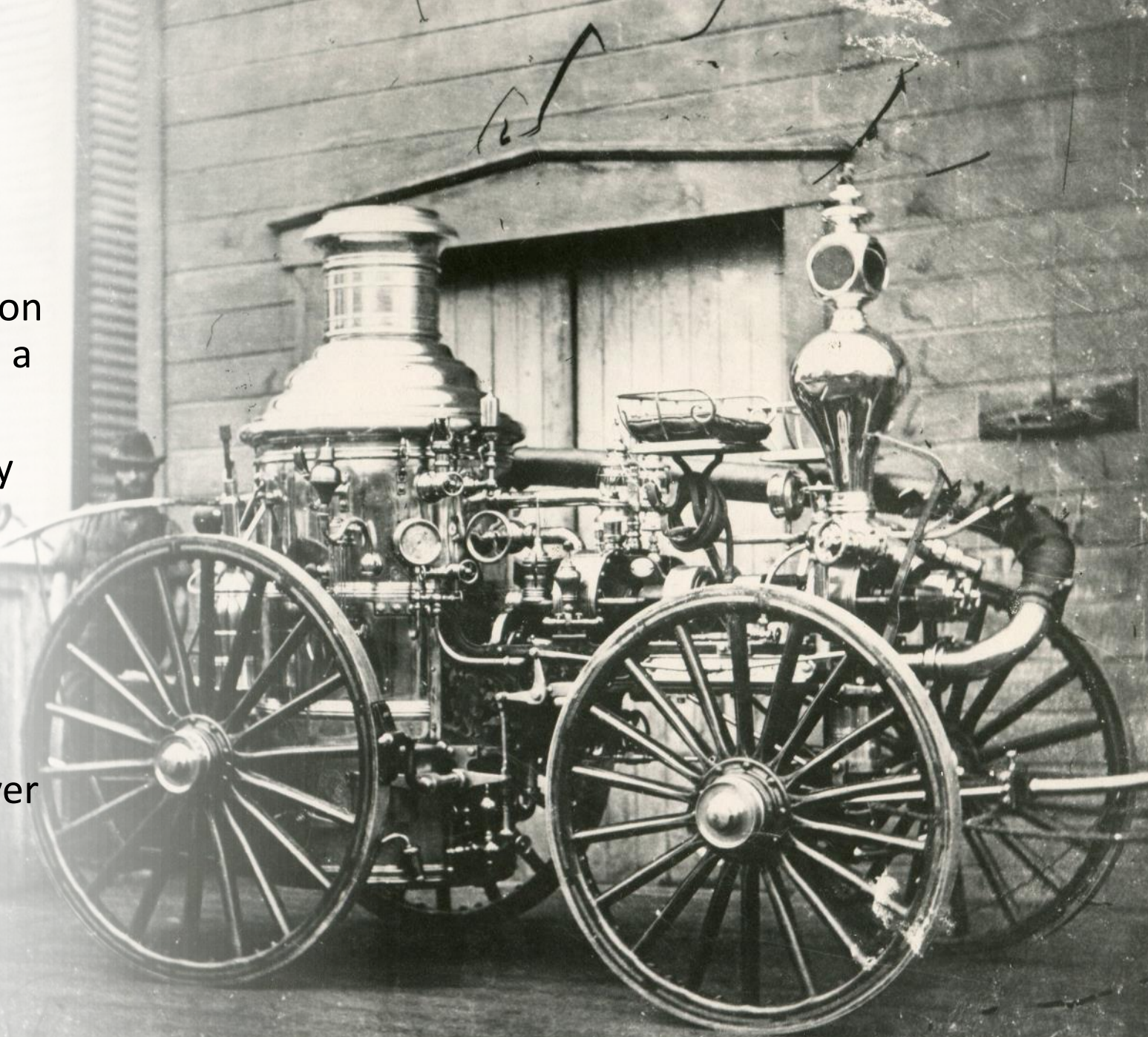
- **YOU ARE HERE**

- Late 2024: Completion and presentation of proposed Fire Master Plan

From a town to a city:

- For over two hundred years, Fredericton has been growing and developing into a smart and sustainable city.
- All phases of growth in our community were important and came with their unique opportunities and challenges.
- The Fredericton Fire Department has adapted several times to meet the changing needs of the city.
- The last major adaptation occurred over 45 years ago.

The future is bright. Let's be ready.

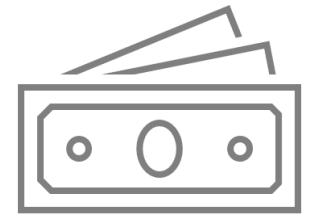


Today's reality

- Your Fredericton Fire Department protects:
 - Lives of residents (70,000 +), daily population swell (13,000), and guests
 - Property: \$10.15B assessed property, plus other insurable and non-insurable
 - Environment: 208 km² +, including forest and wetlands
- from threats such as:
 - Fires
 - Accidents (workplace, traffic, home & community)
 - Hazardous materials releases
 - Climatic events
 - Intentional incidents



34,000 +



\$10.15B +



208 + km²

Today's reality

- Fires

- 600 + per year (combined)
- 30 + structure fires are the ones that are publicized
- Early delivery of quality service saves homes, property, parks, and forestland



600 +

- Motor vehicle accidents

- The FFD is the primary service provider for MVCs (530 in 2023)
- Attend moderate to major MVCs, not fender-benders
- Services include detanglement, primary medical care, and protection of the environment



**530 in
2023**

What will define the next chapter for your Fredericton Fire Department?

- A fire department's service model must adapt to the risks in their communities.
- While residents and firefighters alike will enjoy innovations in building design and developments in safety technology, both will continue to encounter challenging risks:
 - Lightweight construction
 - Tall/long apartment buildings
 - High-density building arrangements
 - Underground parking
 - Electric vehicles
 - Petroleum-based fabrics and flammable surfaces
- **Densification amplifies these risks.**



Municipal Plan Growth Nodes

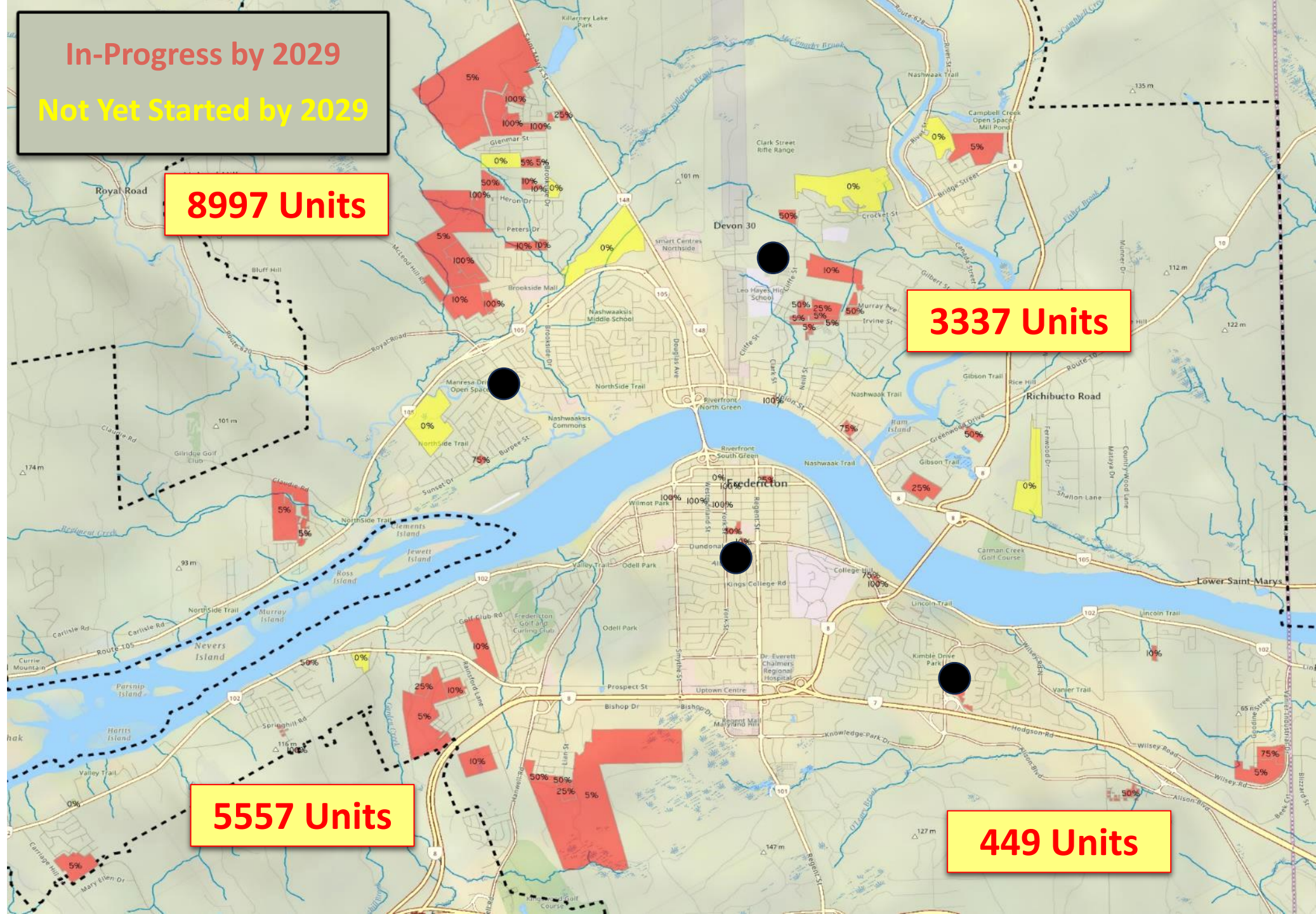
In-Progress by 2029
Not Yet Started by 2029

8997 Units

3337 Units

5557 Units

449 Units



What is the standard for response times?

- NFPA 1710 – Standard for the Organization and Deployment Services by Career Fire Departments:

| Benchmarks | Response Objectives |
|-------------------------|---|
| Alarm answer & dispatch | 79 seconds 95% of the time |
| Turnout – Fire | 80 seconds |
| Turnout – EMS | 60 seconds |
| First-due engine | 240 seconds 90% of the time (travel time) |

NFPA 1710 “effective response force”

- Fire in a 2000 square foot two-story house (low-hazard)
 - First engine company in 4 minutes
 - 17 firefighters on scene by 8 minutes
- Fire in a strip mall or apartment building (medium-hazard)
 - First engine company in 4 minutes
 - 28 firefighters by 8 minutes
- Fire in high-rise (high-hazard)
 - First engine company in 4 minutes
 - 43 firefighters on scene by 10:10



Return on Investment

A healthy service delivery model strengthens the local economy by:

- Maintaining business continuity through reduced property loss, allowing businesses to remain open, or reopen sooner
- Protecting adjacent properties from fire losses
- Administering a robust fire prevention program to reduce the number and severity of incidents in the community



Photo by Joe Gallant

Socioeconomic Impacts

A healthy service delivery model strengthens the community by helping residents and businesses feel safe and confident in the protection of their lives, homes and property.

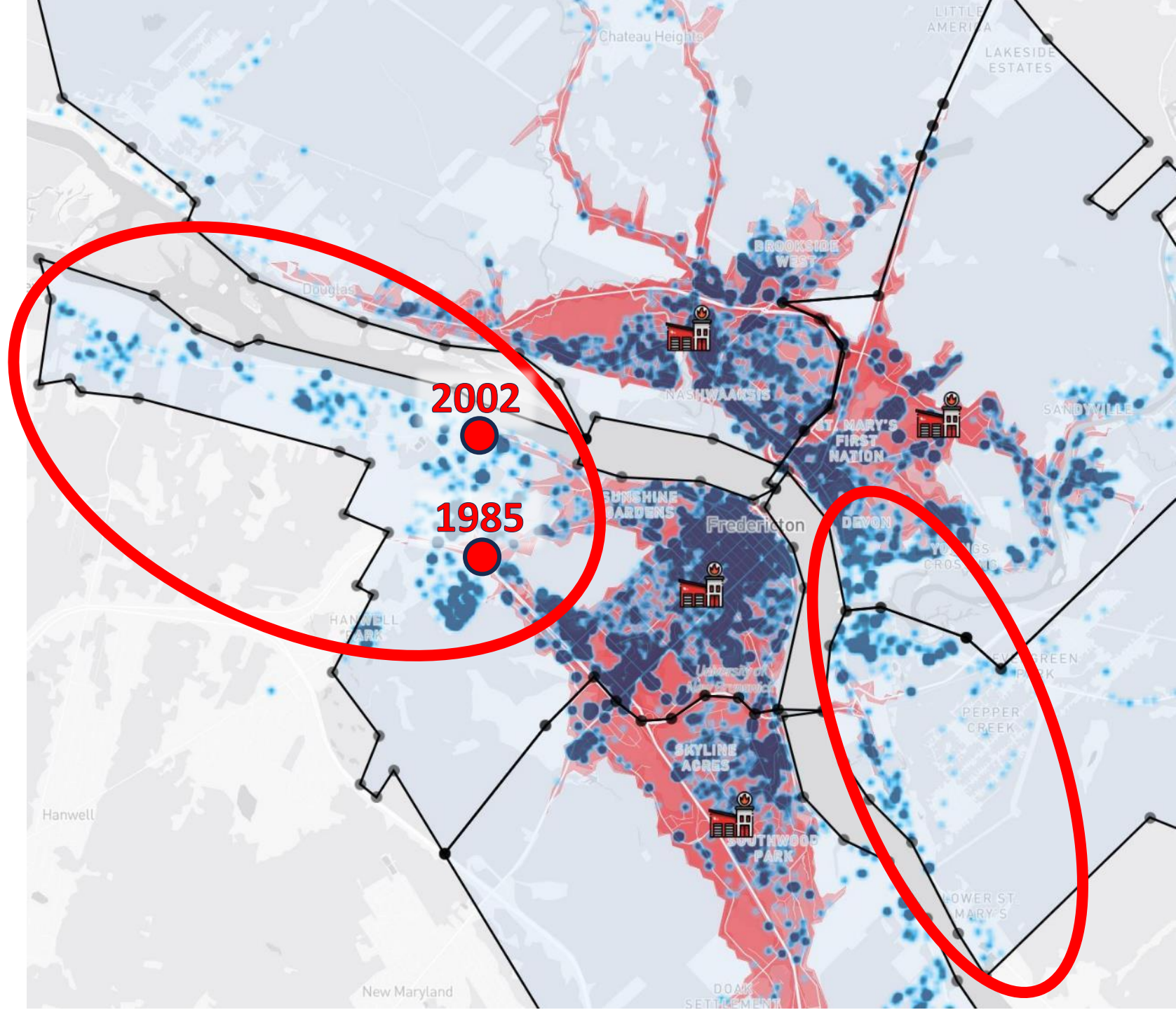
This sense of security promotes healthy living and stabilizes economies through the affordability of homes and insurance, and through economic investments in the community.



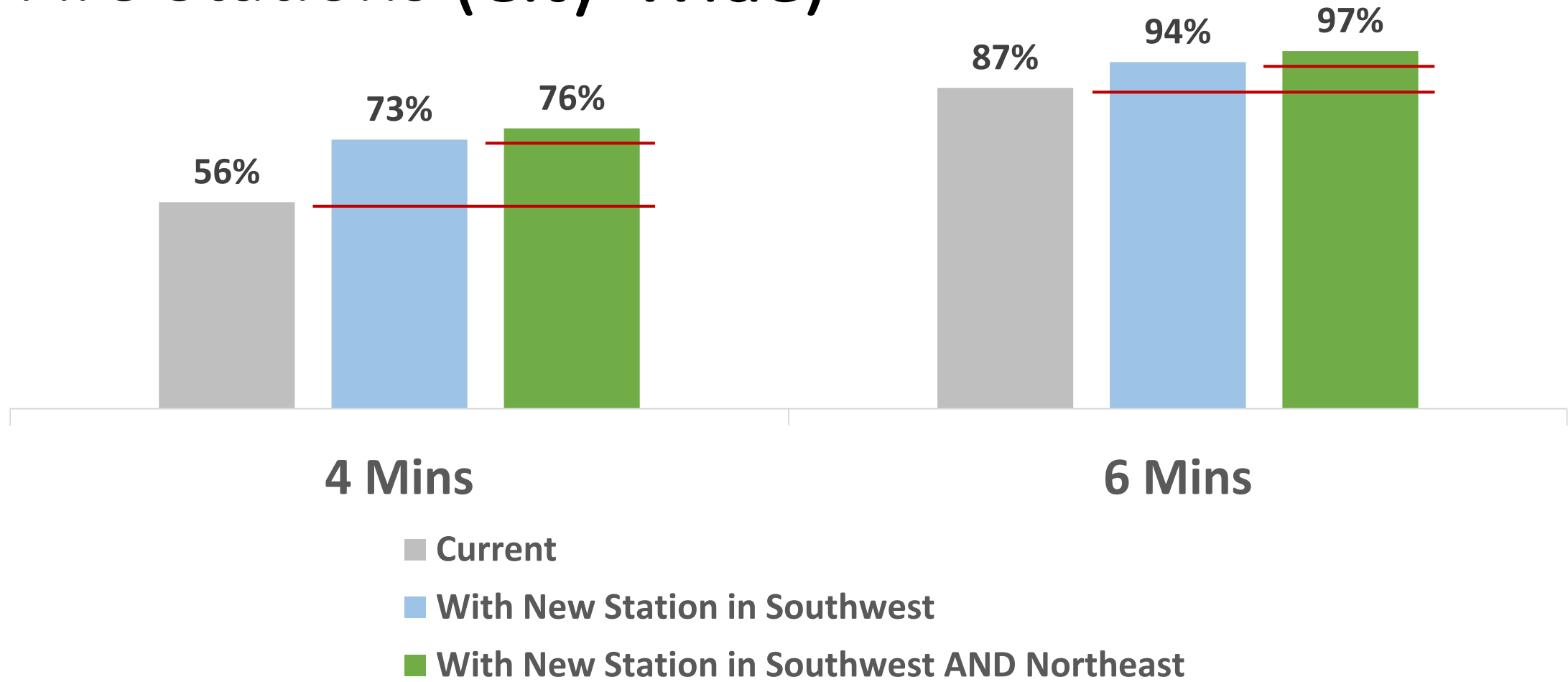
Current Conditions:

Incidents 2021 – 2023 (inclusive)

- Southwest:
 - All Call Types: 1943
 - **Fire / Rescue: 677 ↑**
 - Medical: 1266 ↓
- Northeast:
 - All Call Types: 950
 - **Fire / Rescue: 364 ↑**
 - Medical: 586 ↓



Response Time Achievement With Additional Fire Stations (City-Wide)



Options to Address Growth in Fredericton



Status Quo

- Current service levels need improvement
- Fire department service delivery decreases as city population increases

Relocate York St. Fire Station

- Exposes East-Downtown to higher risk

Additional Fire Station(s)

- Enhances public safety for southwest growth node, and elevates the FFD's city-wide capacity

Questions



Question 1: To maintain or improve service levels, does Fredericton need an additional fire station(s)?

Question 2: If yes, where?

Question 3: If yes, what are the impacts on risk, finances, and staffing?

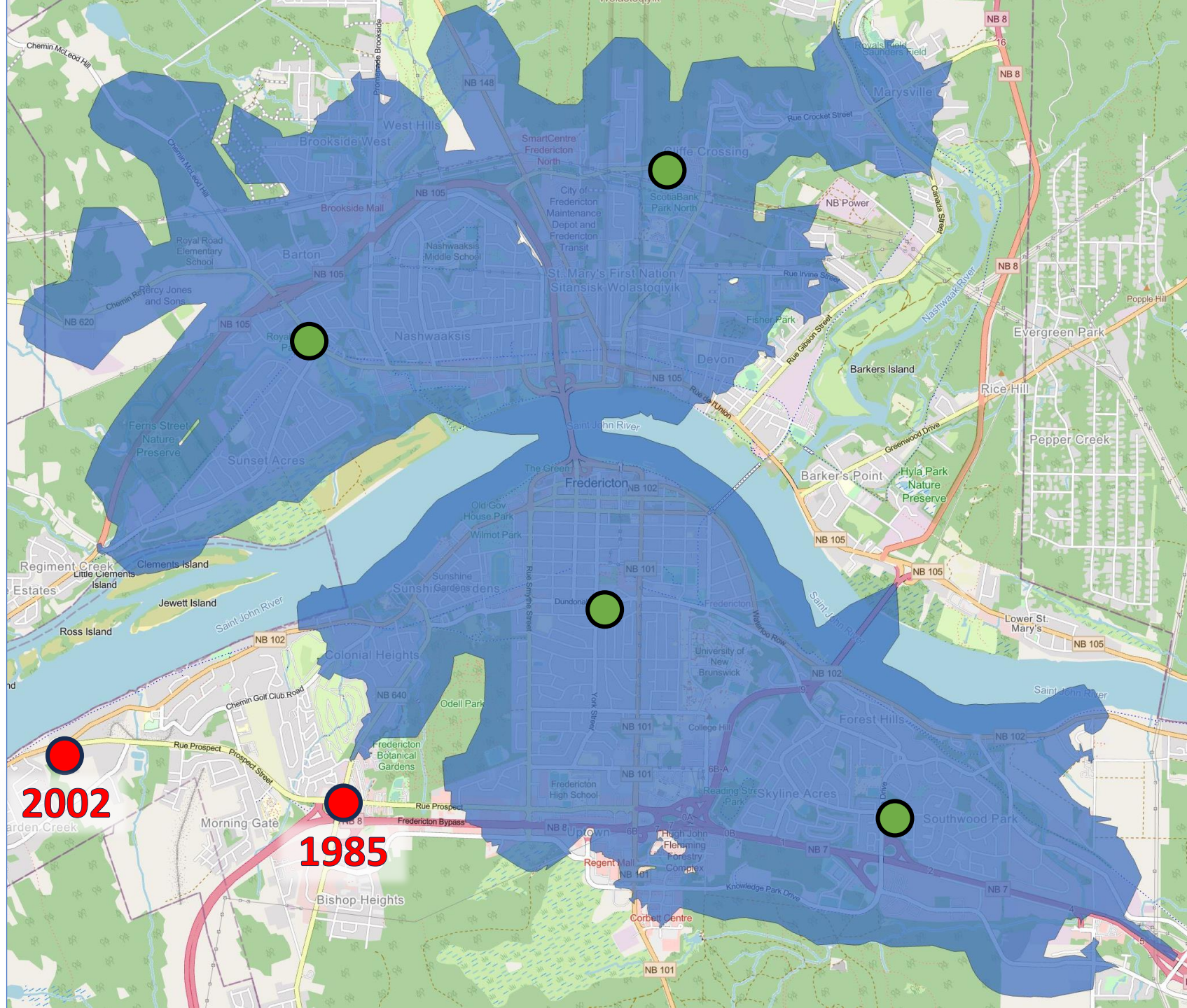
Question 4: What additional factors should be considered?

National Fire Protection Assoc.
and
Fire Underwriters Survey:

Four-Minute Drive Time (Status Quo)

Four-minute drive times are
an important benchmark
recognized by FUS and NFPA.



- Existing fire station
- Recommended fire station, and year of fire service review

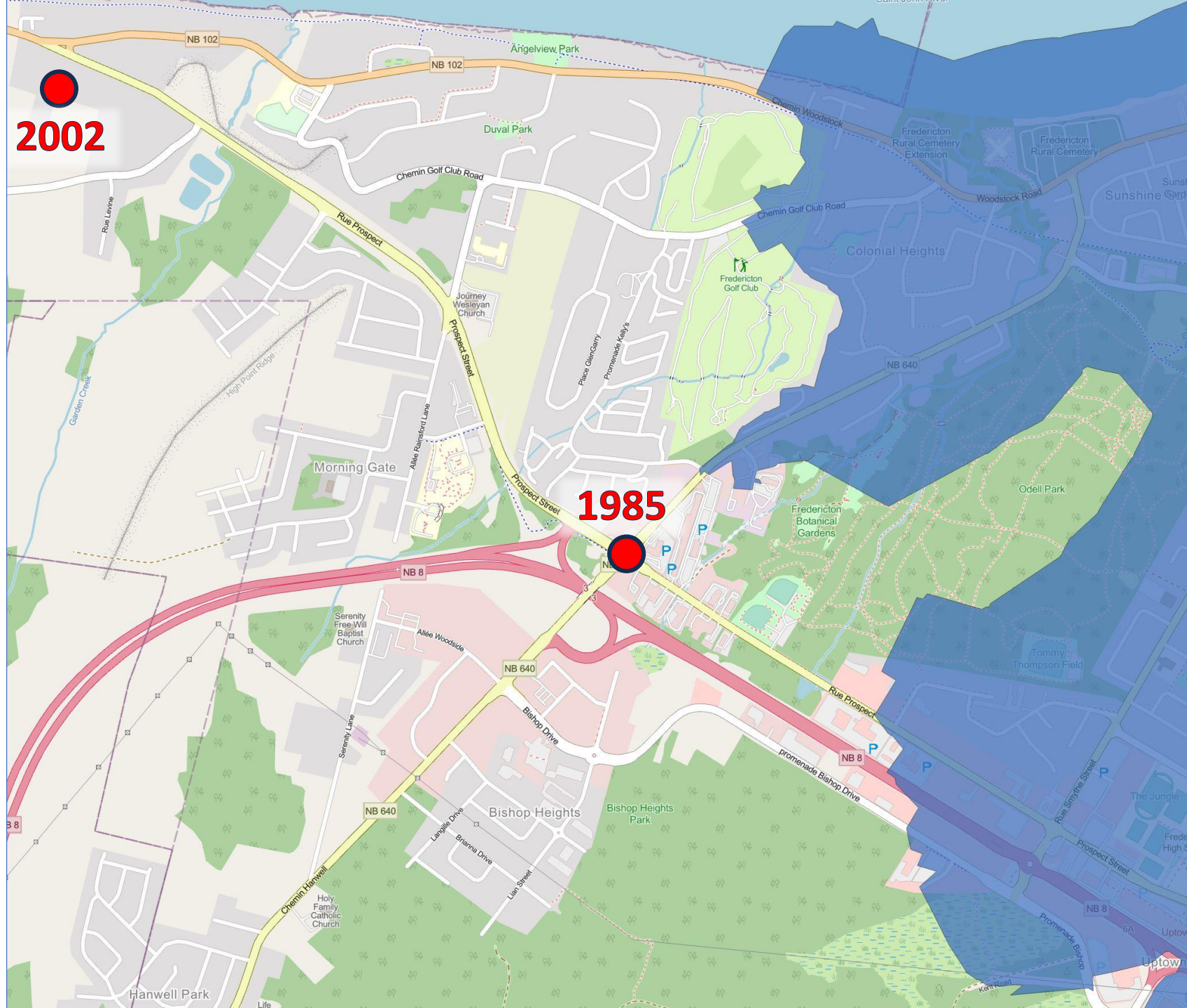


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Bishop-Hanwell-High Point

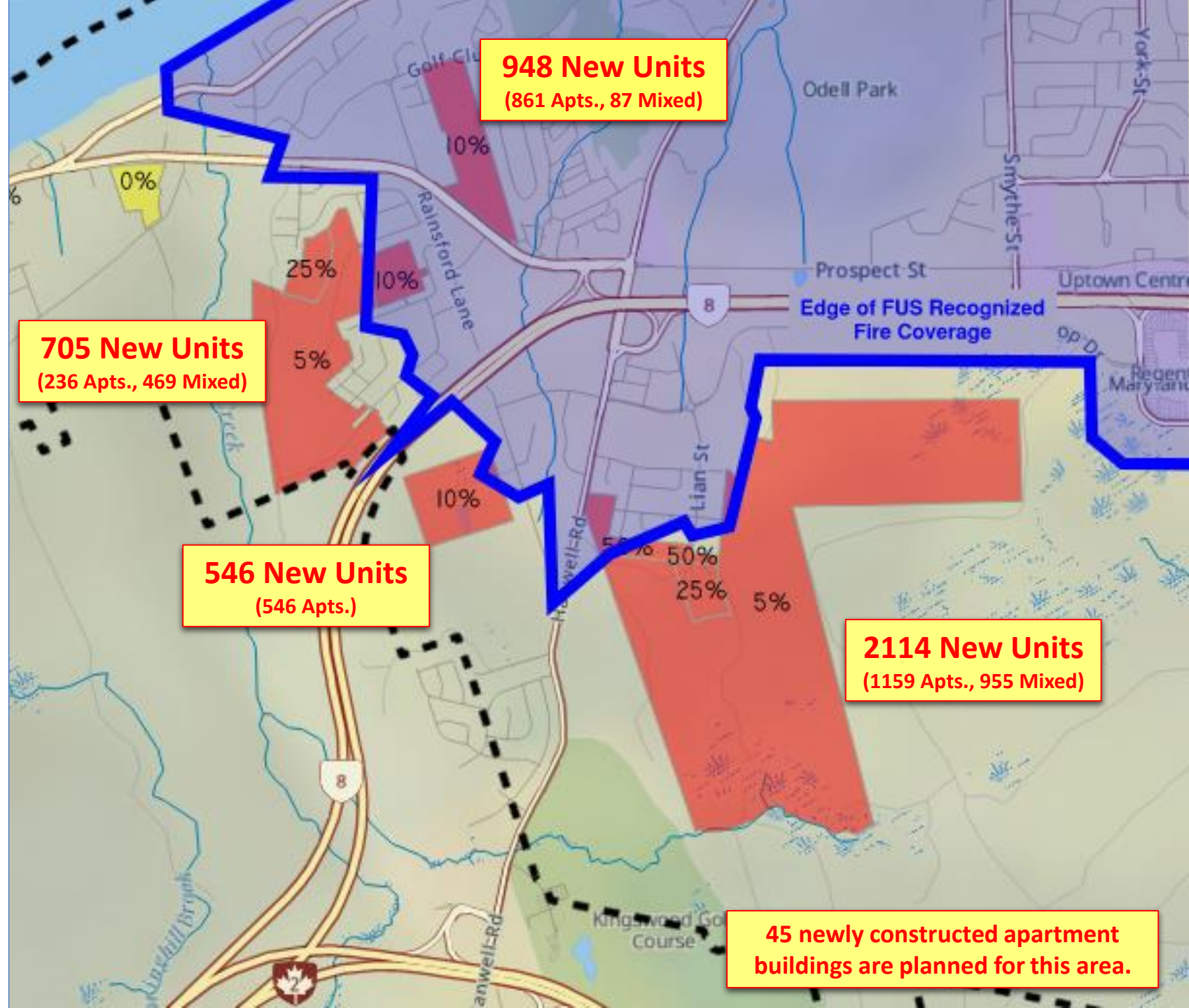
Fire Underwriter Survey 5km Response Boundary

“Bishop-Hanwell-High Point has been steadily growing with a mix of housing.

Future development will include commercial amenities clustered in a mixed-use node near a community park and should include an elementary school that students can walk to.

Growth of 6,000-7,000 people will be planned for this area.”

Fredericton Growth Strategy



Bishop-Hanwell-High Point

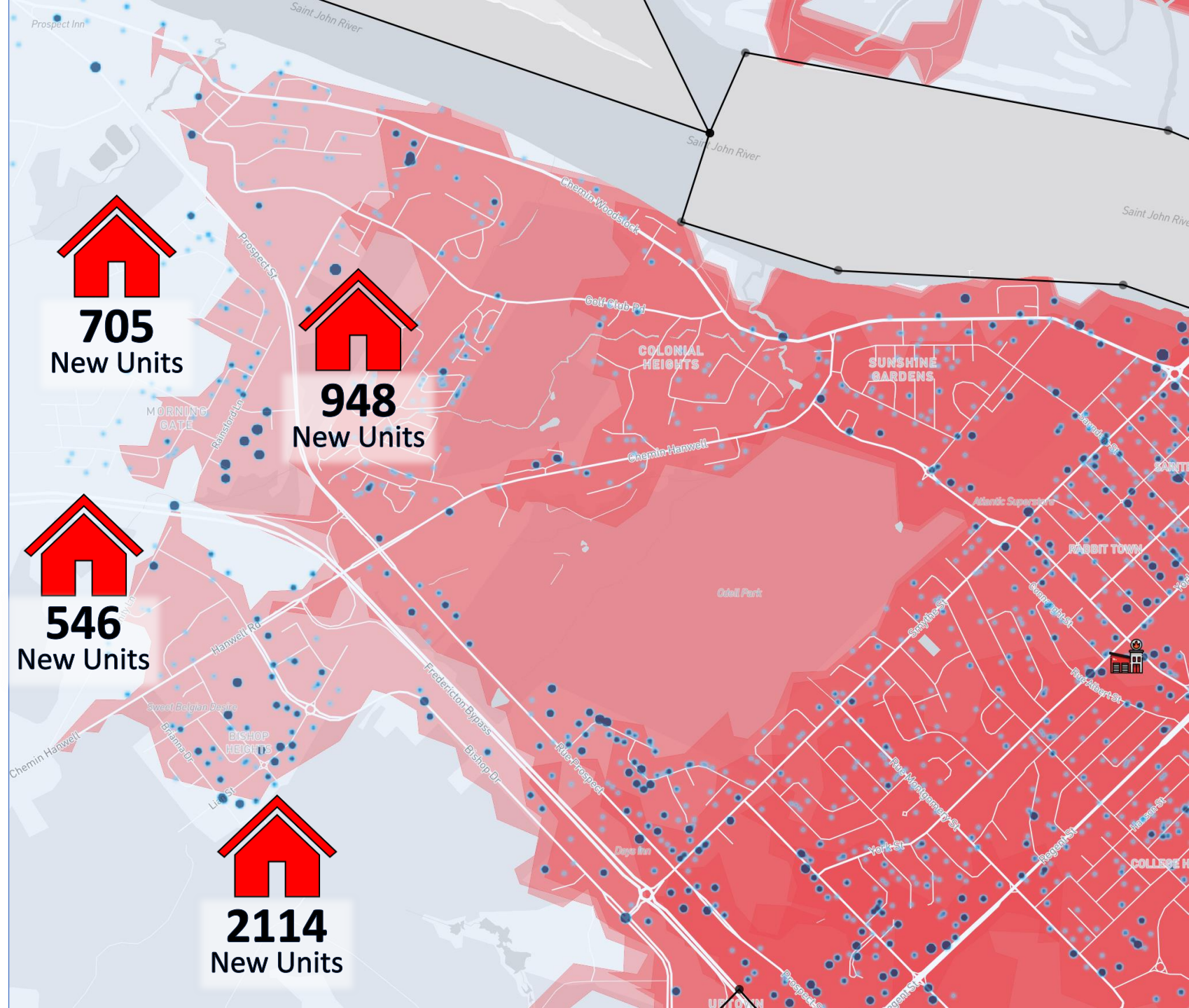
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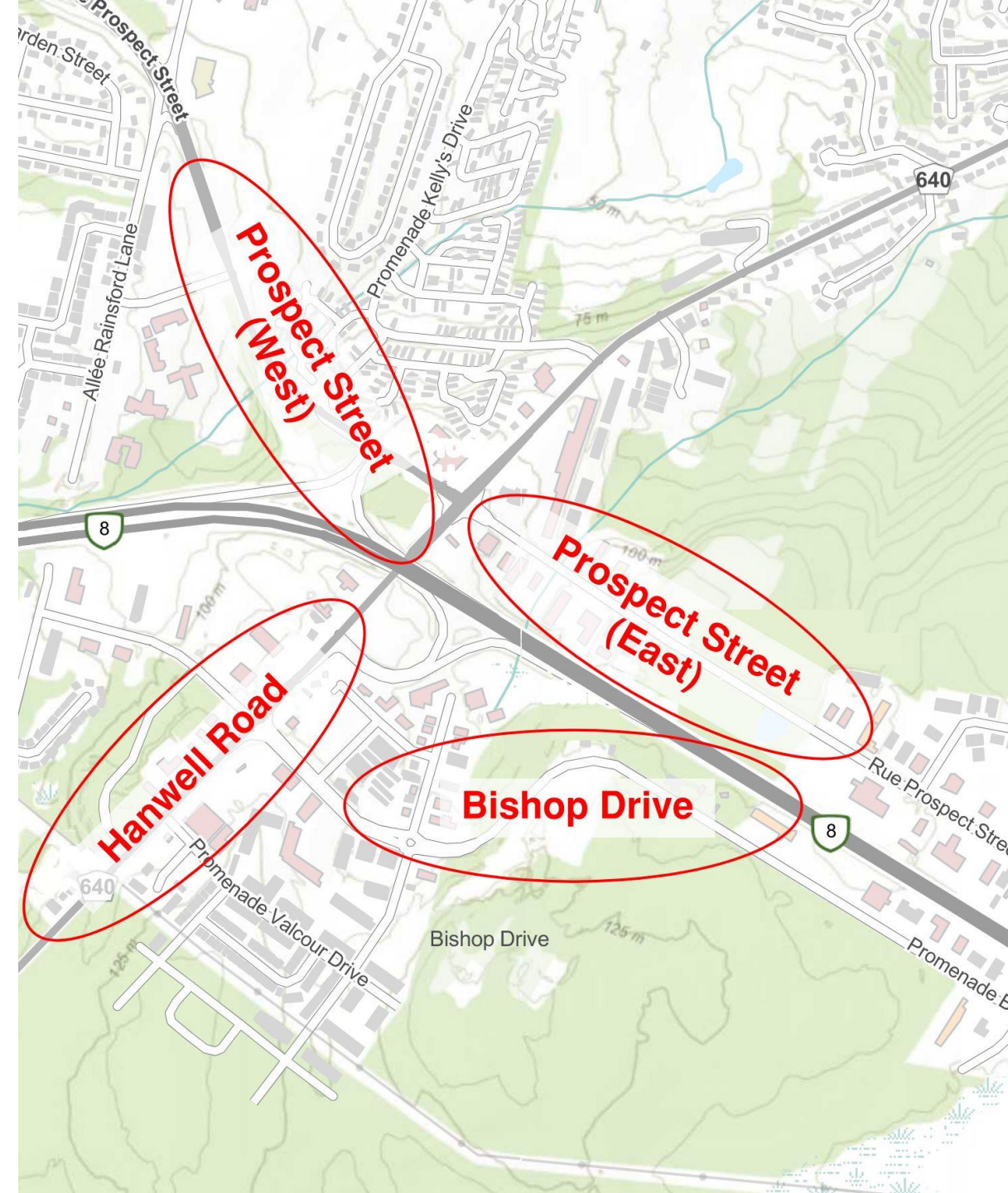
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Fredericton Growth Strategy



Evaluated Options

- Status Quo:
 - 520 York St (Fredericton Fire Station 1)
- Relocation of Station 1:
 - Waggoners Ln
- New Fire Station (Southwest)
 - Prospect Street (East)
 - Prospect Street (West)
 - Bishop Drive
 - Hanwell Road



Evaluation Criteria



- Evaluated for ability to mitigate risk
 - Improvement to response times
 - Enhancement to city-wide response capacity
 - Improvement of insurance grading
 - Adequacy for future growth
 - Traffic safety
 - **Maximum risk mitigation score = 36**

Evaluating Response Times

Single Station Performance

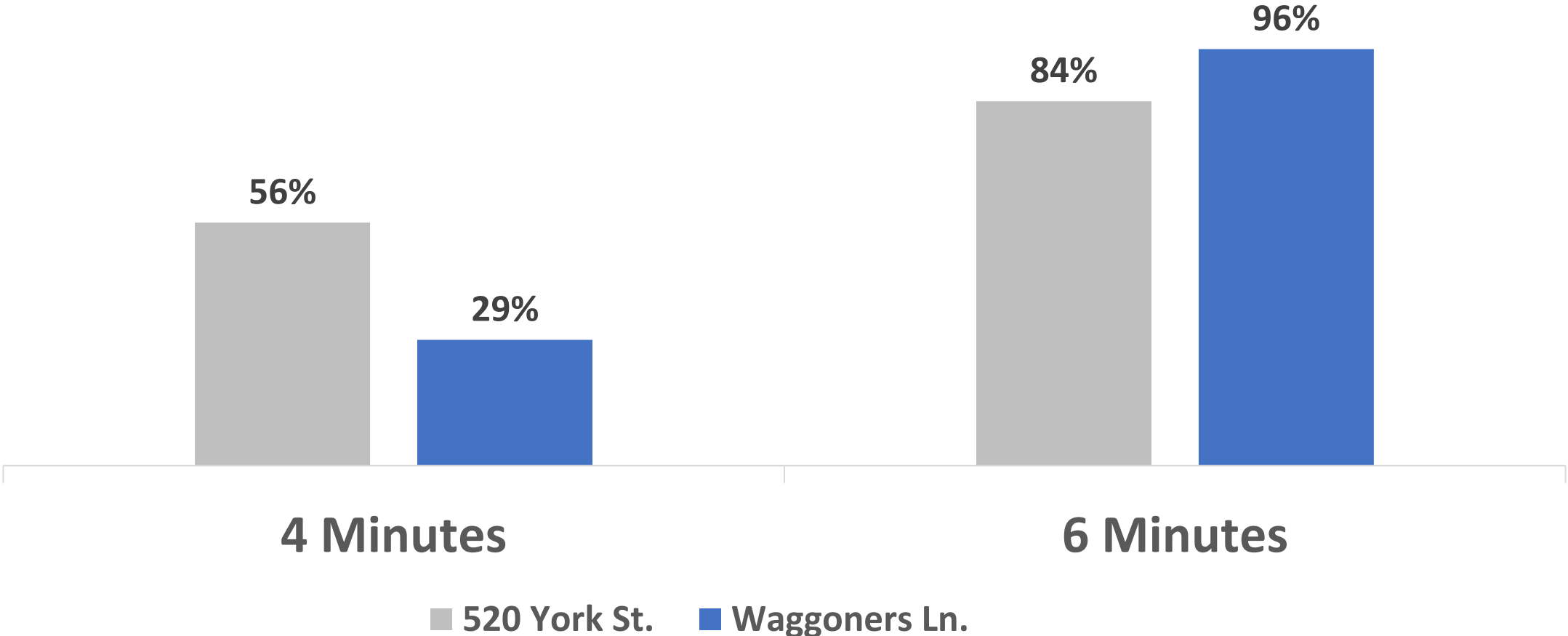
Evaluating the response time performance of one location.

City-Wide Performance

Evaluating how the location's performance contributes to the overall response capacity of the Fredericton Fire Department as a whole (all stations combined).

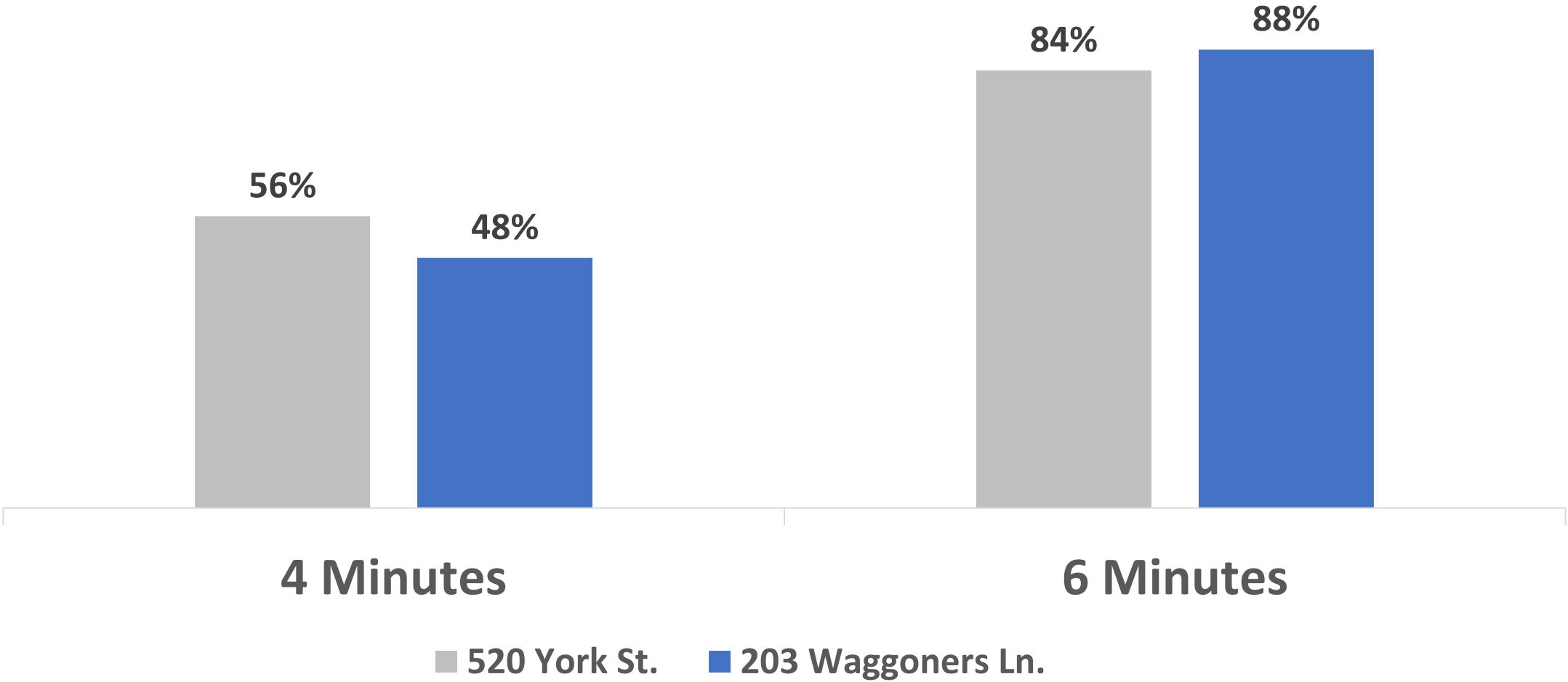
Status Quo & Relocating York Street Fire Station

Target Response Time Achievement (Single Station)



Status Quo & Relocating York Street Fire Station

Target Response Time Achievement (City-Wide)



A fire station near the southwest growth node would address:

Improved Response Times | Sustained Protection of the South Core

Improved City-Wide Fire Protection

Improved Protection for Economic Development

Improved Affordability of Insurance | Enhanced Disaster Preparedness

Continuity of Protection | Threats From Building Arrangement

Responses Hampered by Rivers | Vertical Response Times

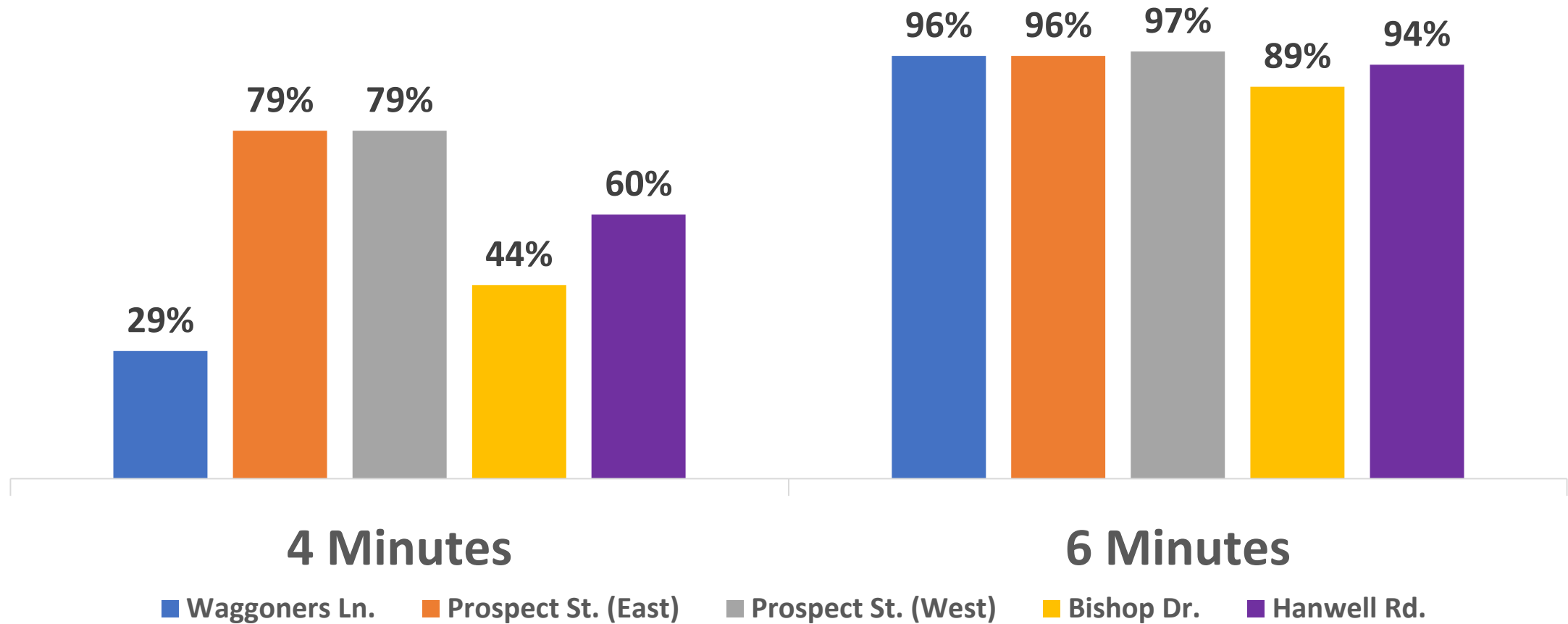
Improved Community Accessibility & Outreach



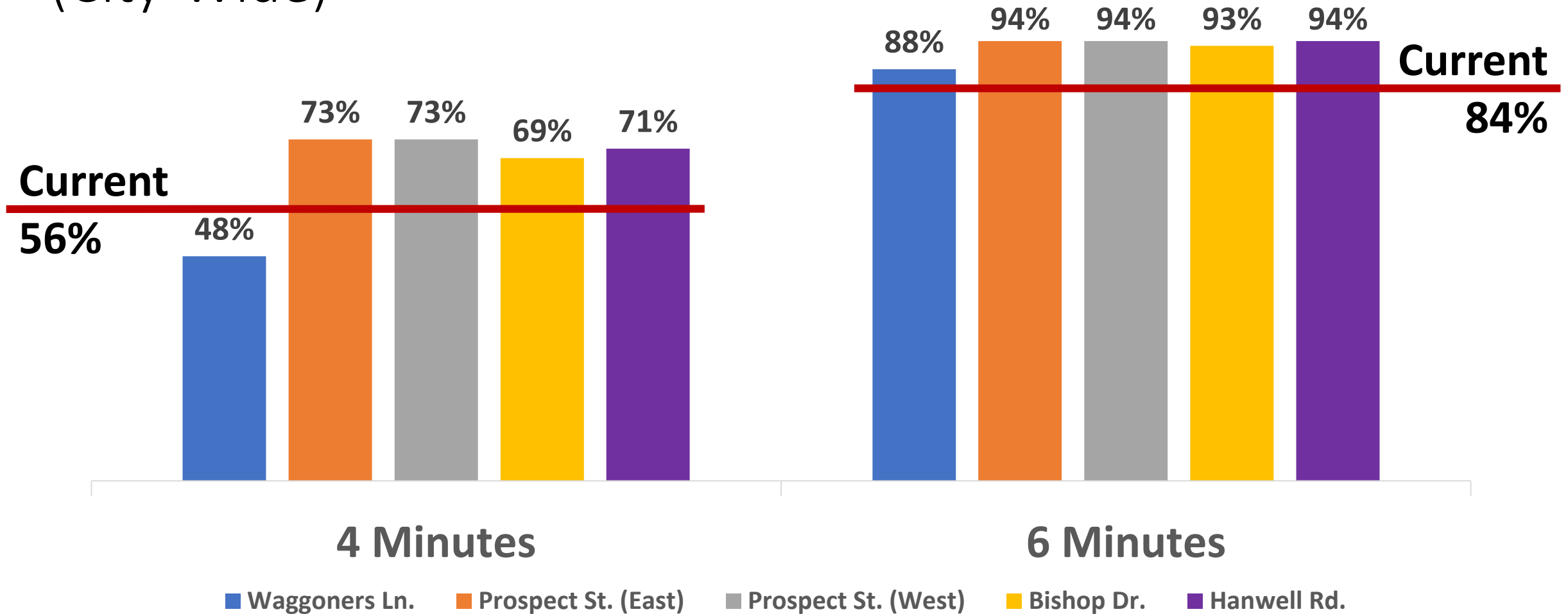
Partnership Opportunities

- Depending on the location selected, partnership opportunities may be available:
 - Public safety facility
 - Branches / departments from the City of Fredericton
 - Other?

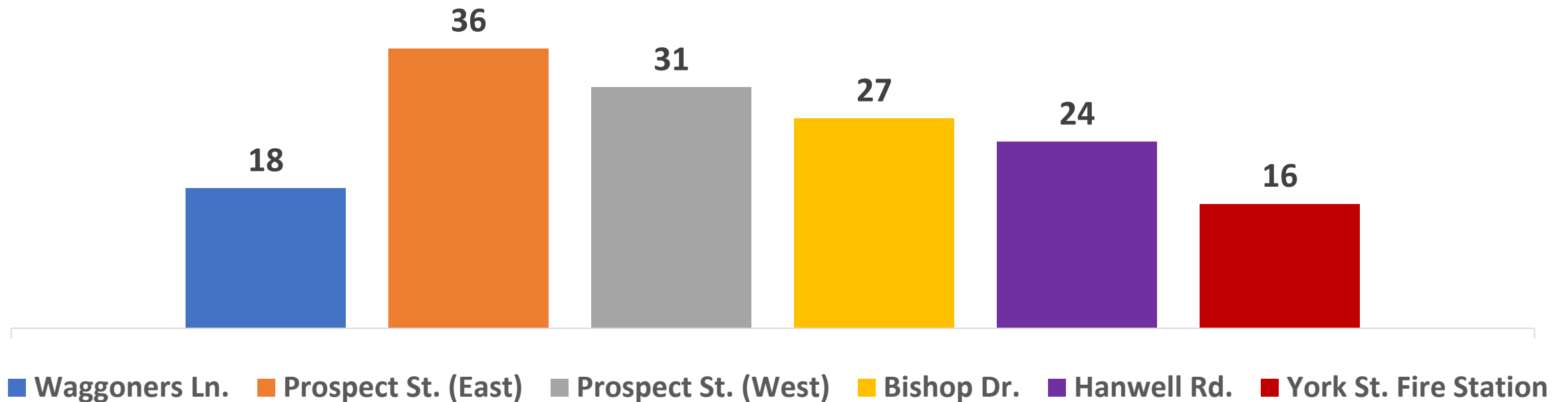
Response Time Achievement (Per-Location)



Response Time Achievement (City-Wide)



Risk Mitigation Score (Maximum Score = 36)



Conclusion: Considering factors such as response time performance, traffic safety, and adequacy for future development, the locations at Prospect St. (West) and Prospect St. (East) offer the strongest results for the location of a new fire station.

Estimated Timeline = 28 Months Minimum

Initial Project Timeline

Consultation, Design: 10 Months

Planning, Permits, Awards: Sept. 15 Months

Service Extensions, Initial Site Work: 6 Months

Construction: 18 Months

Apparatus: 18 Months

Equipment: 12 Months

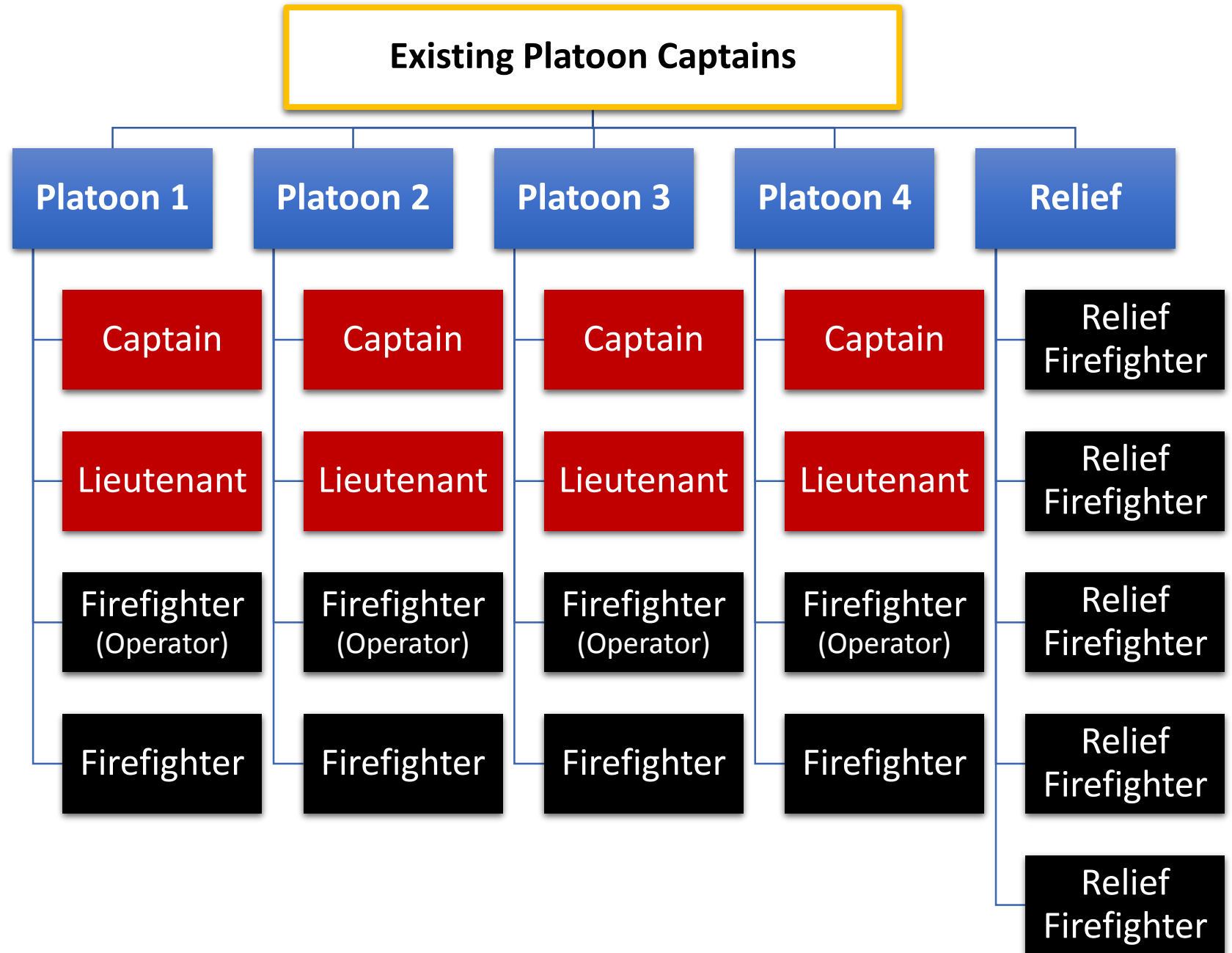
Staffing, Training: 17 Months

Procedures, Docs, Dispatch: 6 Months

Staffing

1 new company
at
4 members per platoon
x
4 platoons

+ 5 relief firefighters
= 21 new hires



Standard New Member Training Routine

Onboarding, 20 Days

Hazardous Materials Response Tech. 13 Days

Driver Training, 10 Days

Pump Operator Training, 15 Days

Aerial Operator Training, 10 Days

Available for Unrestricted Assignment

On-Shift Training

Staff Training for Station 5

Professional Development (Existing Staff), Ongoing

Hiring & Onboarding (Group A), Opening Minus 18 Months

Hiring & Onboarding (Group B), Opening Minus 6 Months

HazMat Technician (A&B), Opening Minus 4 Months

Trained & Equipped for Station 1-5, Opening Minus 3 Months

Finance: Estimated Cost of Establishment

| Cost of Establishment | Estimate |
|---|---------------------|
| Land and Fire Station | \$6,133,486 |
| Apparatus | \$1,500,000 |
| Ancillary Equipment, Uniforms, PPE, Furnishings | \$854,865 |
| Staffing | \$2,062,384 |
| Contingency (10% of Estimated Capital) | \$663,349 |
| Total Estimated Cost of Establishment | \$10,964,083 |

Finance: Estimated Cost of Operation (Stn. 5)

| Reoccurring Cost of Operation | Estimate |
|--|--------------------|
| Staffing (4 Captains, 4 Lieutenants, 8 Firefighters, 5 Relief) | \$2,757,283 |
| Utilities, Maintenance, Chargebacks (Station) | \$77,200 |
| Insurance, Property Tax | \$154,539 |
| Maintenance, Repairs, Fuel (Apparatus) | \$41,102 |
| Ancillary Equipment Evergreen Program (15% Annually) | \$73,647 |
| Total Estimated Cost of Establishment | \$3,103,591 |

Additional Factors:

Current Infrastructure:

(Fire Service Review, 2023)

6.1.1: “Of all four fire stations, Station #4 is the one that is the most in need of upgrades or full replacement to meet the future needs of the Fire Department ... the station is at full capacity ...”

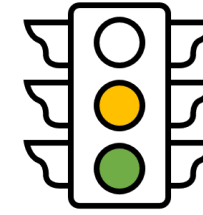
Recommendation 25: “... An upgrading of the present station #4 would in most cases be a short-term fix and will most likely fail to meet the demands of the department. The cost of such upgrades could cost almost as much as the cost of a new fire station...”

1

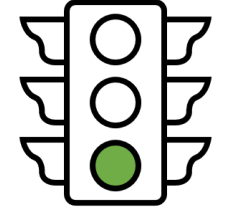


York Street

Station Serviceability



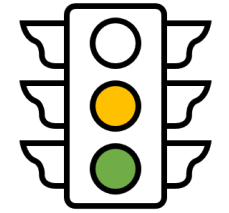
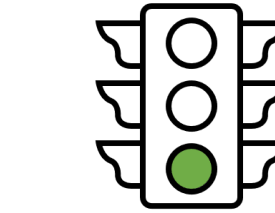
Station Location



2



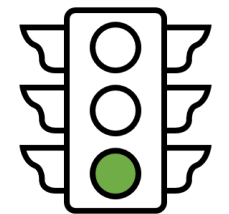
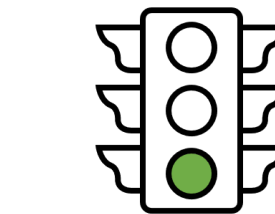
Two Nations



3



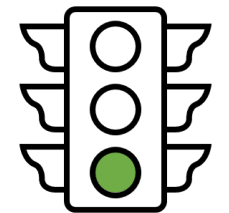
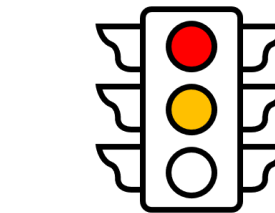
Kimble Drive



4



Royal Road



Summary

- Fredericton's growth has created a need for improvements to the Fredericton Fire Department's deployment model
- **Fredericton needs an additional fire station near the southwest growth node, ideally located on Prospect Street**
- The location may offer partnership opportunities
- The value of the investment supports Fredericton's growth strategy, and a promotes stronger and safer community for residents, businesses, and firefighters
- As Fredericton continues to grow, Fredericton's fire stations must be periodically evaluated for serviceability

Recommended Motion

WHEREAS the Council of the City of Fredericton recognizes the development of the southwest growth node;

BE IT RESOLVED THAT the Council of the City of Fredericton hereby directs consideration of and the decision to build a new fire station (the “Fifth Fire Station”) located in proximity of the southwest growth node AND the associated formal plan to design, construct, equip and staff the Fifth Fire Station to the City Council 2025 budget process.

Questions?

