



Cogswell Transformed

A Plan for the Redevelopment of the Cogswell Interchange

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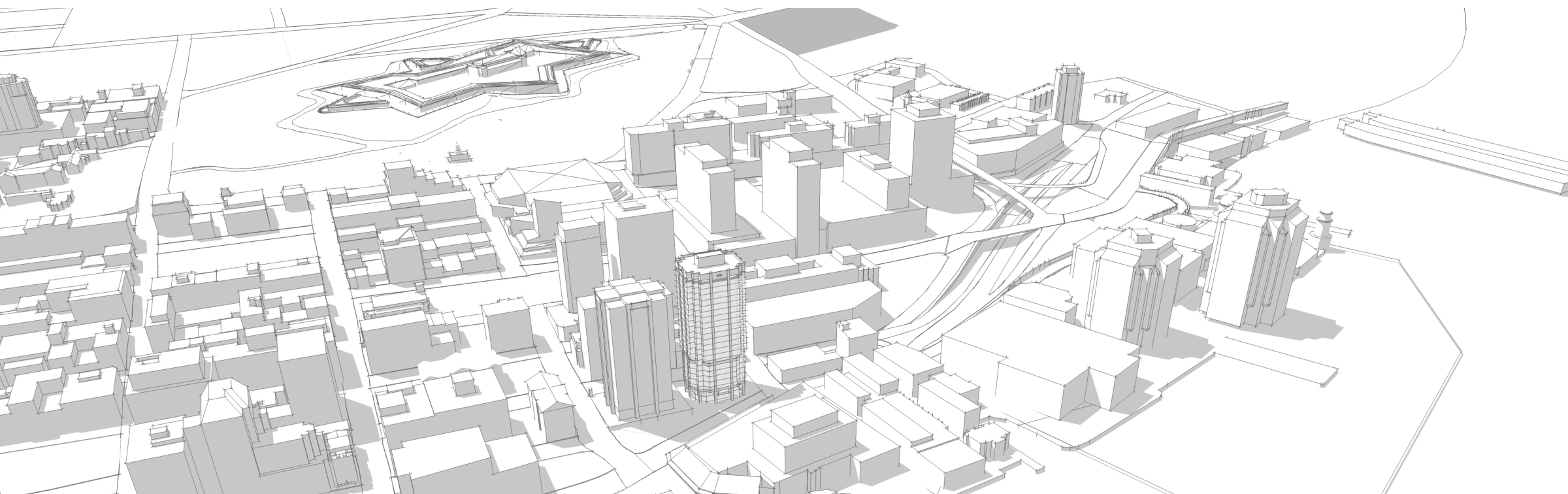
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Cogswell Origins **1.0**

1.0 Cogswell Origins

1.1 Project Inception

A fixture in the City of Halifax since the late 1960s, the Cogswell Interchange has long been a focus for public dialogue and debate. In the late 1990s, as infrastructure maintenance costs began to grow, the Halifax Regional Municipality began the process of exploring options for its removal. Starting with a charette at the Canadian Association of Planning Students (CAPS) conference in 1997, Halifax began to imagine how the urban fabric might look without the Cogswell Interchange.

Previous studies such as the 2001 Vaughan Engineering Study focused on the technical and engineering constraints of the project, while others such as the 2004 Cantwell and Company Report looked at the economic feasibility and development potential of the site. As part of the 2006 - 2008 HRMbyDesign Planning process, public engagement outcomes focused on the need to redevelop the area, and the resulting downtown Land Use Bylaw outlined key urban

design considerations. Valuable in their own right, each of these past studies has explored one aspect to the multi-faceted challenge that is the redevelopment of the Cogswell Interchange.

In 2013, recognizing the need to move the project forward, Halifax Regional Council directed staff to move on a more focused look at the many implications of removing the Cogswell Interchange. This study is intended to capture a broad and multi-disciplinary snapshot of the technical opportunities and constraints that the redevelopment must address. Integrating aspects of engineering, urban design, place-making and development feasibility, the Cogswell Lands Plan will provide Council with the necessary background to make informed decisions regarding the future of this critical downtown area.





- Halifax Peninsula
- Downtown Halifax
- ▤ Study Area

Fig 1.1 The Cogswell Study Boundary

1.2 Study Area

The Cogswell Interchange is located at the northern gateway into downtown Halifax. The interchange area occupies 16 acres of the downtown and the study area extends west to the Halifax Common, North to the Angus L MacDonald Bridge and south into the downtown.



“It’s a relic of a different time, an outdated idea of cities,”

Mike Savage, Mayor HRM

Fig 1.2 The Cogswell Interchange under construction in 1968

1.3 The Concrete Albatross

The Cogswell Interchange is a visible reminder of the era of ‘Urban Renewal’ accompanying post Second World War suburban growth. The interchange was the first phase of Harbour Drive, an expressway along the waterfront designed to improve automobile access from the suburbs to the downtown with the added benefit of removing urban blight on the fringes of the downtown. Over 150 buildings were demolished to make way for this new engineering marvel that would modernize the economy of the downtown. The interchange never lived up to its hype of rejuvenating the downtown economy and, arguably, did more damage than good.

Subsequent phases of the waterfront expressway were halted due to the public outcry over the loss of the city’s historic building stock and traditional neighbourhoods coupled with a marked shift away from urban renewal. For 40 years, the interchange has stood as a remnant of a bygone era of thinking and, in many ways, an albatross around the city’s neck.

On the other hand, the sprawling, over-designed

auto-centric monolith has become a valuable land-bank for the City; an unintended gift from one generation to the next, of 16 acres of prime downtown land. It is this generation’s duty to re-prioritize a program for the land and to reimagine a place where people take the centre stage over the automobile. The solution should provide an extension of the downtown fabric, a gateway to the urban core, substantial and memorable public spaces, a place to live, work and play, and a model of sustainable urban design.

This study investigates the feasibility and urban design solutions for the future removal of the Cogswell Interchange. While most urban design plans tend to be incremental and long-term, conforming little by little to a achieve the common vision, this is a plan that will see most of the interchange removed and streets replaced within a few years of commencement. This type of large scale disruption demands a different approach than the typical slow methodological approach.

As a major transportation gateway into the downtown, the phasing of its demolition and reconstruction will be instrumental in its eventual design.

Fig 1.3 1966 street closures and demolition (credit Graeme Duffus)





Fig 1.4 a 1755 plan of the town of Halifax, showing the palisade, three of the perimeter forts, and a rough road connecting them



Fig 1.5 The Ordnance Yard in 1766. Overlays suggest that the southern termination of the modern interchange on Water Street runs over the grey-shaded buildings – the Long Store, the Square Store, the Armourer’s Shop, and the Laboratory.

1.4 The Transformation

As part of this larger study, Davis MacIntyre & Associates were commissioned to prepare the **Cogswell Interchange Lands Plan: Archaeological Resource Impact Assessment** to understand the prior archaeological research and known archaeological resources neighboring the study. This report is available as one of the submission deliverables separate from this document.

The following summary paints a picture of the city’s evolution over the last 300 years leading to the Cogswell Interchange today.

Early History

The history of the Cogswell Interchange site dates back to the very inception of Halifax itself. While lands to the north of the Halifax peninsula had been utilized by the Mi’kmaq people and their ancestors for over 11,000 years, the restricted availability of freshwater had been a deterrent to

more established usage of the peninsula itself. The adjacent harbour, with its deep waters and open winter access finally drew European visitors in the fifteenth century, who began to fish its waters and explore the shores in earnest. During the sixteenth and seventeenth centuries, settlements and lands in present day Nova Scotia floundered back and forth between the British and the French until the Treaty of Aix-la-Chapelle in 1748. This treaty returned the prominent settlement of Louisbourg back to the French, and highlighted the need for a major British settlement in the area.

In June of 1749, Edward Cornwallis arrived in Halifax to create the British counterpoint to the powerful fortress of Louisbourg. The wide open harbour and rocky shoreline became an optimal location for a British stronghold. Early Halifax, although dominated by the military, also saw its share of shipping traffic, and the waterfront soon become a major source of commerce for the region. In 1750, a

proposal to construct a large public quay along the waterfront was defeated, and local merchants instead began to construct individual finger piers and wharves. The commercial waterfront was protected by a series of forts and a larger palisade, and in the early years of Halifax settlement outside this protected boundary was limited. On the northern side, the palisade was punctuated by two of the five small forts built into the wall. The northwestern was Fort Luttrell, at the site of what would become the Glacis Barracks in the nineteenth century. The other fortification on the northern wall was Grenadier Fort, near the future corner of Jacob Street and Poplar Grove (Figure 1.4). The town’s North Gate was immediately east of this fort, and the remainder of the palisade ran along the future Jacob Street to the water’s edge.

By 1766, a military ordnance yard was well established at the foot of Buckingham Street (Figure 1.5) near the present Marriot Hotel. By this time, the town included two batteries, along with two storehouses, an

COGSWELL TRANSFORMED

armourer's shop, and a laboratory, which may have been partially or fully beneath the footprint of the interchange. Much of the main body of the Cogswell Interchange was Halifax's bustling waterfront warehouse district. Overlays indicate that a great deal of infilling between the founding of the city and the Interchange construction in the late 1960s has moved the shoreline much farther into the harbour.

The mid nineteenth century saw the town's gradual growth into a city. Ironstone construction was very common during that period, ensuring the longevity of many waterfront buildings into the twentieth century. Compiled in 1878, Hopkins' Atlas of the City of Halifax provides a very clear sense of the streets and buildings encompassed by the Interchange (Figure 1.6). What is clear from this map and the photos of the time, the area of the Cogswell Interchange was part of the downtown city grid, bustling with commercial activity and connected to the waterfront warehouse district to the east and to the high quality Victorian homes of Dutchtown to the northwest (between Gottingen Street and Upper Water Street). Barrington Street and Granville Street, during the eighteenth century, were the most important commercial streets in Halifax. In 1859, a catastrophic fire consumed much of Granville Street and the area was soon after rebuilt to the architectural splendour visible today.

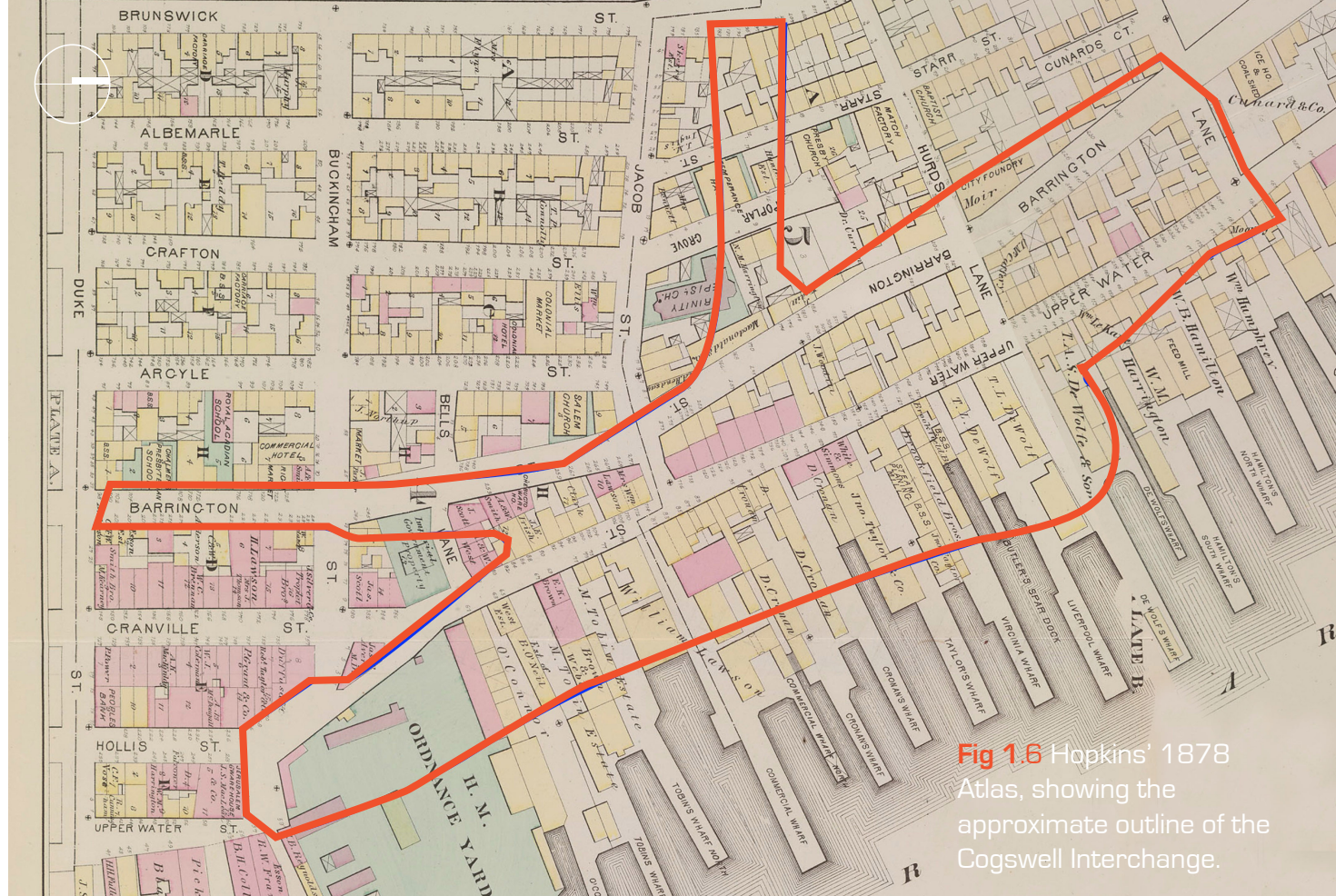


Fig 1.6 Hopkins' 1878 Atlas, showing the approximate outline of the Cogswell Interchange.

Fig 1.7
Granville Street
looking south in
1871



Fig 1.8
Granville Street
Postcard
1909



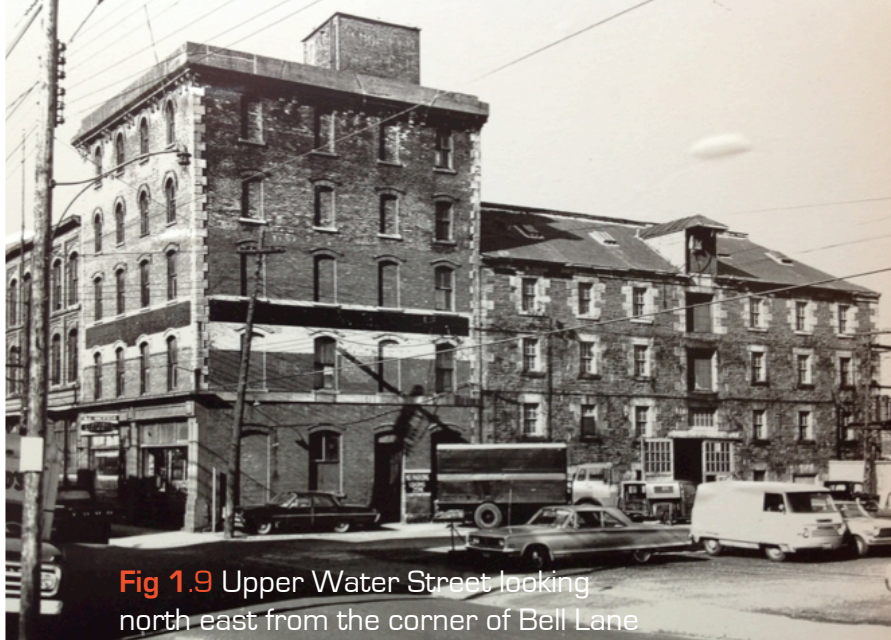


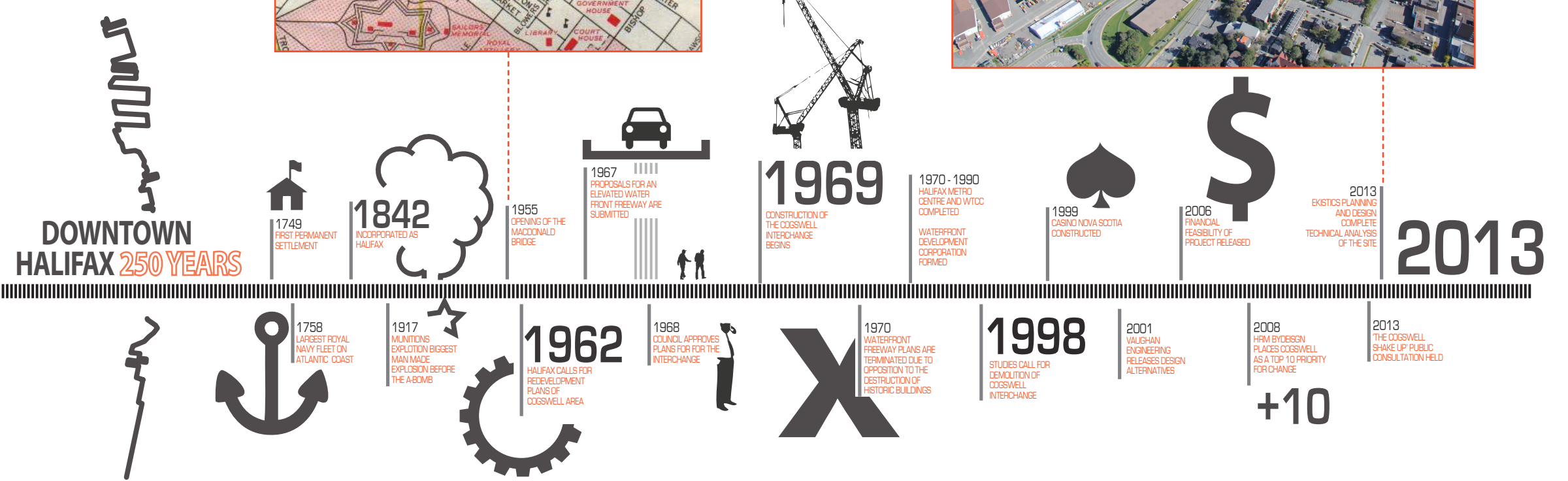
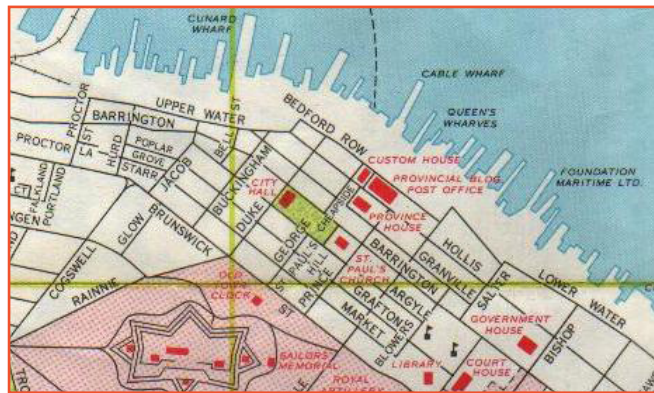
Fig 1.9 Upper Water Street looking north east from the corner of Bell Lane



Fig 1.10 Source Graeme Duffus Circa 1960.



Fig 1.11 Example of housing in 1947 [Corner of Jacob and Grafton]



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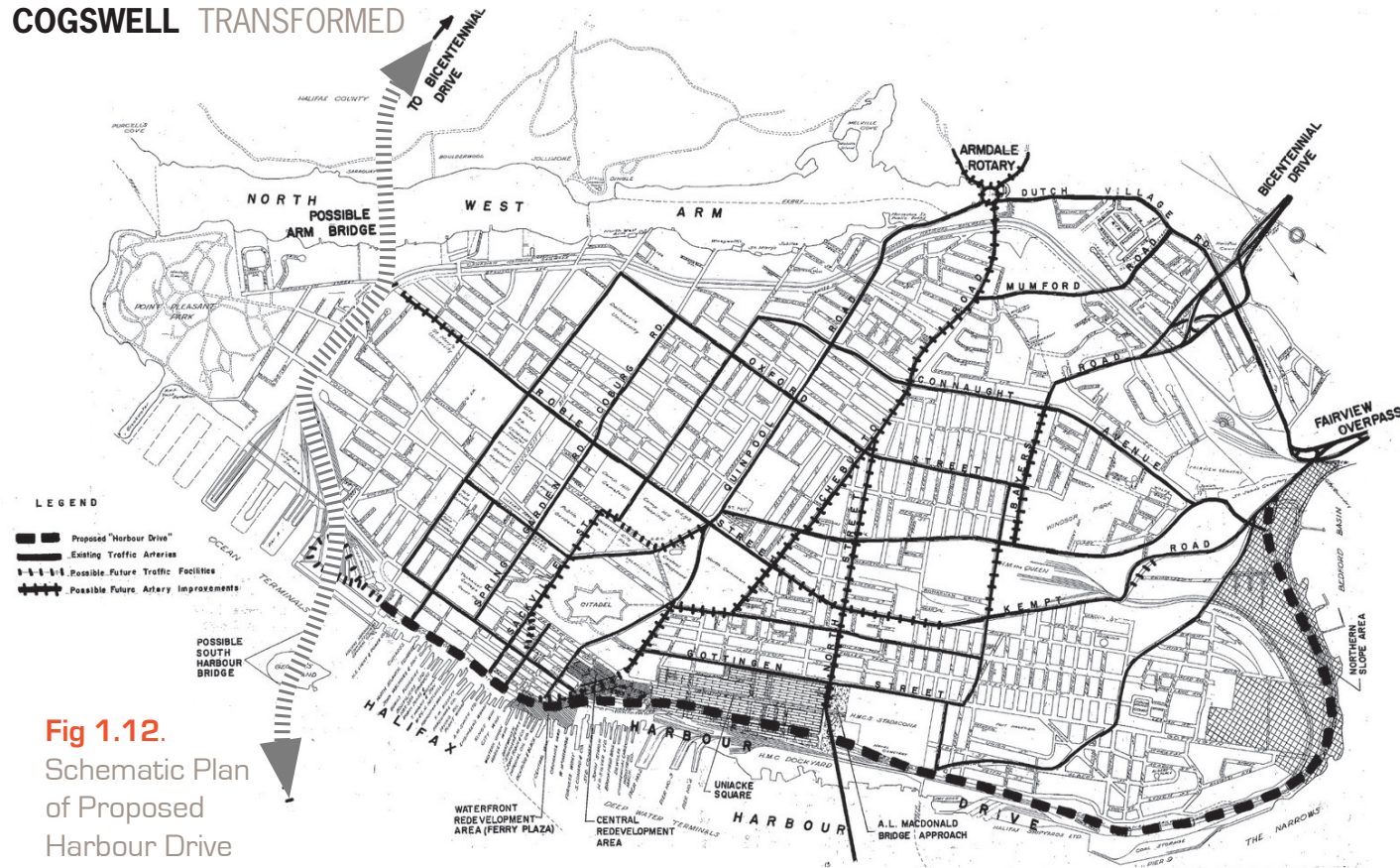


Fig 1.12.
Schematic Plan of Proposed Harbour Drive 1963

Fig 1.13 Source "Urban Structure - Halifax. An Urban Design Approach" (1998, TUNS Press, Sandalack and Nicolai)

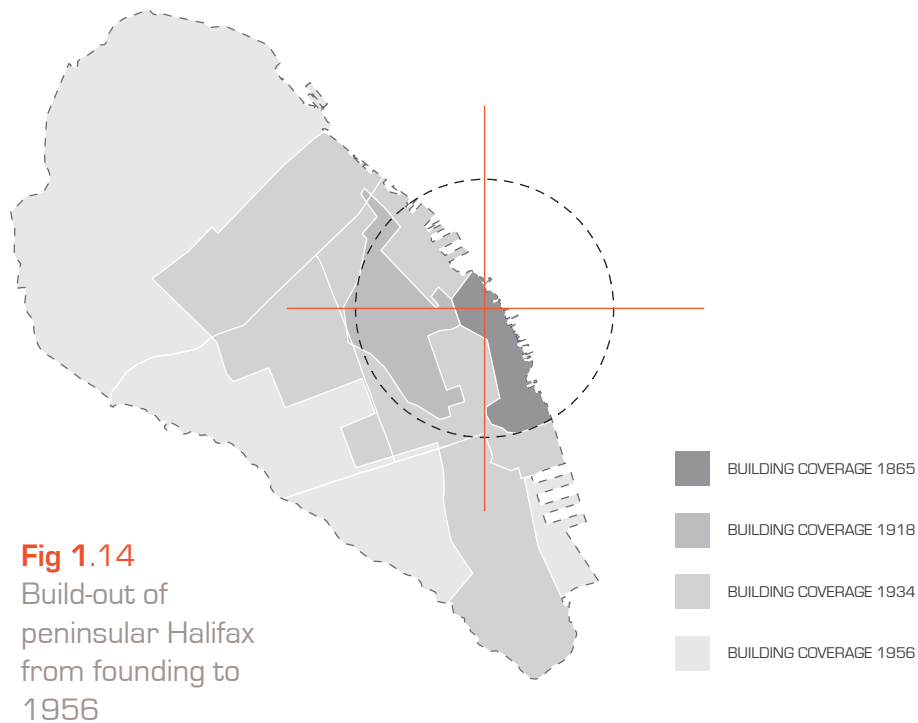


Fig 1.14
Build-out of peninsular Halifax from founding to 1956

The Downfall of Urban Renewal

Following the post-war boom in Halifax, the peninsula of Halifax was reaching full build-out and transportation issues came to the forefront of planning. In 1945, the Civic Planning Commission (a citizens group appointed by the Halifax City Council) released the 1945 Development Plan which recommended major transportation changes including bridges over the harbour Narrows and Northwest Arm and several large new arterial roads which would require massive slum clearance and new redevelopment to increase municipal tax revenues. The Angus L MacDonald Bridge was opened in 1955 as a result, leading to the suburbanization of Dartmouth and increased pressure for a Harbour Drive Freeway.

In 1957, the City received a CMHC grant to hire Gordon Stephenson to author The Redevelopment Study of Halifax. The study proposed the removal of several slum areas including over 8 acres of land around Jacob and

Market Streets displacing thousands of people. The City eventually designated about 14 acres of land as the Central Redevelopment Area and in 1962 they expropriated the properties and bulldozed them to the ground. Four years later, in 1966, an agreement was signed with Halifax Developments Limited for the eventual construction of Scotia Square. Construction began in 1967 and completed in 1971. With Scotia Square moving forward, the idea for a Harbour Drive waterfront freeway gathered momentum to link the non-peninsular suburbs to the new shopping and office complex in the downtown. In 1967, The City hired Toronto-based A.D. Margison & Associates, to design the Cogswell Interchange and the Harbour Drive expressway. Harbour Drive was envisioned as a six-lane elevated highway (similar to the Gardiner Expressway) along the waterfront, necessitating the demolition of the historic properties buildings. The fear of jeopardizing the new Scotia Square agreement forced council to agree on proceeding with the Cogswell Interchange despite fierce public opposition. In 1968, an additional 12 acres of land

was cleared to make way for the interchange. Almost 30 acres of downtown was levelled in the name of urban renewal.

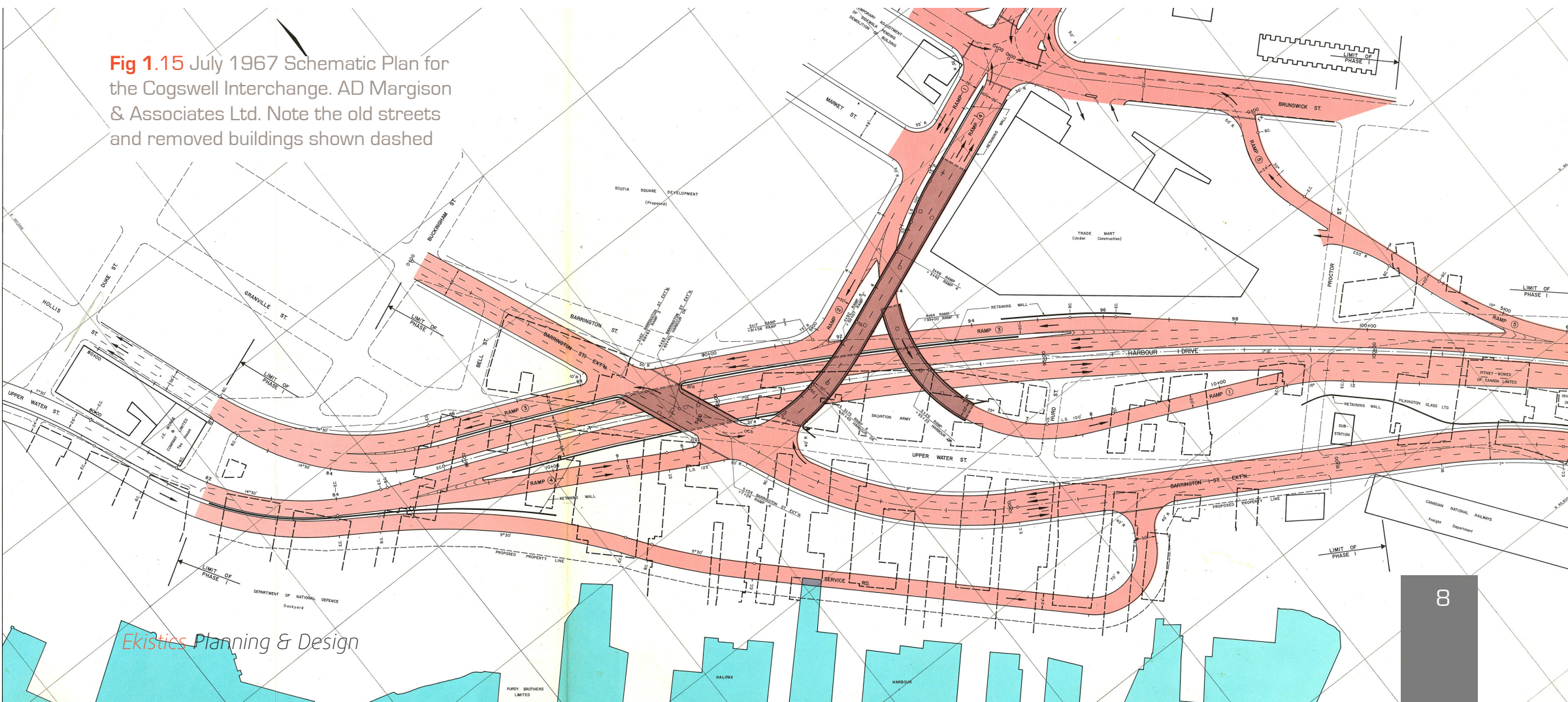
Construction on the Cogswell Interchange began in 1968. Between 1968 and 1970, the battle lines were being drawn to save historic properties from Harbour Drive. In late 1968, with construction underway, the federal government commissioned "The Halifax Waterfront: A Feasibility Study" which called for a plan to preserve the historic waterfront and provide alternatives to the 6-lane expressway. In 1970, despite the near completion of the interchange, the Harbour Drive project was overturned due to strong opposition and dedicated citizen action (giving strength to the Nova Scotia Heritage Trust and birth to the Ecology Action Center, and later in 1976, the Waterfront Development Corporation). The Cogswell Interchange became virtually redundant overnight.

1.5 Prospects for Renewal

In late 2012, the Halifax Regional Municipality commissioned this study to "develop and analyze an integrated set of technical solutions for the possible demolition and redevelopment of the Cogswell Interchange and its associated lands". The Ekistics team (Ekistics Planning & Design, SNC Lavalin, Colliers International, Davis MacIntyre & Associates, OCL Ltd., SP Dumeresq Architects) was selected to lead the study. Over an 8 month period, conceptual options were developed and a preferred solution was chosen which best met the 'integrated objectives' of the multiple project partners (transportation, civil engineering, urban planning, economic development and public financing.). At the same time as this study, the Strategic Urban Partnership (SUP) led a public visioning called the "Cogswell Shakeup" in the spring of 2013. The intent was to imagine a vision for the Cogswell unencumbered by technical constraints. The Shakeup provided some valuable new ideas for this study while reinforcing some previous ideas.

This plan is meant to provide the technical foundation for the eventual redevelopment of the Cogswell Interchange. The intent is to create a thriving extension of the downtown, a new gateway to the urban core and a bridge between the surrounding neighbourhoods and the waterfront. The plan addresses the practical engineering realities, the proposed public infrastructure, the transit oriented framework, the eventual development blocks, the urban design policy necessary to see the plan realized, the phasing of demolition and construction and the overall development feasibility of moving forward with the project. The plan combines the art and science of urban design to realize the best potential of the 6.5 hectares of the former interchange lands. It includes plans for new at-grade connector roads, spacious sidewalks, new urban parks and plazas, a multi-use urban trail, a new transit hub, a district energy network and a variety of new development sites for a range of new green urban development projects.

Fig 1.15 July 1967 Schematic Plan for the Cogswell Interchange. AD Margison & Associates Ltd. Note the old streets and removed buildings shown dashed



While the longterm damage of razing the historic fabric to make way for the interchange remain, there is some consolation in the redevelopment potential of the interchange. Not many cities get the chance to re-envision such a large portion of their urban core at the gateway to the downtown; incorporating new ideas about pedestrian-centric design (in direct contrast with the auto-oriented emphasis of the original plan). The redevelopment has the potential to repair the fracture that divided the city over 40 years ago.

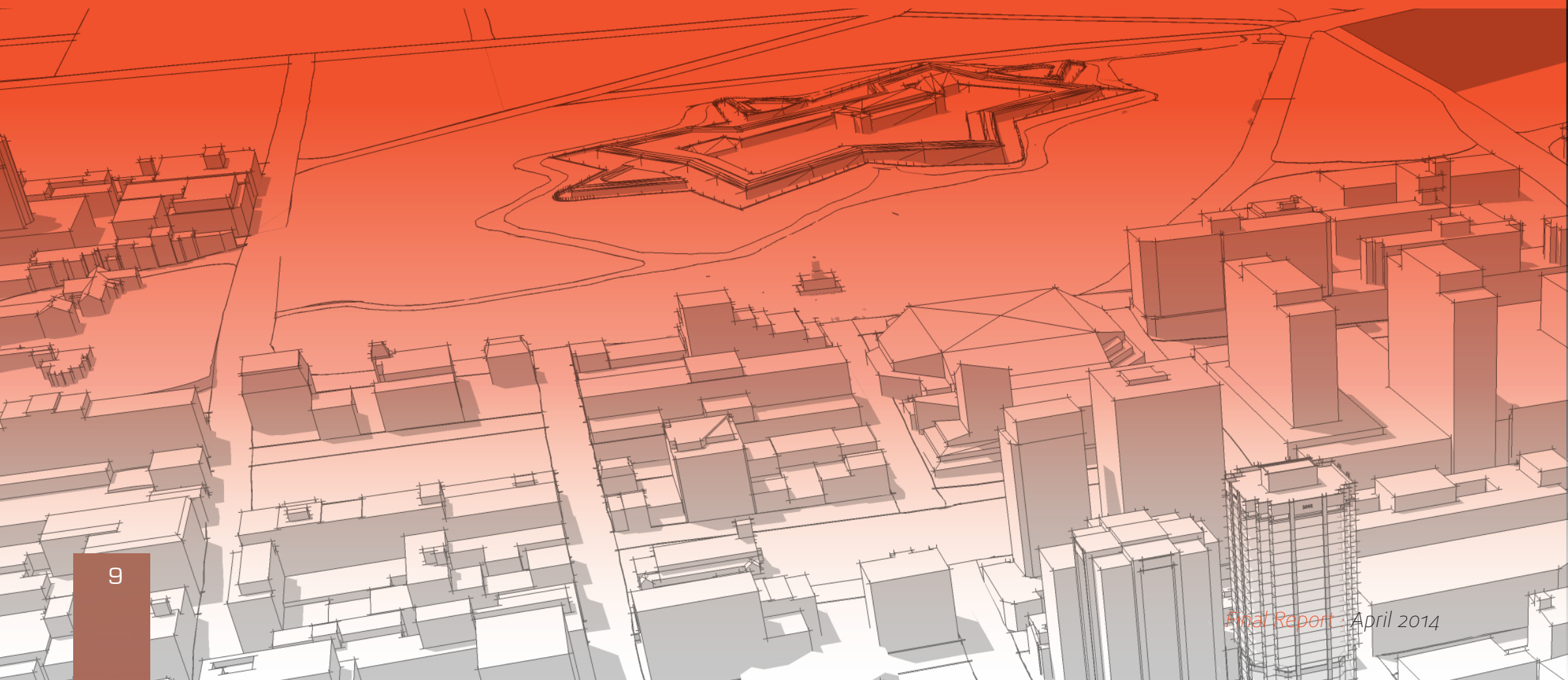
This plan demonstrates that not only is the Cogswell redevelopment possible, it is feasible in the near term and catalytic in the long term. This plan provides the basis and framework for the next steps to see downtown gateway realized.

1.6 Study Vision & Objectives

In stark contrast to the exclusive automobile orientation of the previous Cogswell Interchange, the new Cogswell District is to be designed as a walkable and transit oriented extension of the fine grained downtown of Halifax. The Waterfront will once again reconnect in many places to the Dutchtown and downtown neighbourhoods to the west, reestablishing the traditional linkages to the waterfront that made Granville Street one of the most prominent commercial areas in the downtown. All forms of transportation in the district, from walking, cycling, transit and autos, will be given equal priority. The northern gateway into the downtown will exemplify these priorities in a visible way and the current expressway entrance to the downtown will be bridged with a new urban street cross section.

Public space will be emphasized in the plan with lavish sidewalk widths sheltered by on-street parking and street trees, block lengths that provide walkable and easy connections to the waterfront, a major open space terminus for the Granville mall, other smaller parks and plazas throughout, a central transit block that is well connected to the pedway system and close to the ferry terminal, NSCAD and historic properties, dedicated elevated and street level podiums with poignantly designed spaces, major open space connections between the Cogswell District and the Halifax Commons to the west and the partial removal of Rainnie Drive back into a dedicated greenway connector.

The Cogswell District will be mixed use and will provide ample opportunities for living, working, shopping and leisure. Housing will address the needs of a wide range of demographic and economic backgrounds. Street levels will include active retail or



specialty institutional uses with upper levels for office, housing, or parking. There will be no blank walls at the street and parking will be plentiful but visually unobtrusive.

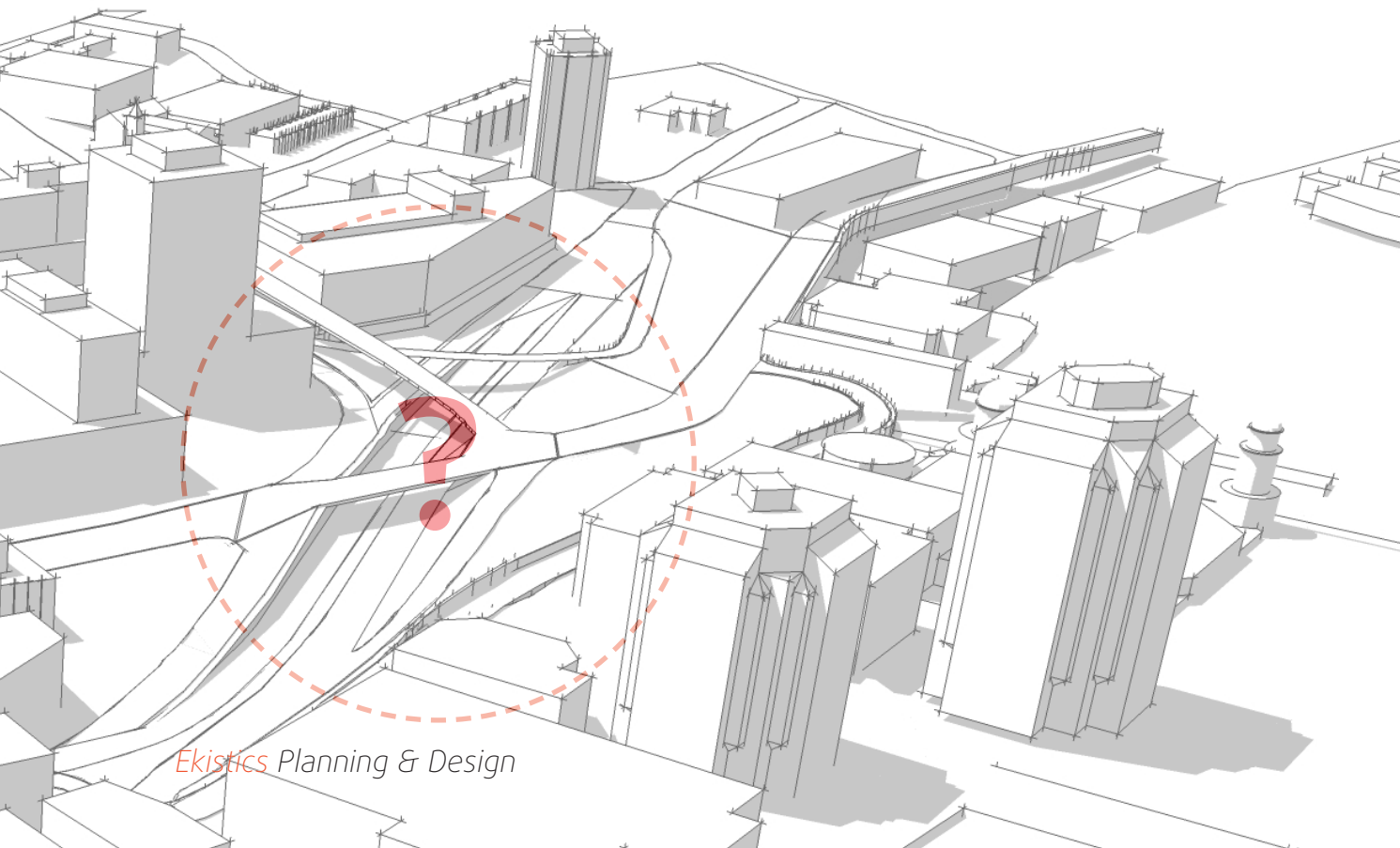
The district will be fuelled by a renewable district energy program using the waste heat from the sewage treatment plant and heat exchange from the harbour. Instead of an eyesore and sole purpose facility, the sewage treatment plant will play an expanded role for the surrounding community as the engine for the energy district, a hub for urban agriculture, the gateway for a dedicated multi-use trail into the downtown and future architectural embellishments to make the building 'fit' within a downtown context.

The public and private spaces in the district will be designed with the highest standards of sustainable design using LEED ND as a guide. Buildings will be oriented to maximize solar exposure and minimize the impacts of wind. The entire Cogswell District will be a model of community inspired sustainable urban design, thoughtfully extending the urban grid of downtown Halifax north and paying homage to the communities that were lost during the period of urban renewal.

Objectives

The objectives of the plan are to:

1. **Emphasize** walkability and multi-modal transportation
2. **Reconnect** the waterfront to Dutchtown with multiple connections and improve the current 'dead-ended' waterfront
3. **Extend** the downtown fine grained block fabric to the north
4. **Anchor** the Granville Mall with a large high quality public space
5. **Inspire** a new image for the downtown at the Barrington and Cogswell gateways
6. **Remove** the barriers and single purpose use of the current structure
7. **Accommodate** the existing and future traffic loads while providing viable, high quality alternate means for transportation
8. **Capitalize** on all public spaces from sidewalks and plazas, to parks, greenways and rooftops
9. **Blend** the science of development economics and engineering with the art of place-making and city building
10. **Anticipate** a wide range of land uses
11. **Ensure** ground floor activity with active retail on all street fronts
12. **Encourage** the widest range of uses and users
13. **Capitalize** on the social capital of this transformative project
14. **Balance** the potential revenue with the costs
15. **Incorporate** a renewable district energy program
16. **Transform** the liability of the sewage treatment plant into an asset



1.5 Process

This project was initiated by HRM as an 8 month technically oriented study, organized to look at the feasibility and timing of removing the Cogswell Interchange. However, in tandem to this study the Strategic Urban Partnership (a forum for public and private stakeholders to work together towards revitalizing the Regional Centre) initiated the Cogswell Shakeup on May 16, 2013, to answer the questions: (1) In your vision, what can the Cogswell Interchange do, be or mean, and, (2) How can it shape the future of our city?"

The technical study benefitted greatly from the ideas and public input of the Shakeup and many of those public ideas and sentiments are plainly visible in the proposed master plan, guiding principles and management framework.

Through the process, key adjacent landowners were interviewed, including Casino Nova Scotia, Great West Life, Crombie REIT, and the Department of National Defence (DND) - pending. Other relevant stakeholders consulted including Metro Transit, the Ecology Action Centre, Fusion Halifax, the North End Business Commission, the Halifax Chamber of Commerce, and the Heritage Trust. Input from the stakeholders varied, due to the specificity of some of their interests. Most of the adjacent landowners were concerned about access to their properties, development potential of privately held lands, visibility, and construction phasing. Many of the Non-Governmental Agencies (NGOs) consulted focused on more topics like the tone and timing of any future public consultation, the need for better connectivity and access through and to the site, and the broader implications that the Cogswell Interchange redevelopment will have on transportation on the Peninsula.

In May of 2013, a design brief was prepared by the study team and presented to the steering committee to get feedback on the findings to date and discuss these conceptual development options. The feedback from that report became the basis of the preferred plan.

The draft master plan is to be presented to Halifax Regional Council as a direction for their consideration. Other examinations, including the condition of the existing interchange, a market assessment of real estate demands in the Regional Centre, and the results of the SUP Shakeup will also be presented. Together these form the foundation for Regional Council's decision making on the future of the Cogswell Interchange Lands.

This work is just the beginning. There are many more decisions which will need to be made if and when the Cogswell Interchange will come down. However the collaborative and comprehensive approach which shaped this study should be carried forward if the aspirations of Cogswell as a catalysts in building a successful city are to be realized.

1.7 Report Organization

The remainder of this report is organized into 6 chapters.

Chapter 2: Conditions Assessment - outlines the existing conditions and factors that will influence the redesign of the study area.

Chapter 3: Design Principles & Concepts - outlines the principles which have been established to guide the physical form of the design into the future.

Chapter 4: Cogswell Transformed - outlines the tools and methods for plan adoption, the recommended physical interventions, the individual buildings blocks and networks needed to connect the district.

Chapter 5: Demolition and Reconstruction - outlines the phasing needed to keep the interchange open during construction, the high level cost estimates and the future development potential of the blocks created.

Chapter 6: Implementation - outlines the next steps and recommendations to move the project forward following this report.



Fig 1.16 Strategic Urban Partnership's "Cogswell ShakeUp"



Condition Assessment **2.0**

2.0 Condition Assessment

The construction of the Cogswell Interchange and surrounding access infrastructure created a major gap in the urban fabric of Downtown Halifax (see fig. 2.2), influencing the physical and social character of its surroundings for over 40 years. In this chapter, the existing conditions which will give rise to the eventual redevelopment are discussed.

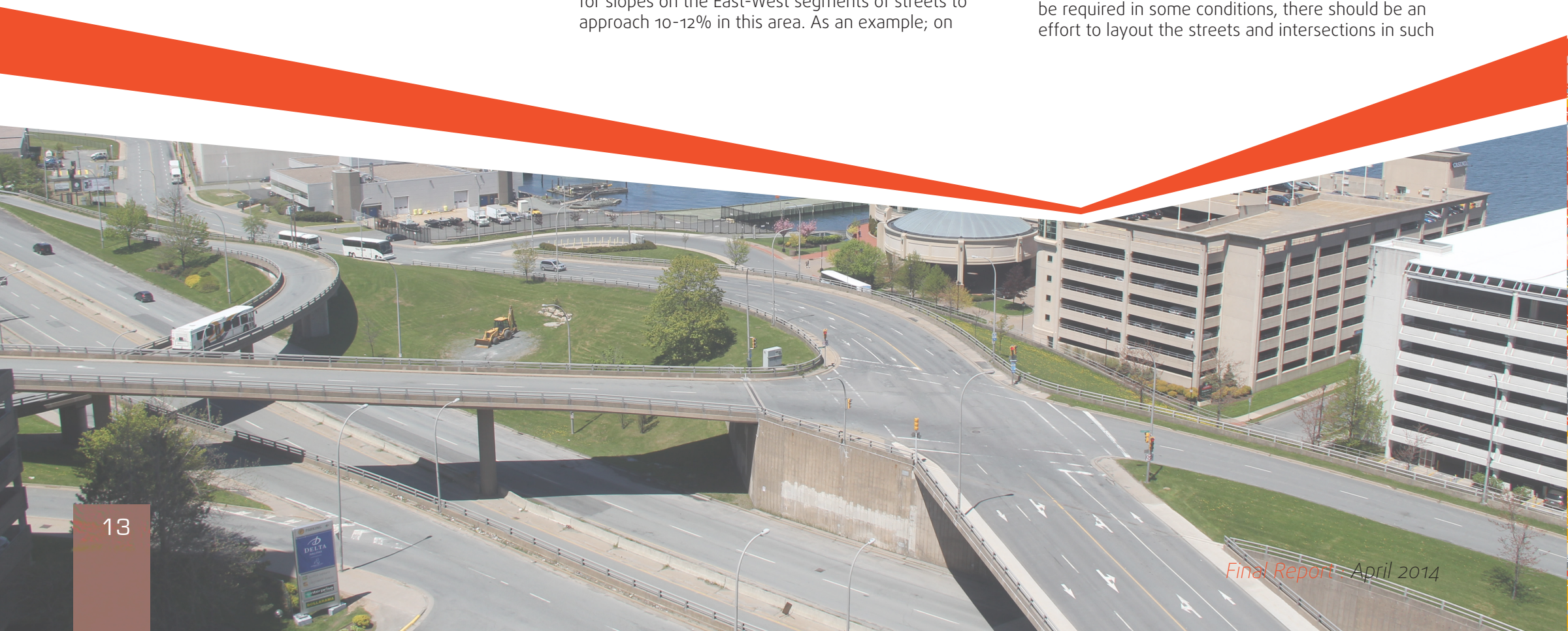
2.1 Lands

2.1.1 Street Slope and Elevation

The slopes and grading map (see fig. 2.1) show the magnitude of common street slopes in the area North and West of Citadel Hill. It is not uncommon for slopes on the East-West segments of streets to approach 10-12% in this area. As an example; on

Cogswell Street (from Albemarle Street to Lower Water Street) there is a grade change of 16m over 200m of length. This average slope of 8% belies the fact that intersections are graded at 4%, which increases localized slopes on Cogswell well over 10%. These extreme grade changes on the East-West streets have created challenges for the Northern and Southern faces of development blocks since the creation of the street grid in the 18th Century.

The current HRM red book standards for roads allows for 10% grade and in extreme localized cases a 12% maximum. The pre-interchange streets did not meet these standards. Council recognized the special challenges associated with grading of streets in this area of the city and specifically allowed this study to look at solutions outside of the Municipal Red Book Standards. While Council's allowance may be required in some conditions, there should be an effort to layout the streets and intersections in such



a way that the extremes can be reduced. This would contribute to a better street-building interface on the Northern and Southern extent of development blocks and contribute to a more walkable district.

2.1.2. Environmental

Before 1965, the Study Area consisted mostly of residential units interspersed with retail stores/services and some small light industries/commercial facilities. There were several streets that provided connections between Brunswick Street (western boundary of Study Area) and Barrington St/Upper Water Street (eastern boundary of Study Area), as well as extensions of streets within the central core connecting the vibrant waterfront with the downtown businesses. The alignment of streets and general layout of properties was similar to the central core of peninsula Halifax and reflected the logical northern extension of the central core.

Site contamination from residential and commercial activities within the Study Area would have included lead-based paints (trace metal contamination), foundry and metal working activities (trace metal contamination), burning of coal for heating and residential cooking (waste ash contributing to trace metal and polycyclic hydrocarbon contamination) and wastes from the 1917 Halifax Explosion (polycyclic aromatic hydrocarbons). However, the extensive demolition of buildings and associated site excavation within the Study Area in the 1960's has likely removed most of any predicted site contamination.

There may be remnant petroleum hydrocarbon or polycyclic aromatic hydrocarbon contamination within the underlying bedrock. The presence/absence of such contamination can only be confirmed by conducting an intrusive site investigation (Phase II Environmental Site Assessment). As the disposal of any bedrock to be excavated from within the Study Area will likely be within a marine disposal

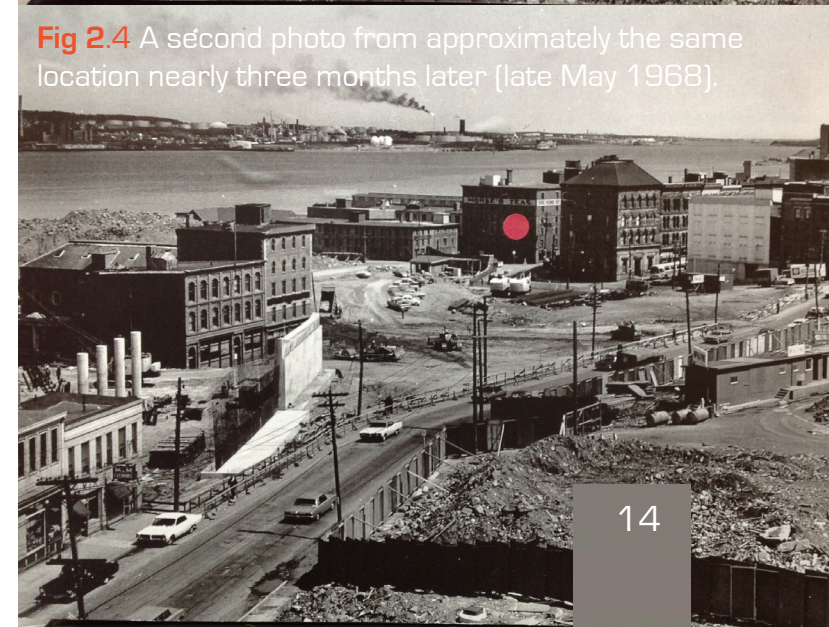
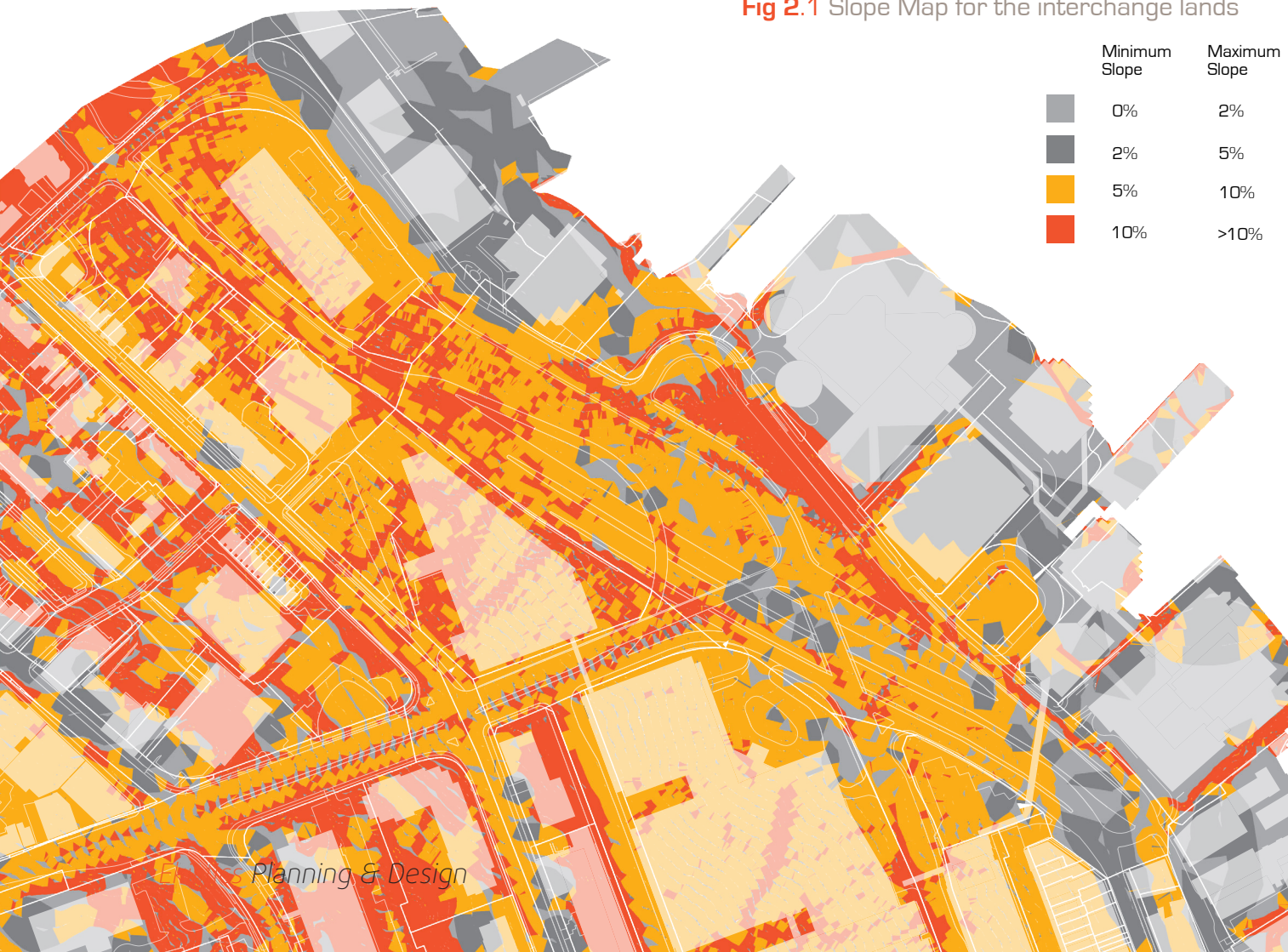




Fig 2.5 A map drawn in the twentieth century reconstructs significant elements of Halifax between 1749 and 1830



Fig 2.6 An Ordnance Yard building around 1879, most likely one of the stone structures projected to be within the footprint of the interchange



Fig 2.7 A plan showing the Ordnance Yard and its surrounds in 1890

location, testing of the bedrock to confirm non-detectable concentrations of petroleum hydrocarbons and polycyclic aromatic hydrocarbons will be required. Therefore any Phase II Assessment should be conducted with the dual purpose of confirming the absence of site contamination and providing necessary characterization of the bedrock as part of the approval process for marine disposal of the excavated bedrock.

Soils and bedrock from within the Study Area could contain concentrations of trace metals that are naturally higher than guideline concentrations for residential or commercial property use. Therefore, any soils to be excavated from the Study Area should be tested within a Phase II Environmental Site Assessment. The results of the testing will serve to determine if soils must be treated before off-site disposal and/or managed on site within an environmental risk minimization process, as outlined in the Contaminated Site Regulations.

Costing and construction scheduling would be assisted, even at this early stage, by a small program of test boring to assess potential for contaminants in the backfill material adjacent retaining walls.

The Study Area is underlain by Meguma Group/Halifax Formation bedrock; a bedrock that typically is classified as “acid producing”. As a sulphide-bearing material, the bedrock is regulated pursuant to the Nova Scotia Environment Act with such materials typically disposed at a marine location. However, not all underlying bedrock meets the classification and the cut & fill profile of the site doesn’t translate to excessive excavation, therefore it is recommended select samples be tested for acid production to confirm the need for special disposal at the time of excavation.

2.1.3. Archeological

A significant amount of demolition debris and fill was removed during initial construction of the Cogswell Interchange. Records do not make it clear where the material from the over 150 demolished buildings was taken and it is unlikely that these materials remain on site. Interviews with municipal staff who worked on the Cogswell Interchange indicate that much of the demolition debris was removed and that the bedrock material excavated from Scotia Square was used as fill for the interchange. This will have to be confirmed through site

testing. The original city wall in this area was a very short-lived wooden structure that most likely ran down Citadel Hill just south of the modern Cogswell Street. These early maps are highly varied in accuracy, but on average most place Grenadier Fort partially beneath Scotia Square and possibly extending into the Interchange footprint near the Cogswell/Barrington intersection. Artifactual material from this period has a high probability of having survived, but most likely in a context disturbed by subsequent nineteenth and twentieth century activity. It is possible, but not likely, that structural evidence of the wall and forts has survived in proximity to the Interchange.

The scale of the Interchange and the likelihood of pockets of undisturbed or partially disturbed archaeological material scattered throughout the impact area means that an archaeological testing strategy would prove extremely impractical. Instead, it is recommended that an archaeologist be consulted during planning prior to demolition in order to implement archaeological monitoring protocols from the beginning. This will ensure that last-minute archaeological salvage will not delay the demolition and reconstruction

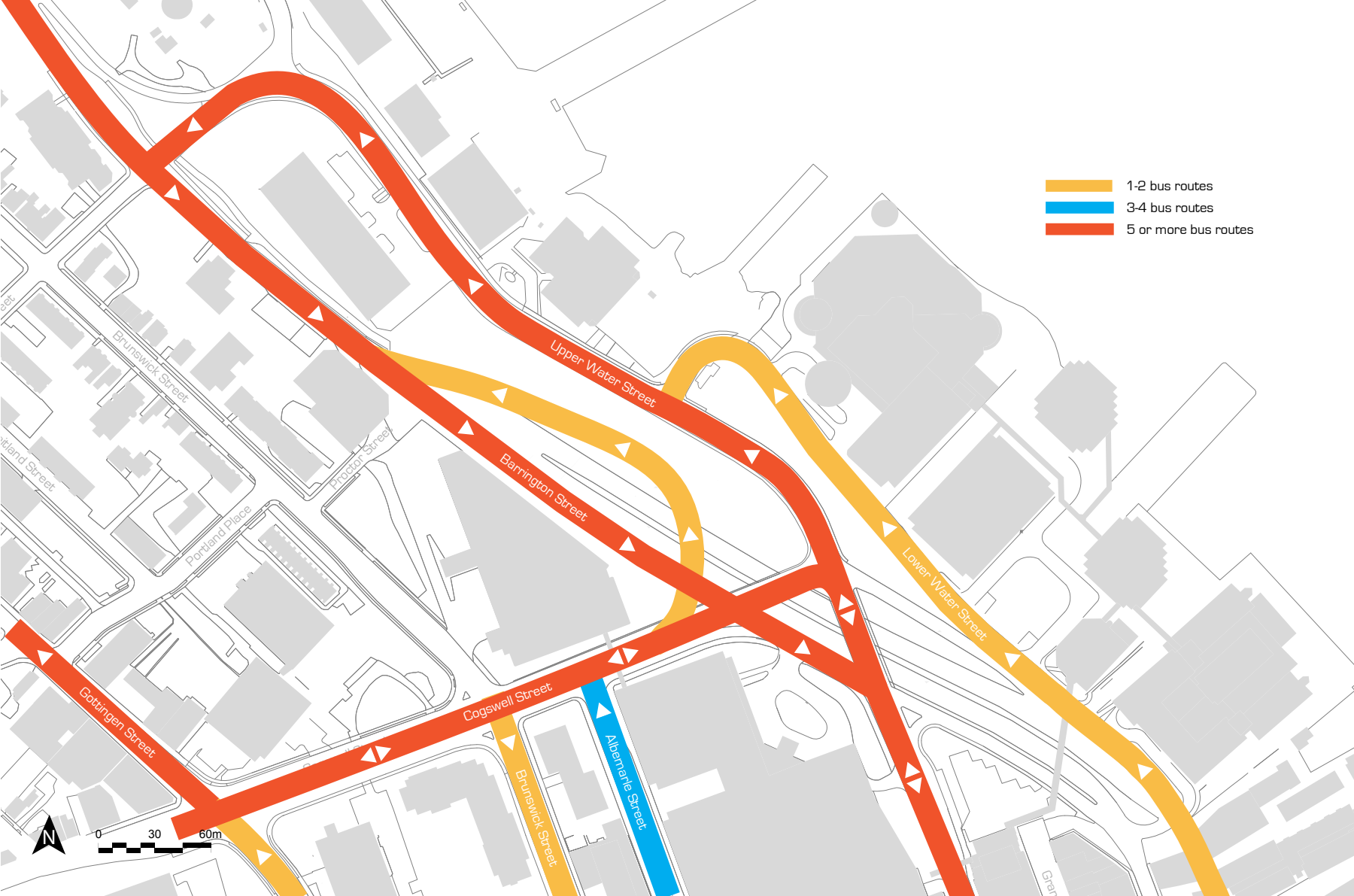


Fig 2.8 Metro Transit routing in the interchange area

projects. Archaeological monitoring is recommended only for the duration of ground disturbance activities in compliance with the Nova Scotia Special Places Act.

It is also recommended that a meeting should be arranged with the Culture and Heritage Development Division of the Department of Communities, Culture and Heritage in order to firmly implement on-site protocols for all phases of work, particularly those involving significant ground disturbance.

2.2 Services

2.2.1. Transit

Metro Transit buses use all roadways within the existing Cogswell Street Interchange: Lower Water, Hollis, Barrington, Upper Water, Cornwallis, and Cogswell Streets – to varying degrees. Some of the key features of the Transit routes that will be impacted by the reconstruction of the Cogswell Street interchange include the following (based on connecting roadways).

Lower Water Street: The existing Ferry Terminal just south of the study area includes bus access to the Dartmouth

& Woodside Ferry's with 6 buses that circulate to this terminal.

Hollis Street: Hollis has very limited bus access, but two express routes use this corridor (35 and 90).

Barrington Street: an estimated 30 Metro Transit bus routes use Barrington Street as the primary access route to the Halifax downtown. Of these buses, many circle and lay-by on Albermarle Street

Upper Water Street: A number of buses use areas on Upper Water Street across from the Sewage Treatment Plant (outbound direction) as a staging area. The inbound lane on Upper Water Street (just north of Cogswell Street) is used

COGSWELL TRANSFORMED

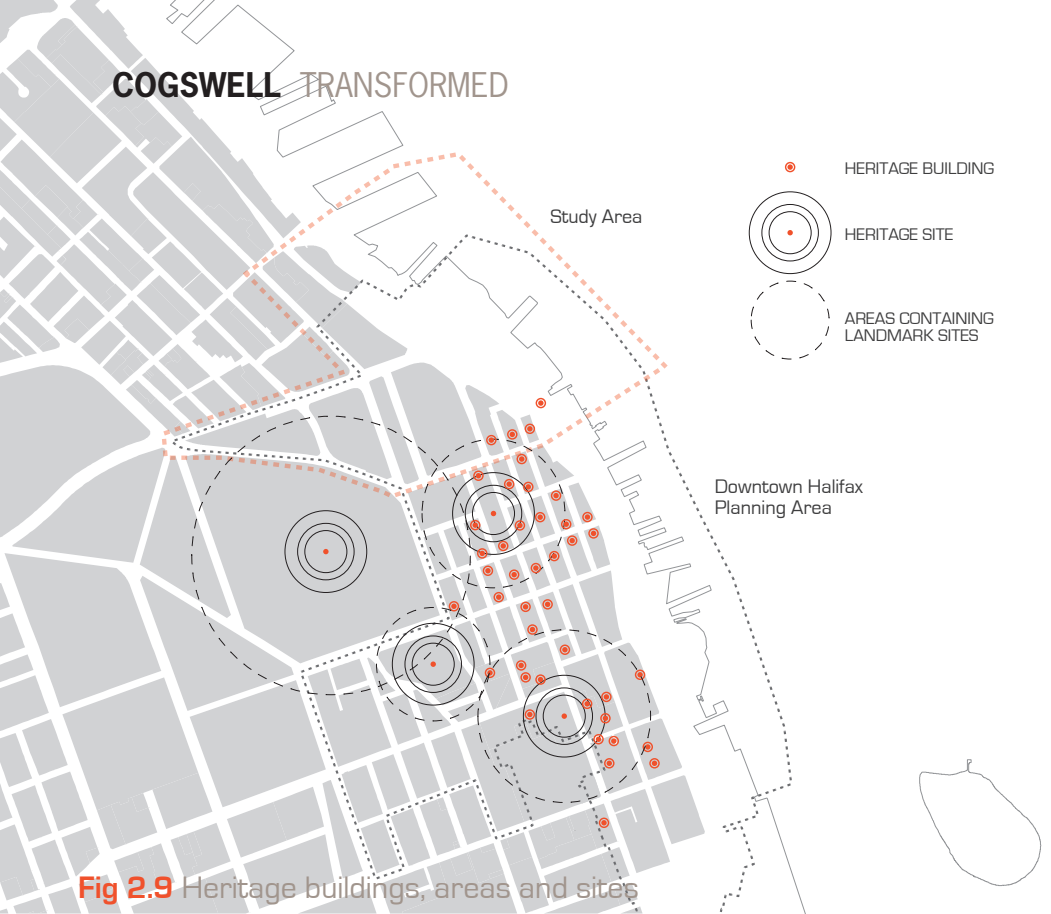


Fig 2.9 Heritage buildings, areas and sites

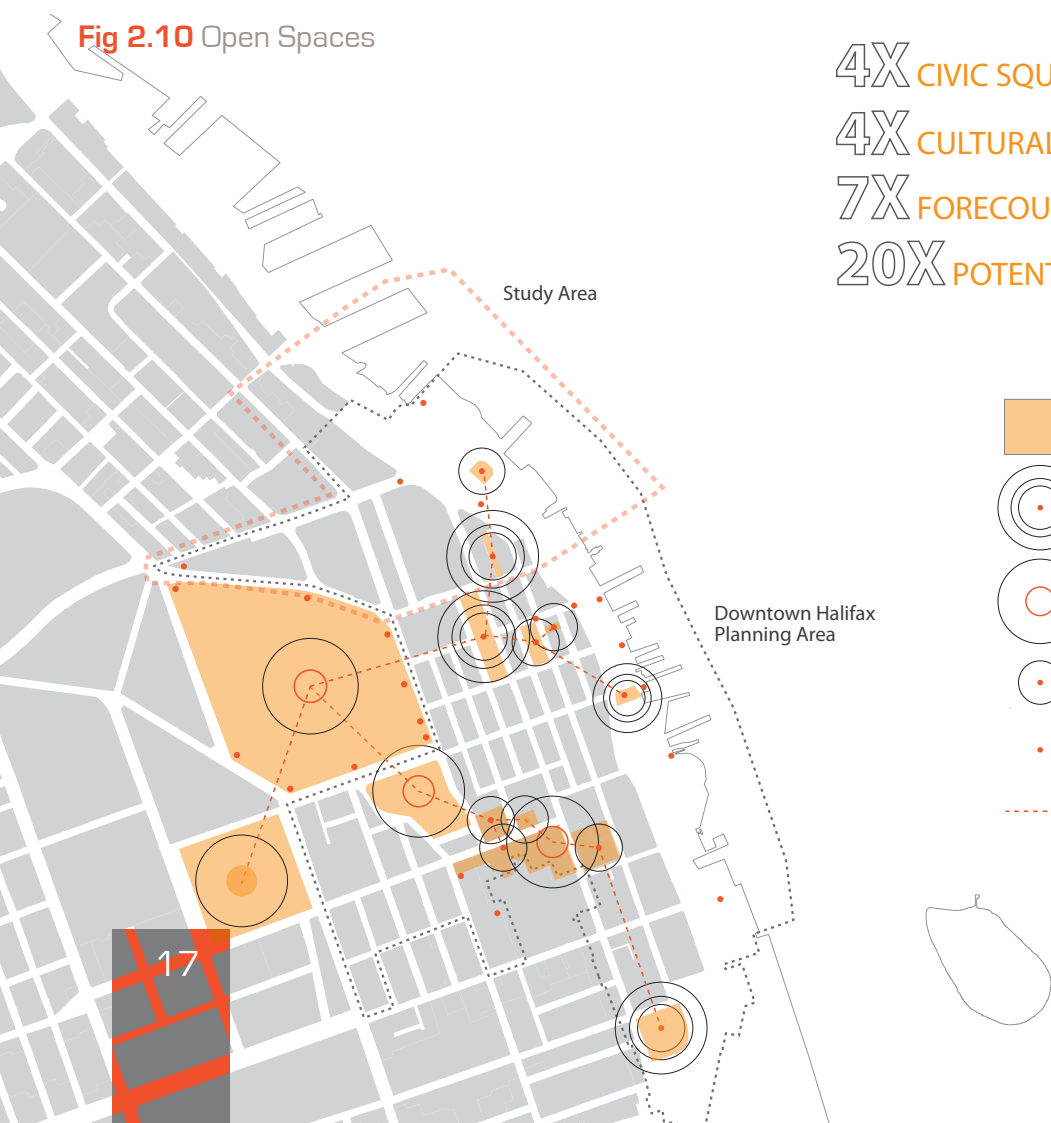


Fig 2.10 Open Spaces

- 4X CIVIC SQUARES
- 4X CULTURAL LANDSCAPES
- 7X FORECOURTS AND GREENS
- 20X POTENTIAL PLAZAS

for staging purposes as well.

Cogswell Street: 15 bus routes use Cogswell Street including those buses from Dartmouth using Gottingen Street to Cogswell to Barrington Street.

Cornwallis Street: Cornwallis has very limited bus access given the slopes and limited width, but it is used by two routes, the 5 and the 82.

Recommendation

The design team recommends maintaining the option for on-street lay-by and integrated transit services as part of a transit block within the district instead of a dedicated 'transit terminal'. This block potentially could contain space for 10-12 bus stops, an office for bus drivers, good connections to population centres and bike routes, sheltered passenger facilities with interior commercial potential.

Due to the high level of disruption in the area to services, dedicated bus lanes were discussed, as well as transit priority traffic lights, and better downtown outgoing routing, possibly with the reinstatement of outgoing service on Brunswick street with controlled access onto the MacDonald Bridge during construction.

2.2.3. Parks

The areas immediately surrounding the Cogswell District include many of HRM's largest and most well used park spaces. To the West of the study area is the Halifax Common, to the East is the Waterfront Boardwalk and linear park system, and to the South of the District is

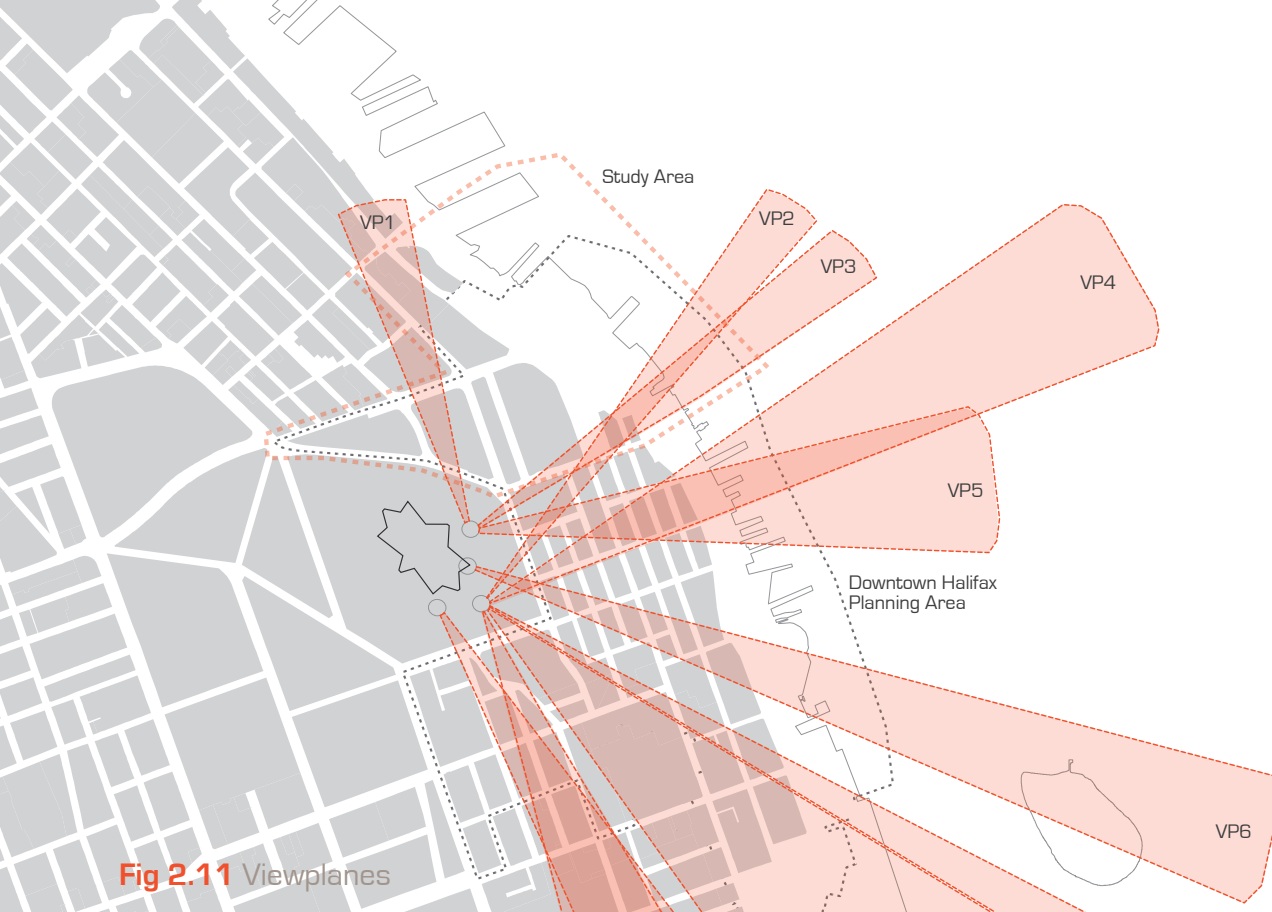


Fig 2.11 Viewplanes



Fig 2.12 Views and corridors

- FRAMING VIEWS
- WINDOW VIEWS
- TERMINUS VIEWS
- PROMINENT TERMINUS

Grand Parade at City Hall and the Granville Mall. To the North are the neighborhood parks associated with the Gottingen Street Area and the Barrington Greenway. These assets comprise some of the most used parks and public spaces in HRM. Major festivals, fireworks, athletics, busking, and near daily programming characterize these spaces.

Recommendation

Due to the large availability of park space in and around the study area it is the recommendation of the design team that the District act as a connector between these resources, further enhancing their roles in HRM's park network. Where opportunities exist to create parks or open spaces within the District efforts should be made to ensure that these spaces offer either hyper local utility or opportunities for use and programming that are not currently available in other Downtown parks.

2.3 Bylaw

2.3.1. Viewplane Impact

In 1974, with the threat of taller and taller buildings (like Scotia Square, Citadel Inn, the CIBC building and Maritime Centre) challenging the traditional low-rise character of downtown Halifax, council voted to create 10 viewplanes to protect views from Citadel Hill to the harbour. Most of the Cogswell area is located between VP1 and VP2 creating one of the largest viewplane-free areas in downtown Halifax. With minimal viewplane impact, the Cogswell Area is mostly limited by the rampart provisions of the bylaw which state that no development shall be visible from above the topmost line of the earthworks of the Citadel Ramparts from within the Citadel's Parade Square. For the Cogswell area, this would only have rational impact on the areas closest to Citadel Hill,

Recommendation

In absence of a rational limit on height within the bylaw we are recommending that building height be limited by the capacity of each building to provide required services for the intended use. As an example, using a parking ratio of 0.7 parking spots for each we would recommend heights be limited by the design and use of the buildings,

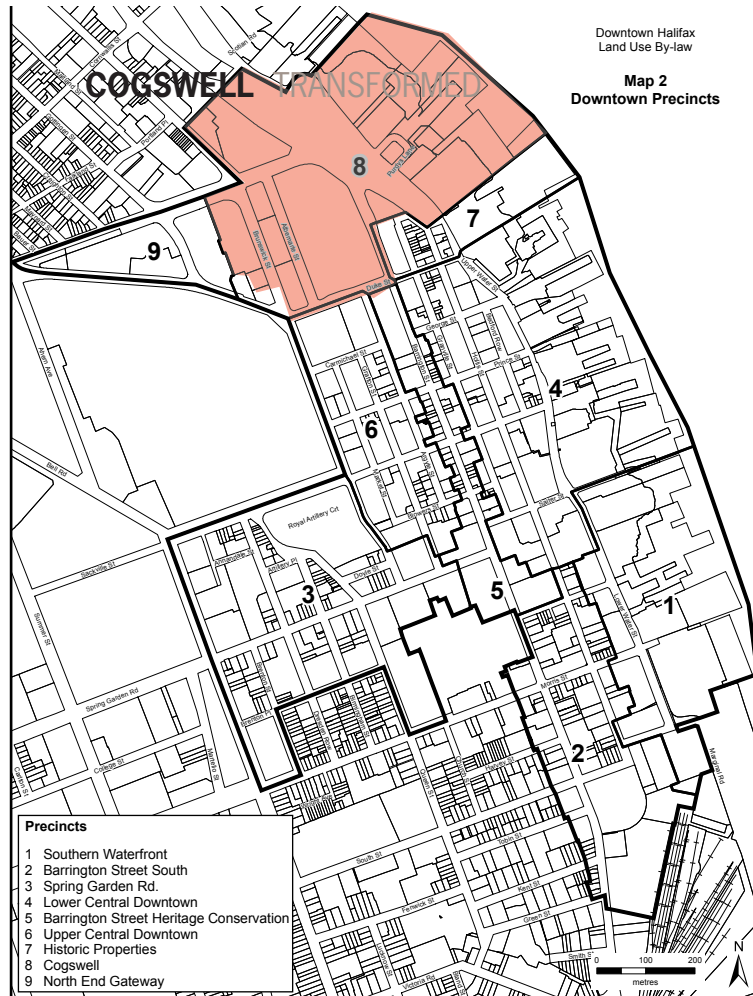


Fig 2.13 Downtown Precincts. Cogswell is Precinct 8

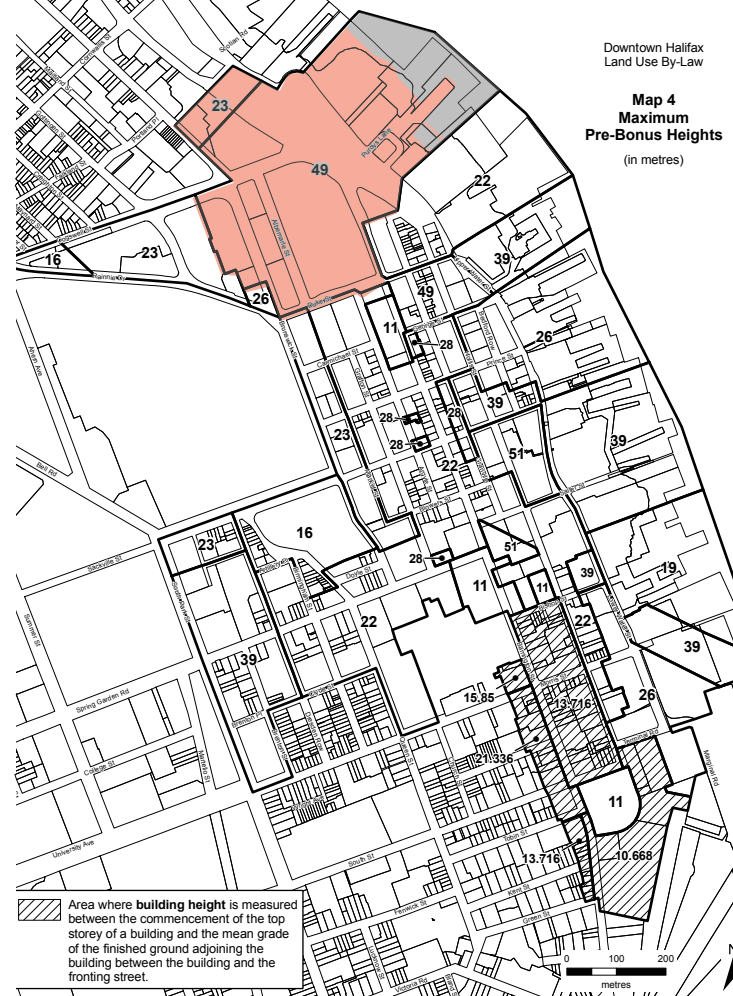


Fig 2.14 Max Pre-Bonus Heights. Most of Cogswell is currently 49m

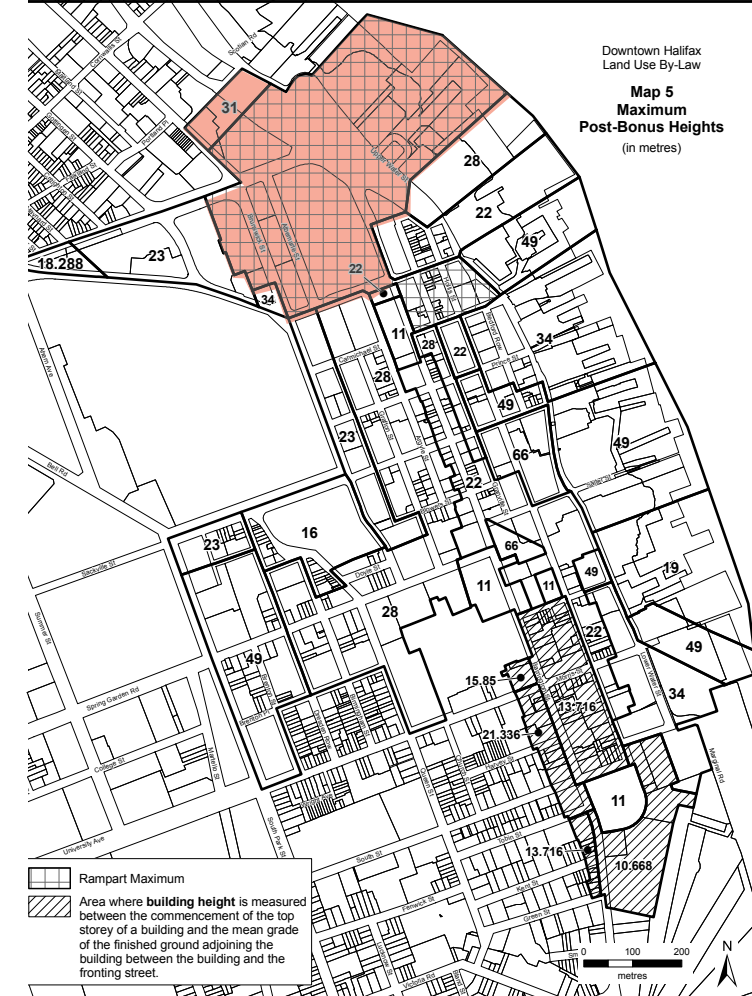


Fig 2.15 Max Post-Bonus Heights. Most of Cogswell is set at the Rampart Maximum (i.e. ~100m)

2.3.2. Planning & Zoning

South of Proctor Street the lands are located within the boundary of the Downtown Halifax Secondary Municipal Planning Strategy (see fig 2.13). Within this strategy we find the Downtown Halifax Urban Design Vision and Principles, The “Ten Big Moves”, and the Vision for Precinct 8: Cogswell Area. While the vision for Precinct 8 is specific only in its direction to further study, the general Design Vision and Principles/Policies for Downtown Halifax were useful in crafting a design direction for the site.

Six overarching principles represent the major themes carried forward in the Downtown Halifax Secondary Municipal Planning Strategy:

1. A Sustainable Downtown
2. A Living Downtown
3. A Distinct Downtown

4. A Beautiful Downtown
5. A Connected Downtown, and
6. A Vibrant Downtown.

Looking further North, the Halifax Municipal Planning Strategy offers direction for the Peninsula North Planning Area (Area 7) that housing the northern extent of the Cogswell project and several potential development sites. Within Area 7 between Cornwallis and Cogswell streets, there are lands that are encompassed within the Cogswell Lands Plan study area. These lands are designated as High Density Residential within the Halifax Municipal Planning Strategy, Section XI - Peninsula North Secondary Planning Strategy.

The area is covered by a 49 m pre-bonus height limit and a small 23m height limit to the north. The post-bonus height limit is set at the rampart maximum (effectively +100m) and 31m to the

north. The Secondary Plan calls for tall buildings on the Cogswell Lands as one means to achieve density targets for the downtown. As noted, there are no major view plane impacts on the Cogswell property. Since many of the streets proposed for the Cogswell Area do not exist, the streetwall setback and streetwall height maps will need to be established once the bylaw is adapted for this new area.

Recommendation

The proposals outlined in this report need to be relatable to the current downtown bylaws. There will be an advantage to changing the boundary of the Downtown Halifax Secondary Municipal Planning Strategy to ensure that all lands fall under the same Planning Strategy.

Chapter 4 will provide further detail on suggestions for incremental bylaw amendment needed to accommodate development in the Cogswell area.

2.4 Infrastructure

2.4.1 Streets

The street network established in conjunction with the construction of the Cogswell Interchange is a striking departure from the street grid in the Downtown and the Brunswick Street area. Using HRM's urban street classifications system to detail the traffic characteristics we can establish priorities for maintenance such as snow clearing and traffic. HRM's urban street classification consists of five groups: (i) expressways, (ii) arterials, (iii) major collectors, (iv) minor collectors, and (v) locals.

The roads associated with the Cogswell Street Interchange are designated as Arterial or Collector roadways which move traffic to and from the Downtown Business District. With the exception of Barrington Street to the south of the interchange, all roads and ramps associated with the interchange are designated as full time truck routes in accordance with HRM By-law No. T-400.

Lower Water Street is a one way urban arterial

roadway and a designated truck route funnelling traffic out of the downtown area and generally along the Halifax Harbour waterfront. It provides access to a wide variety of commercial properties, the ferry terminal, numerous parking spaces and many other amenities. In recent changes (2012) to the downtown network, Lower Water Street was converted to a one-way street for its full length. Critical constraints on this roadway are the on-street parking and the available cross sectional space near the historic properties.

The sections of the network known as Upper Water Street include the roadway adjacent the waterfront properties of the Casino and Purdy's. It also includes the elevated continuation of Barrington Street through the interchange. The roadway is a designated HRM collector and a designated truck route.

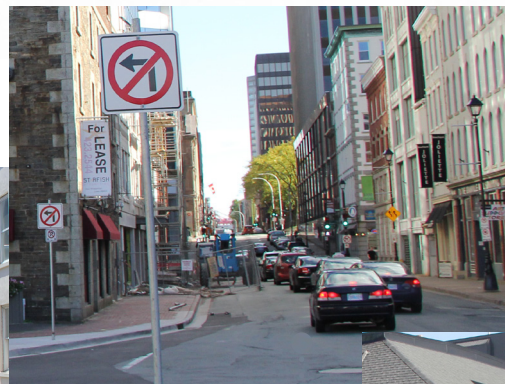
Hollis Street is a one way urban Arterial roadway funnelling traffic into Downtown running parallel to the Halifax Harbour Waterfront. It provides access to a wide variety of commercial properties, numerous parking spaces and many other amenities as well as the main access for transport traffic to the Halterm container terminal at the south end of the downtown core. Hollis

is currently a one way inbound into downtown and Lower Water Street is a one way street out of downtown. Hollis street has a two lane cross section, however is generally restricted to one lane due to on street parking.

Barrington Street is a two way urban Arterial road running generally north to south. It spans a distance of about 7 km, from the MacKay Bridge to Inglis Street. It provides access to commercial properties, hotels, Scotia Square Mall, and contains the major Metro Transit Terminal in the area within its breadth at Cogswell. Barrington Street varies from a two lane section to a four lane cross section. The Cogswell Interchange essentially interrupts the flow of traffic from Barrington Street north of the interchange to Barrington south of the interchange.

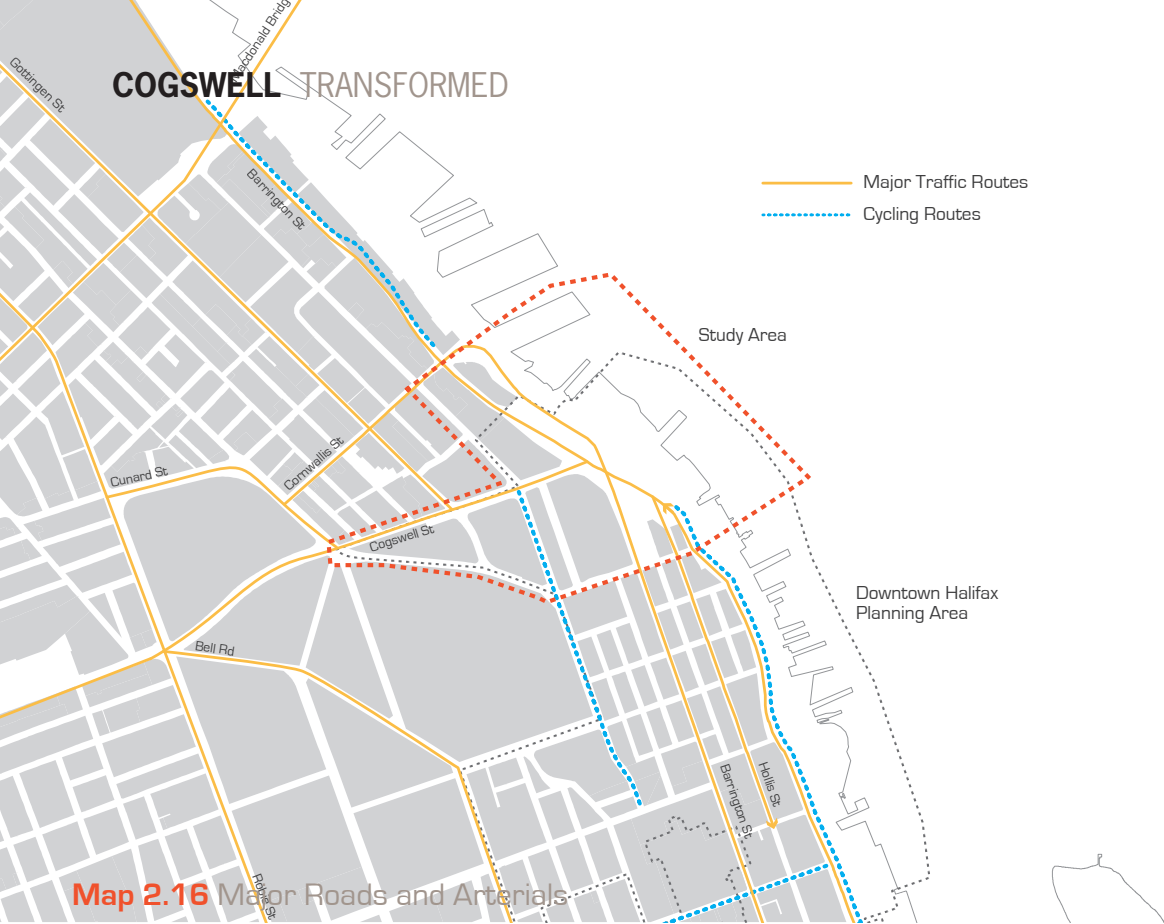
Cogswell Street is an east-west primary Collector route to the business and residential districts in the West End of the peninsula and the off-peninsula suburbs. It spans a distance of 1.2 km, from Quinpool Road to the Cogswell Interchange passing through the Halifax Common. Cogswell Street provides access to recreational facilities, residential, and some commercial properties. The existing Cogswell Street varies in section from 2

Barrington Street

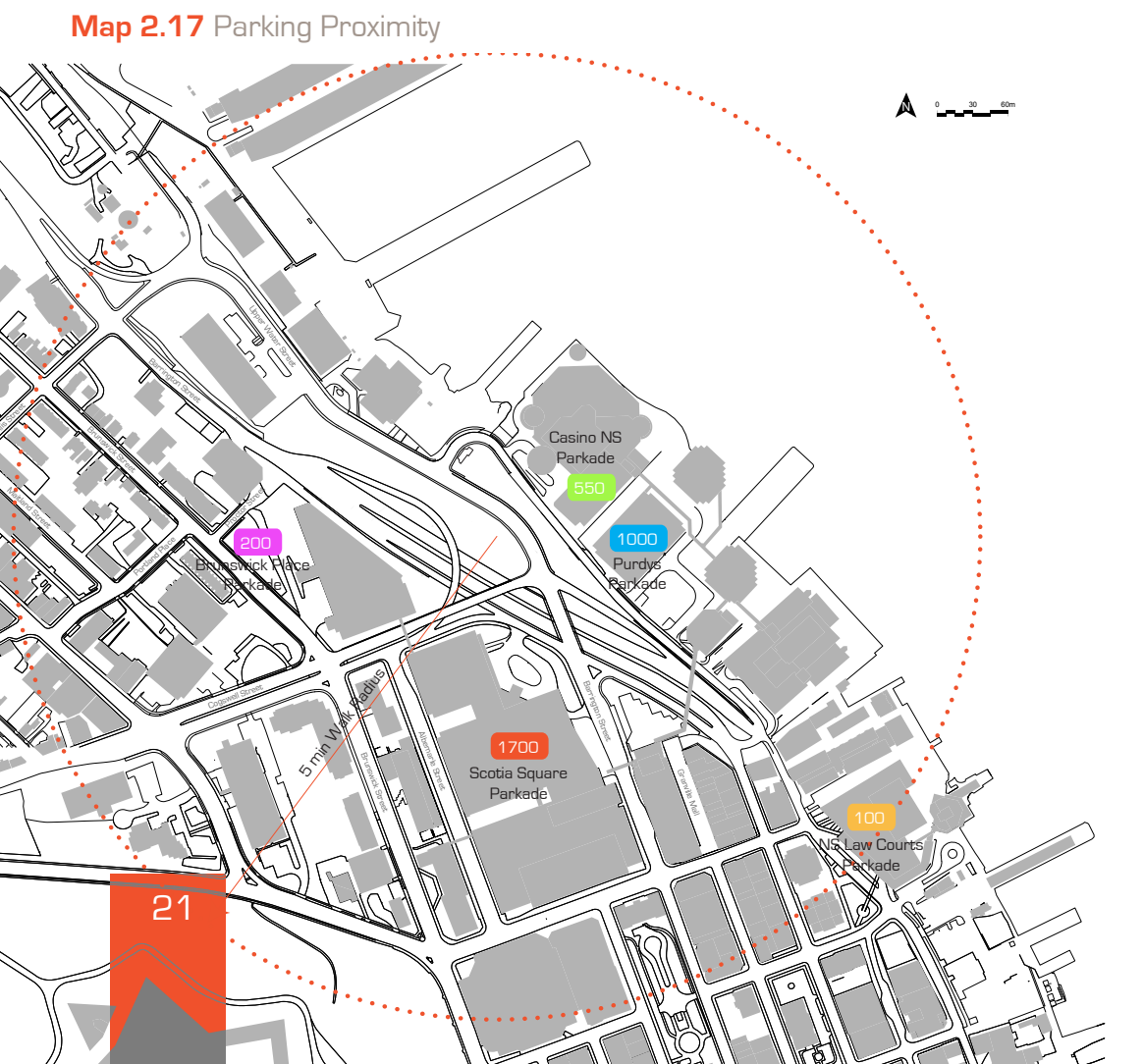


- Granville Mall
- Hollis Street
- Upper Water Street

Cogswell Street



Map 2.16 Major Roads and Arterials



Map 2.17 Parking Proximity

to 3, to 4 (divided) lanes and permits parking in selected areas.

Cornwallis Street is a two way minor collector street running generally east to west, perpendicular to the Halifax Harbour Waterfront. It spans a distance of about 500 m, from North Park Street to Barrington Street and has slopes up to 13%. Cornwallis Street provides access to residential and commercial properties, has two lanes and permits parking in most areas.

Recommendation

It is the recommendation of the design team that new streets be designed with a view to replacing the function of the network, including the Cogswell Interchange, but also allowing for development of the space that isn't needed for infrastructure. This approach will maximize the value of the land while allowing the District to perform its function as a piece of the transportation network. It is expected that the classification of the roadways will be adjusted to suit the new character of the developed area, but that traffic and transportation will not be significantly impacted. Special attention needs to be given to chronic issues associated with the Halifax access to the MacDonald Bridge and constraints of vehicle routes in and out of the downtown during afternoon peak traffic. These are regional issues and beyond the scope of this study.

2.4.2. Parking

Excluding onstreet parking, there are over 3,500 parking spaces within a 5 min walk of the Cogswell Interchange. The vast majority of these spaces are structured parking. There are over 700 metered parking spaces in the downtown. Despite this, there are clear parking challenges downtown as most business owners would attest. These onstreet parking spaces are vital to the success of street related retail and they help to create a safe urban sidewalk by buffering pedestrians from the busy street.

Halifax has seen success with off-peak parking lanes. During busy AM and PM peaks, the roads are used as travel lanes. Depending on whether traffic is incoming or outgoing, one side of the street is used for parking meaning that roads don't have to be designed excessively wide to accommodate peak traffic and parking. This approach should be employed with the new redevelopment.

Recommendation

Where possible, on-street parking should be provided to support ground floor commercial uses. By including this provision in the initial design of the streets we can help ensure that the spaces are designed and built in an economical way and they don't infringe on the multi-use trails and pedestrian ways envisioned in the master plan. In addition, these onstreet spaces will contribute to the overall look and feel of the pedestrian sidewalks. Wherever possible, off-peak parking and dedicated travel lanes should be used to balance peak traffic and maximize parking throughout the day.

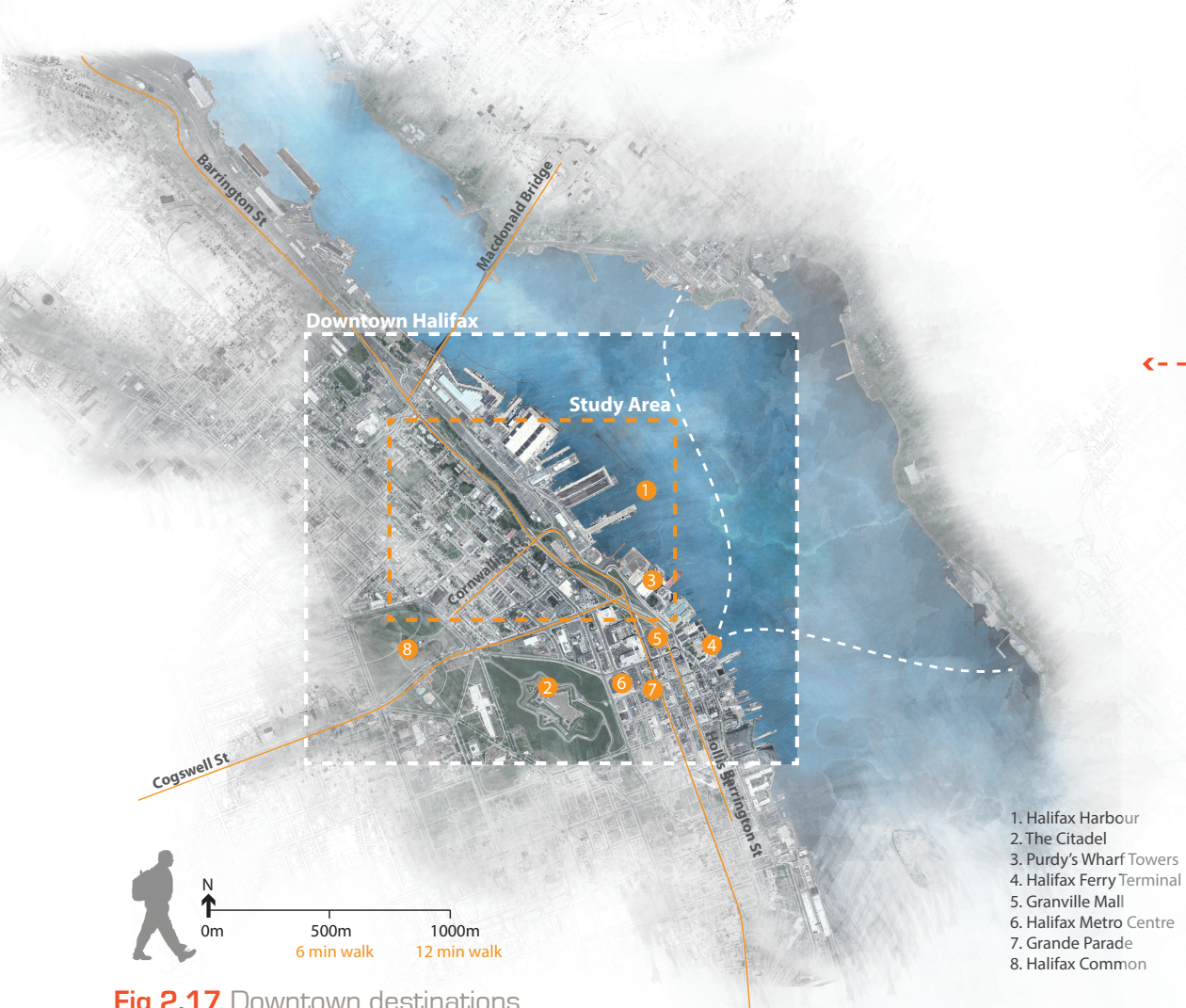


Fig 2.17 Downtown destinations



Fig 2.18 Cogswell area destinations

2.4.3. Pedestrians & Pedways

The Cogswell Interchange was designed for cars and not for pedestrians. In fact, it is very dangerous to walk within or try to cross the interchange by foot or bicycle. In response to this difficulty, most developments on the periphery have employed pedestrian pedways to overcome the interchange. These include a series of pedways from Purdy's Wharf to Scotia Square and a pedway from the Trade Mart to Scotia Square. As a consequence, the pedways bypass the Granville Mall, and Hollis Street making them somewhat pedestrian inaccessible.

A multi-use trail has been built from the MacDonald Bridge to Cornwallis Street. As the first phase of a bridge to downtown Active Transportation link, it provides good access to the Halifax Dockyard but is blocked from

the downtown by the Interchange. Clearly, this connection into the downtown needs to be extended. The option exists to link to Upper Water Street and southward along the waterfront. The west side of Barrington Street from the Bridge to the downtown could also be developed as a multi-use trail to provide better connections into the heart of downtown Halifax and the southern portion of the peninsula including hospitals and universities without having to cross Barrington street twice as is currently the case.

The Waterfront boardwalk is one of Halifax's most distinguishing and well loved public spaces. The rhythm and activity of the boardwalk currently ends at the Marriot Hotel on the north end of the waterfront. From here, the boardwalk extends along the hotels parking garage to Purdy's Wharf. Between the two Purdys Towers the boardwalk ends and

many pedestrians are unclear if the boardwalk experience has ended. The boardwalk picks up again at the NS Casino but ends abruptly at the entrance to the Casino. As the Cogswell is redeveloped, the Waterfront Development Corporation (WDCL) will have to work with individual land owners to extend the boardwalk experience and to create strong connections back to the waterfront from the Cogswell Area and north end that were lost some 40 years ago.

Recommendation

When the interchange is removed, the at-grade street grid with animated streetscapes should be reinstated, improving the conditions for pedestrians and reconnecting neighbourhoods back to the waterfront. While the area will face similar challenges to the rest of downtown with respect to grade change and slope, design



Map 2.19 Commercial Access Points

features of new developments can help accommodate pedestrians to some extent. WDCL should play an important role with the City in reconnecting the waterfront back to the city.

2.4.4. Commercial Access

Access points to and from existing developments are indicated on figure 2.19. Commercial properties on Upper / Lower Water Street in the study area suffer from poor access and limited street visibility due to the interchange.

Recommendations

In total, 16-18 driveways will need to be replaced as part of the new configuration. improved movement to these establishments will improve business viability. Connection to the Cogswell District street grid and urban fabric will also lead to better integration of the commercial enterprises on Upper Water Street to the rest of the CBD.

2.4.5. Traffic

Traffic volumes have not grown in the downtown over the last ten years. During the AM peak, traffic generally distributes itself through a variety of destinations resulting in diminishing volumes as drivers select different routes of travel. This primarily distributes high volumes on Barrington Street (from the Macdonald Bridge and from Barrington Street north of the study area) to a variety of directly destinations. During the PM peak hour the opposite occurs where a variety of traffic streams converge onto Barrington Street and proceed north either to the Macdonald Bridge or continuing north on Barrington Street. As a result, many of the critical traffic constraints occur at major intersections where major streams of traffic come together.

A full traffic assessment for the study area can be found as an adjunct report to this study.

Recommendation

The primary recommendation for consideration in the plan is that the new Cogswell District be designed with the capacity to support the movement of goods, and allow for better human scaled street design. Through more efficient layout, and by providing opportunities for traffic flows to be spread over a larger portion of the Downtown street grid, the driving experience will improve along with the experience for pedestrians, cyclists, and users with accessibility challenges. Cogswell will need to be part of a larger strategy to improve traffic flows on the peninsula and bridges.

2.5 Built Environment Conditions

2.5.1. Building Heights

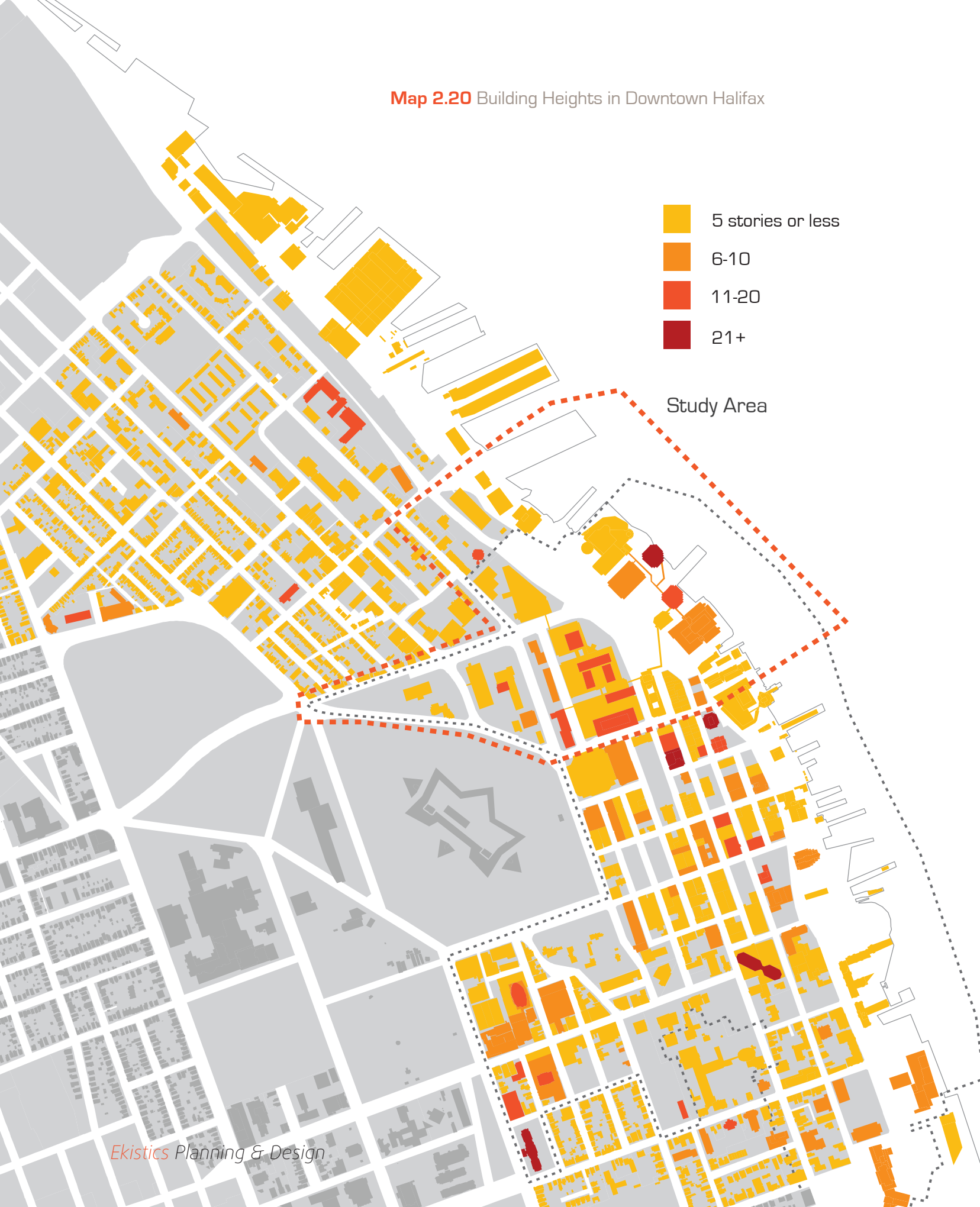
Comparatively, Halifax is low to mid-rise city. The Building Heights Map (see fig. 2.20) shows that most of the buildings in the downtown are less than 5 stories in height (75% by area). The Cogswell study area has more taller buildings (> 10 stories) than other parts of the city. The Downtown Secondary Plan identifies the Cogswell area as having the potential to host additional tall buildings to fill any need for commercial and residential development

Recommendation

Due to the district's location outside (many of) the view planes that have helped shape downtown Halifax's skyline there is an opportunity to build a district with some height and density. It is the recommendation of the design team that building height be limited by the capacity of each building to provide required services for the intended users (e.g. parking) Care should be taken to provide a coherent link and transition between the residential North End with its historic fabric and the taller Downtown Core by decreasing the height profile to the North.

Rank	Building	Height	Floors	Completed
1	Fenwick Tower (Residential)	98 m (322 ft)	32	1971
2	Purdy's Wharf Tower 2 (Office)	88 m (289 ft)	22	1990
3	1801 Hollis Street (Office)	87 m (285 ft)	22	1985
4	Barrington Tower (Office)	84 m (276 ft)	20	1975
5	Cogswell Tower (Office)	79 m (259 ft)	20	1975
6	Maritime Centre (Office)	78 m (256 ft)	21	1974
7	Queen Square (Office)	75 m (246 ft)	19	1975
8	Purdy's Wharf Tower 1 (Office)	74 m (243 ft)	18	1985
9	Bank of Montreal Building (Office)	73 m (240 ft)	18	1971
10	TD Tower (Office)	73 m (240 ft)	18	1974

Map 2.20 Building Heights in Downtown Halifax



2.5.2. Downtown Density

For over 20 years there has been a push to get more people living downtown. Halifax saw a 7% increase in Downtown population from 1996-2001, and another 12% increase from 2001-2006, bringing the population density to 45 people per hectare. This is about middle of the pack compared to other Canadian cities. Vancouver has the densest downtown with 176 people per hectare, followed by Toronto with 104/ha. Halifax is closest to Winnipeg (38/ha) and London (35/ha) and leads Ottawa (23/ha), Victoria (15/ha), Fredericton (7/ha). The increase in downtown residential population in Canadian cities is helping drive the revitalization of historic downtowns across the country.

Recommendation

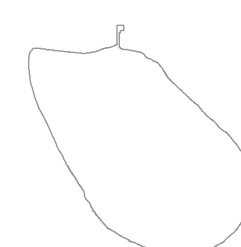
The design team feels that by creating the conditions for high density residential development in the Cogswell Precinct, there is the opportunity to contribute to HRM's planning goals for residential growth and support a wide variety of housing options in the core.

2.5.4. Street Grids

Street grid scale is directly attributed to walkability. Halifax has one of the smallest street grid scales of any downtown in Canada (0.72 ha average, see Figure 2.22) and is one of the reasons why the city is so walkable.

Recommendation

Maintaining a small street grid scale is important in realizing walkability and connectivity goals for the district.





Map 2.21 Population Density Downtown

2.5.3. Heritage

After the Great Fire of 1859, the north side of Granville street was rebuilt to the splendour still visible today. Granville Street, once the most prominent commercial streets in Halifax, was turned into a pedestrian mall with the construction of the Cogswell Interchange. Without an anchor at the Cogswell end, businesses in the mall have languished. The Granville Mall needs a substantial open space anchor as well as a signature building as part of the new development to ensure the area's commercial viability for the future. This will serve to create a vital public centre for the Cogswell precinct and function as one of several strong connectors to the existing fabric of the downtown. A public square at the end of Granville will offer a buffer for the concentration of Heritage buildings to the South of the Cogswell

redevelopment.

The Morses Tea building sits between Lower Water Street and Hollis Street at the south end of the Cogswell site and creates an isolated forecourt island that requires a sensitive urban design treatment. Map 2.23 shows that this area was both the "Landing Point" for the settlers in July 1749 and the site of the military ordinance yard and two waterfront batteries. The history of this important site will need to be realized in the final design.

Historic Properties stand today as a reminder of the failure of Harbour Drive Expressway and the Cogswell Interchange. The walkway between the Marriot Halifax and Historic Properties is one of the most prominent connections to the waterfront boardwalk.

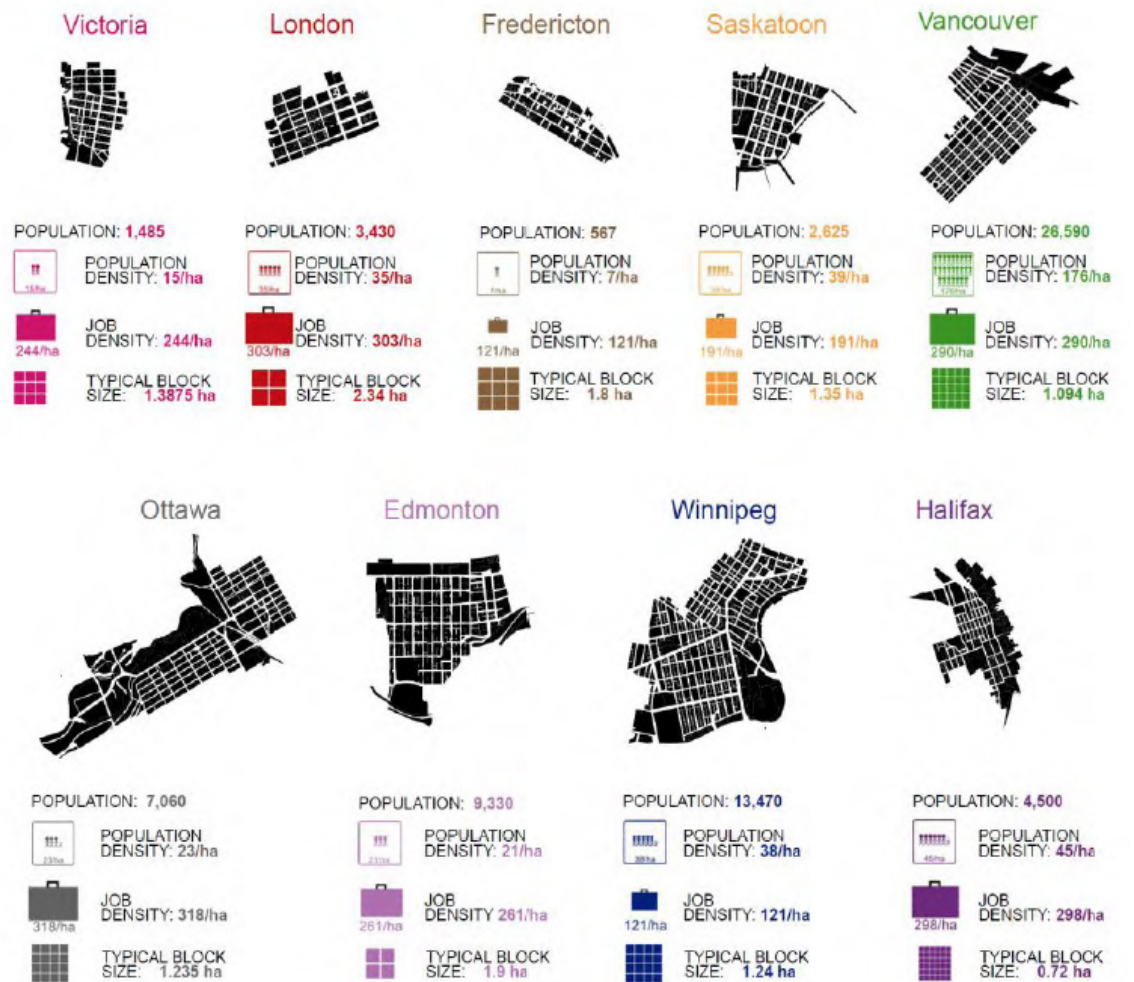
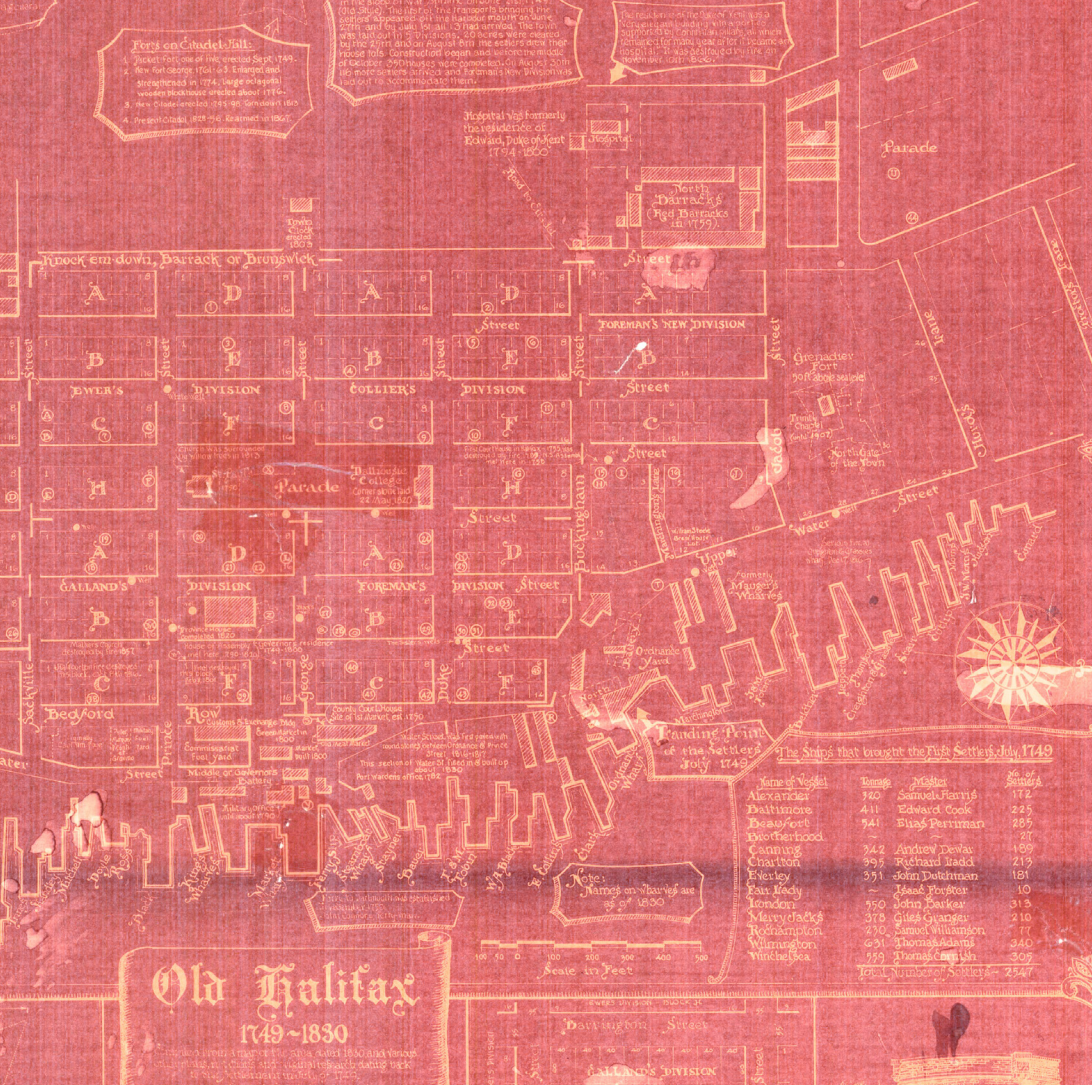


Figure 2.22 Population Density in some of Canada's Downtowns [Source: The Value of Investing in Canada's Downtowns, May 2012]

The Brunswick Street Heritage Area, located just West of the study area exists to encourage the preservation, maintenance and enhancement of buildings, areas, streetscapes, and conditions which contribute to the heritage character of certain areas of Peninsula North.

Recommendation

Similarly to the parks surrounding the District, there is a great potential to connect the Heritage Resources of downtown to each other and to the greater city. Connecting the Granville Mall to the waterfront should be a major goal in the final plan. Creating respectful integration with the Heritage fabric along the boundaries of the Cogswell Precinct through well designed new buildings, public open space and/ or lower density buildings should also be an objective



2.5.5. Servicing & Civil Infrastructure Conditions

As demonstrated by the existing services drawing, there is a significant amount of underground servicing within the study area, including storm and sanitary sewer, water mains, power duct banks and electrical infrastructure (NSPI), telecommunications (Aliant), and gas lines (Heritage Gas). In addition to local sanitary servicing of the existing buildings, the regional Harbour Solutions sewage treatment plant (STP) infrastructure also crosses the site.

Recommendation

The redevelopment of the area will involve the reconstruction of existing services, as well as the installation of new infrastructure to service the new development parcels. For the most part, existing services can be relocated to suit the new street layouts. However, there is critical infrastructure, identified in the initial phase of the project which will be costly and difficult to relocate. The development options explored in this study have considered the following primary constraints:

In addition to the major infrastructure noted above, servicing is located within existing roadways, generally at the perimeter of the site on Upper Water Street, Cogswell Street, and the south end of Barrington Street. The redevelopment will require adjustments and replacements along existing roads.

The CSO Chamber and primary trunk sewer which are critical infrastructure which cannot be relocated will have to be accommodated very early into any detailed design for redevelopment.

2.5.6. Street Grid Orientation and Solar Gain at Sidewalks

The orientation of urban street blocks impacts the amount of sun received at the sidewalks and hence the human thermal comfort of the street experience. To illustrate this, a 3D computer model of a typical Halifax development (5 storey streetwall with a 7 storey tower with 3m stepbacks) was constructed on 4 different block orientations; east-west, north-south, typical halifax grid orientation and a Cogswell Block orientation. A solar simulation was run on each orientation and the amount of sunlight (measured as sq.m.) was recorded for each hour of the day and plotted on a graph. The results show that the Cogswell Orientation receives 83% of the amount of sunlight at the sidewalk when compared to the best solar orientation of the east-west grid. The Typical Halifax Block orientation received 87% of the east-west orientation and North South orientation received 89% of the sunlight.

Recommendation

The solar orientation of buildings to maximize open space solar gain should

Map 2.23 Cogswell Area Servicing Map

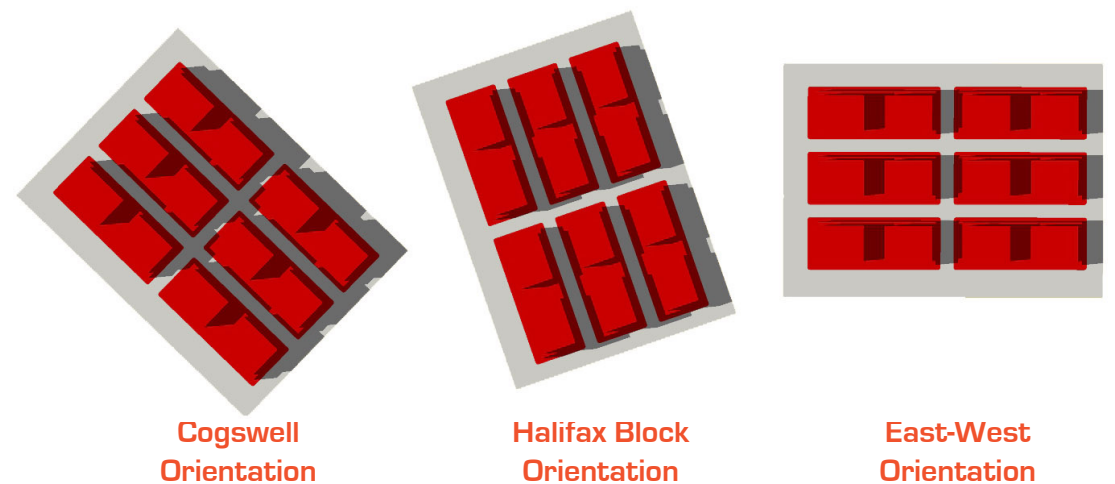
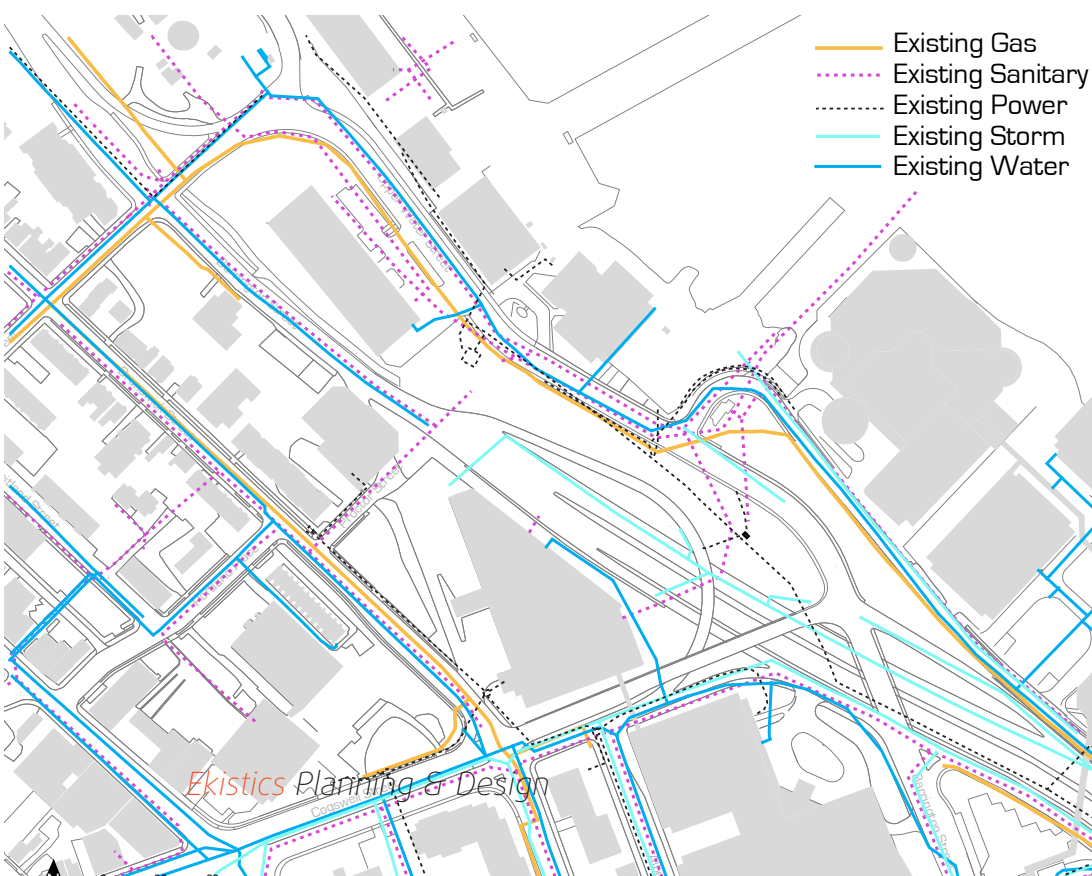


Figure 2.24 Street Grid Orientation and Solar Impact at Sidewalk

Table 2.25 Hourly Solar Impact at Sidewalk for different grid orientations

	Cogswell Grid (sq.ft.)	Typ Halifax Grid (sq.ft.)	East West Grid (sq.ft.)	North South Grid (sq.ft.)
5am	52,101	69,653	84,469	94,179
6am	87,416	133,078	90,305	95,699
7am	88,370	122,387	133,457	115,392
8am	92,262	112,467	193,659	136,864
9am	125,575	114,986	192,335	139,075
10am	195,335	147,020	176,169	147,898
11am	207,676	208,568	181,849	187,457
12pm	211,854	215,122	188,193	214,809
1pm	184,867	198,728	188,799	214,939
2pm	163,828	164,082	174,795	159,526
3pm	135,950	149,882	188,242	142,677
4pm	111,290	138,848	199,392	144,242
5pm	106,404	109,101	192,192	140,698
6pm	108,018	104,812	113,381	108,259
7pm	113,127	103,787	95,673	94,754
TOTAL AREA	1,984,071	2,092,521	2,392,909	2,136,467
% of Best Case	82.91%	87.45%	1.00%	89.28%

Table 2.27 Hourly Solar Impact at Sidewalk for different grid orientations

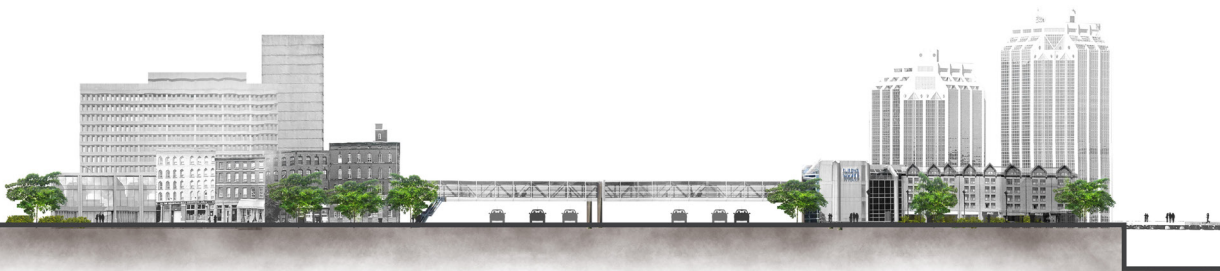
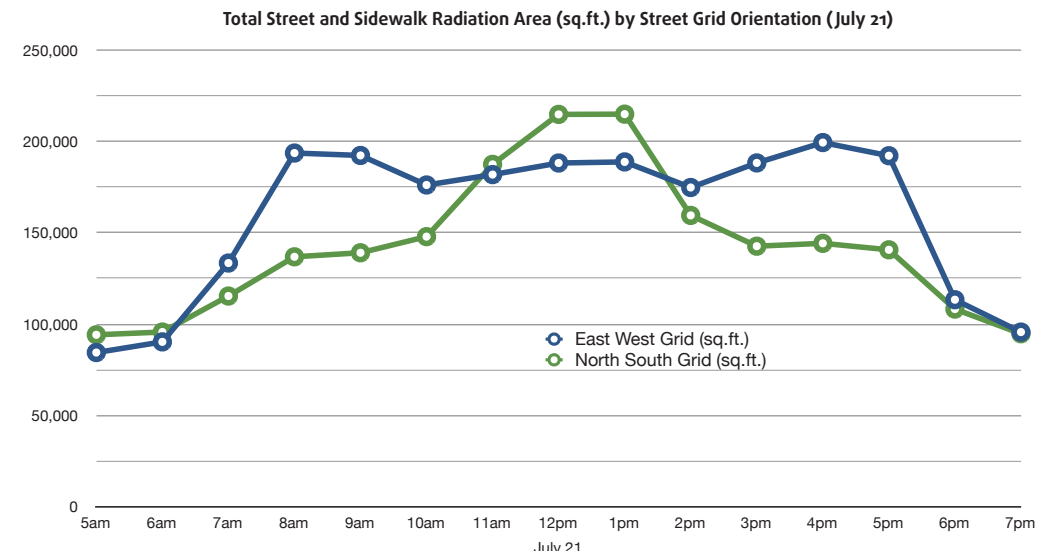
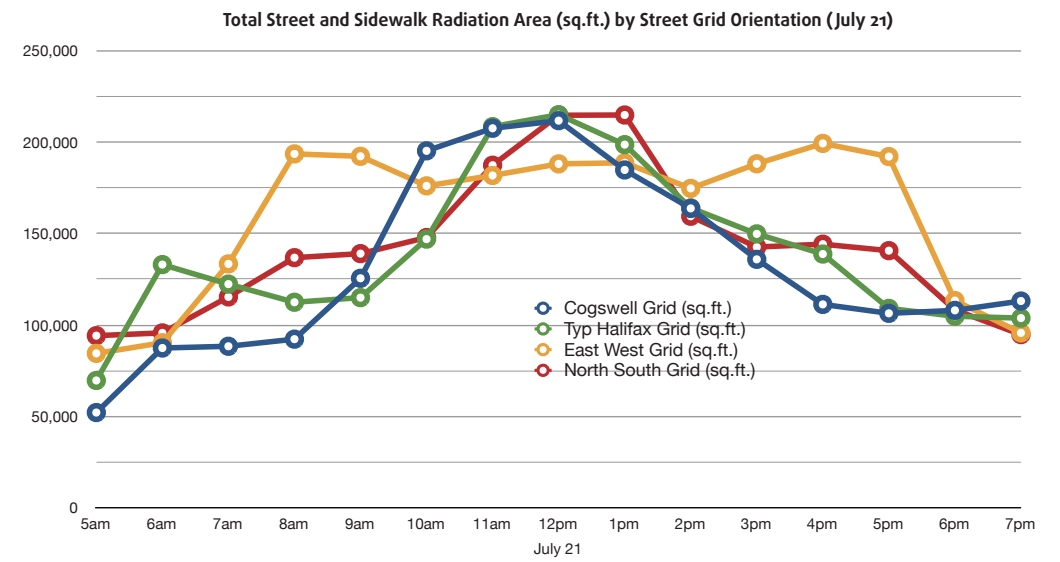


Fig 2.26 Section through Cogswell Interchange (Through Morses Tea)



Fig 2.27 Section through Cogswell Interchange (Through Granville Mall)



be a consideration of every building. The streetwall composition has a surprisingly large impact on sidewalk shade in addition to the tower. One way to increase the solar gain at the sidewalk is allowing the tower to extend to the sidewalk without requiring a streetwall for a small proportion of the facade. This would help create areas of sunlight along streetscapes, where otherwise there would only be shadow. A change in tower setbacks would require a change in the urban design policy to support it. This change is reflected in the new policies found in chapter 4.

2.6 Market

This section provides a high level overview of the development potential of the Cogswell Interchange lands. The intent of this information is to inform the design program for the master planning exercise. A more detailed market study will be completed under a separate cover, to assess the market potential for various land-use types, and to determine how the build out of the Cogswell lands might impact the health and vitality of existing land within the downtown core of Halifax. A high level summary of the range of most likely land uses follows.

2.6.1 Residential

The demand for residential housing is a function of employment and population growth. Housing demand also responds to trends in socio-economic characteristics (e.g., the increased incidence of divorce has created more households that need housing). While housing demand in HRM has remained strong during the past five years, the market is slowly shifted from one that is balanced, to one that is at risk of being oversupplied. During the past 5 to 10 years the percentage of total housing starts that is built in a multi-family format (e.g., apartments and condominiums) has been growing, while the allocation towards single family homes has been dropping. The large increase in the supply of multi-family housing can be attributed to the 2008 stock market crash (i.e., real estate is seen as a safe harbour for investments as compared to the stock market), very low interest rates, and the large supply of multi-family housing sites available for sale as a result of new masterplanned communities such as Bedford West, Russell Lake West, Mount Royale, etc.

While sites for multi-family housing on the Halifax



Peninsula are generally considered in scarce supply, there is a fair amount of pent up demand for apartments downtown, although this demand is price sensitive and new product has to be produced at a reasonable price. As well, given the lack of new office space development over the past few decades, downtown needs new residential housing in order to add vitality to the retail district, and in fact to help make office space more viable (i.e., employers like to locate office space close to where employees live).

The projected start-up of the Irving Shipbuilding contract in 2015-16 should eliminate most of the growing supply of vacant apartments in the urban and suburban core. Should BP and/or Shell Oil find oil as part of their exploration work in 2015/16 the demand for housing downtown would increase dramatically.

Recommendation

When compared to land uses, multi-family residential has the largest potential to fuel the build out of the Cogswell Interchange lands. As well, providing a large quantity of residential housing units will go a long way towards allowing downtown to evolve as a new residential neighbourhood. Therefore, we recommend that the development plan place a heavy emphasis on multi-family housing, with a majority (80%+) of the units envisioned as rental housing. The focus on rental housing is important as it means smaller average unit sizes and lower allowable parking ratios (0.5 to 0.7 parking stalls per unit). To the extent that some of these residential buildings are built as condominiums, depending on price point, the average size would likely increase, as would the parking ratios. Smaller micro condominiums can likely get by with parking ratios of 0.6 to 0.8 stalls per unit, but as unit sizes increase, more expensive condominiums will require 1.25 to 1.50 stall per unit. This has important implications for the height potential of various land parcels, as its likely only viable to build 1 to 2 levels of below grade parking before hitting the high tide mark (at this point parking construction becomes extremely expensive and likely not viable). HRM needs to consider allowing parking on the upper floors of some of the higher proposed structures (e.g., below grade parking, ground floor retail, parking on levels 2 and 3, and residential units above).

2.6.2. Retail Space

The demand for retail space is typically a function of aggregate household income. As the population of an area grows, and household income increases, there tends to be more disposable income available for retail sales. There are other dynamics at play as well - for example an older couple with a mortgage that is paid off, and children that have moved out of the home, will usually have more disposable income than a younger couple in the same income bracket, who has large mortgage payments and might also have childcare or educational costs. Although office workers also spend money on lunch and other items, research indicates that most people spend the majority of their money close to home (e.g., local neighbourhood grocery, etc). While aggregate disposable income in HRM has been growing over the past few decades, the real story has been the tremendous growth in the supply of large format retailers in suburban areas. As a general rule, these new retailers tend to draw customers from a large trade area and have had a detrimental affect on smaller urban retailers who don't have the purchasing power needed to match the big box's low prices.

As a result of these dynamics, the retail environment downtown continues to struggle due to a lack of daytime customers, poor parking capacity and a general shift of critical mass to the suburbs by residential and office tenants. Although the bar and restaurant sector has always been an anchor for downtown Halifax, recent increases in the minimum wage, smoking and drinking and driving laws are all having a negative impact. At the same time, restaurateurs are discovering the potential of suburban locations for new ventures and are now competing with national chains to provide ethnic restaurants and pubs to suburban customers.

Recommendation

Requiring active ground floor retail space is a reasonable request. It is expected that the ground floor of most, if not all buildings should have an active retail use. The Plan should include a large focus on residential housing as a way to dramatically increase the amount of disposable income available for spending in the downtown. The Plan should also provide new public parking and improved public transit so that access to new and existing retail shops is enhanced.

2.6.3. Office

The outlook for office space downtown is not that positive. While long term demand (net absorption) should increase as the engineering work on the National Shipbuilding Strategy advances (i.e., the Irving Shipbuilding contract), downtown is at a disadvantage relative to suburban office parks as land prices are higher, property taxes are higher, construction costs are higher, and there is less parking available for tenants and visitors. As well, since the average tenant size in Halifax occupies approximately 300 SM (i.e., HRM does not have a large number of nationally headquartered companies that occupy 15,000 SM+), it is extremely hard to pre-lease enough space to support the pre-financing commitments for a major office tower. After two decades of inactivity, the new office construction that is currently occurring downtown is primarily to replace old and obsolete office space (e.g., TD Bank, BMO Tower, RBC Tower, etc.). Other than a new office tower that is being proposed for the new Convention Centre (which will likely replace old obsolete space), we think its extremely unlikely that downtown Halifax will see anymore Purdy's Wharf style office towers in the near future. This could all change if BP and Shell Oil find a large amount of oil and gas in the offshore that is economically viable to extract. Under this scenario, we would expect to see a large volume of new office space constructed in Halifax, with downtown being a preferred location. In fact, if the volume of oil and gas discovered in the Nova Scotia offshore were large enough, major oil companies might relocate some space from St. John's Newfoundland, as that market is difficult to get to (i.e., the airport gets fogged in) and hard to service with employees, etc.

Recommendation

The Plan for the Cogswell Interchange should absolutely allow for the construction of new office space, however, in the absence of a major oil and gas find, we think that the likelihood of a new office tower is fairly low. As a result, most new office space will likely follow the format used at the Trillium Building on South Park Street: ground floor retail, one level of office space on the second floor with residential above.

2.6.4. Hotel

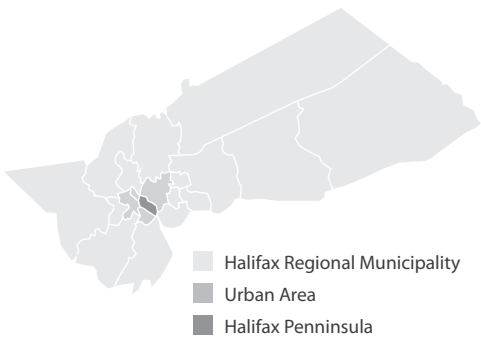
The demand for new hotel rooms is primarily a function of the health of the economy. For example, demand for business travel varies based on the overall health of the economy (e.g., businesses authorize less travel during downturns). The same is true for other hotel market segments such as: visiting friends and relatives; government; and groups. Demand for the meetings and convention segment can be induced by factors such as expanded convention space, a larger supply of hotel rooms, and improved air connections at the local airport. The best example of this can be seen by comparing the surge of hotel room construction after the completion of the existing World Trade and Convention Centre, as hoteliers took advantage of new convention centre capacity.

Halifax is in the midst of a shake-up in the hotel market as a result of the Irving Shipbuilding contract and the construction of the new convention centre. In 2013 several major hotels were sold (e.g., Prince George, Cambridge Inn and Suites, Raddison Suites) while the Citadel Inn was demolished to allow the redevelopment of the site. Great West Life Realty Advisors and the BCIMC are currently building a new Hilton and Hilton Extended stay suites on the site of the old Citadel Inn, and it has also been rumoured that the convention centre will have a major "convention hotel" (e.g., 400+ rooms) as part of the new development. Several major boutique hotel chains (e.g., Germain) have also indicated an interest in building new high end product in the Halifax market, and a site close to the pub and waterfront district would be a desirable location.

Recommendation

It is likely that HRM could expect one or two more hotels built in the downtown during the build out of the Cogswell Precinct. The Halifax market has been a strong one for hotels over the past few decades, and the issue has always been the lack of available land downtown. Most hotel chain no longer own the real estate, preferring to allow local investors or publicly traded companies to own the real estate while they provide hotel management services for a fee. As there are still major hotel chains missing from the downtown



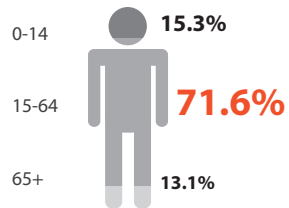


HRM AREA: **5,495.71 K**
 HRM POPULATION: **390,096**
 URBAN POPULATION: **297,943**

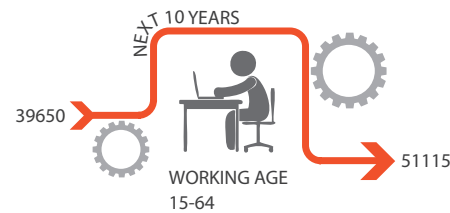
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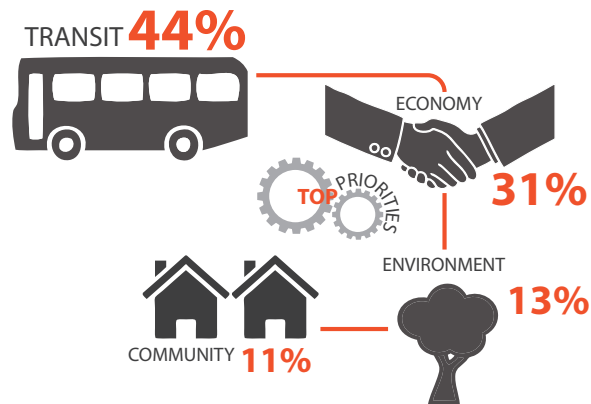
AGE DISTRIBUTION



AGING POPULATION



HALIFAXIAN'S TOP PRIORITIES FOR SPENDING



market (e.g., Novatel, Sofitel, Germain, etc), it is likely that these chains would approach local investors to partner on new hotel projects. Counter balancing this is the inability of most hotels to pay a premium for their development site, and in most cases, the hotel cannot out bid a residential developer for a property. The combination of a hotel and residential facility in one building solves some of these problems, and therefore the Plan should anticipate a hotel proposed as part of the future build out.

2.6.5. Stakeholders

In general, most real estate developers were very interested in the redevelopment potential of the Cogswell lands. Based on this feedback, strong interest in the purchase of the property(s) is expected as long as the development community is given sufficient warning about the date of the proposal call (i.e. so that they can coordinate this effort with their other development activities).

Recommendation

It is possible that a government institution might want space in one of the proposed buildings for a new police station, art gallery, law courts building, etc. The redevelopment plan should accommodate this potential, although the probability of it happening is hard to predict. The focus for redevelopment of surplus lands should be mixed use development with a strong lean to residential.



A SPAWLING CITY...

	HRM GROWTH TARGET	ACTUAL GROWTH
URBAN CORE	25%	16%
SUBURBS	50%	56%
RURAL AREAS	25%	28%



Design Principles and Concepts 3.0

3.0 Design Principles and Concepts

The 1960s vision for Cogswell Interchange as a single purpose, efficient thoroughfare to and through the downtown for the automobile, is the direct antithesis of the vision for the Cogswell District almost 45 years later.

The Cogswell District has been planned and designed for people first, incorporating all modes of transportation and a multiplicity of purposes and uses. A place to live, learn, work, rest, harvest and be entertained. A place that is designed to minimize energy use and in harmony with the inputs and outputs of the city. A destination and a conduit; a connector and a gateway.

This vision does not mean that automobiles are excluded. The failure of the Cogswell Interchange wasn't that it was designed for cars, but rather that it wasn't designed for anything else. Indeed, the Cogswell District is still a place where one road branches into many roads and where people arrive and withdraw from the downtown life daily. It is still THE gateway into downtown, but now the thinking has shifted from

employing a highway to maximize traffic efficiency, to employing urban streets and other networks to maximize transportation efficiencies.

This vision for the Cogswell Lands can be expressed through three primary guiding principles; connectivity, accommodation, and community.

Connectivity

The Cogswell Precinct will connect the north end to downtown and the existing open space network to the waterfront. The road network will be designed such that traffic volumes are accommodated in a character appropriate to the context of the study area. On-street parking frames appropriately-size road cross sections, generous sidewalks define a pedestrian-scaled public realm, and cafes, restaurants and commercial space support activity that spills outdoors. Wherever possible, visual



connections are introduced and strengthened; through the articulation of landmark buildings at a key visual termini within the district.

The reduction of single vehicle trips to and from Downtown Halifax is an important sustainability goal for the HRM. The Cogswell Lands Plan should emphasize transit oriented development by working closely with partnering organizations like Metro Transit and the development community to integrate innovative approaches to modern transportation. Looking at a major transit hub, either on-street, off-street, or a combination thereof will encourage local residents to leave their cars at home, and will service those arriving in the urban core. Accessible, below-grade public or above-podium parking will support visitors to the waterfront who wish to park and walk to any of the nearby destinations.

Granville Mall, the once prominent commercial gateway street into downtown Halifax, will finally have an anchor linking to the waterfront. This will significantly improve the commercial viability of groundfloor retail in the Mall.

Central heating using waste heat from the STP and heating and cooling from the Harbour will provide the district with a green energy facility for all the buildings in the new district.

Finally, the north end will be reconnected to its waterfront.

Accommodation

Designs and plans that present themselves as a panacea for the problems of the present often fail to acknowledge the complexity of the future. Throughout the design work the team has been conscious of the fact that the current infrastructure plays a role in our city and demands certain functions of this site. Practically this means that in designing the open spaces, streets, buildings, and connections, the requirements of goods transport, bus service, and automobile traffic have been considered. Our work with stakeholders internal and external to HRM, has ensured that critical input has been considered in the design of this important space. When the entire city -- the public, city staff, elected officials, the downtown business community, the social sector, the development community, and the construction

community -- have been engaged in the development of the plan momentum gathers that will help the future champions of this project overcome the obstacles that are sure to appear.

Community

The construction of the Cogswell Interchange was intended to transform downtown Halifax. Transform it did, but not in the way the designers originally intended. This is the second chance for the Cogswell to exceed its original expectations, and function as a catalyst for meaningful urban renewal. The third guiding principle for the plan must be 'community'; using new physical infrastructure as a trigger for the re-establishment and re-connection of neighbourhoods. Bridging the gap between the North End, the Downtown, and the waterfront, the Cogswell District isn't just making a new neighbourhood, it is reconnecting an entire community.

Memorable public spaces define the character of a City. The High Line, Central Park, Times Square - these are the spaces that create New York City. The redevelopment of Cogswell is not just an exercise about road layouts and development footprints, but rather about the fabric of public space that is the foreground matrix. Using this project as a showcase of Halifax's very best public spaces, through art, interpretation, activities, and amenities will create a destination neighbourhood. Residents will want to live in this precinct, Haligonians will want to visit, and tourists will flock to the area. The proximity of the Casino, the Citadel, and the waterfront are all important existing assets that must form the foundation of an exceptional public space system that clearly defines the northern gateway to the Downtown, and sets the bar high for the public realm.

As public health issues continue to weigh heavily on our community, the integration of mitigation strategies becomes more and more essential. Community gardens foster a sense of cooperation, beautify the neighbourhood, reduce the urban heat island, and provide access to safe and affordable fresh produce. Even in a context as urban as the Cogswell, green roof spaces can connect communities and help improve public health. A healthy urban forest will also be showcased in this new district.



3.1 Urban Design Criteria

In order to gauge the practicality and feasibility of any design option for a project of this scale, it is necessary to define design criteria which provide immutable considerations which must be addressed. Section 5.3 and Policy 50 of the Downtown Halifax Secondary Municipal Planning Strategy (DHSMPS) provided the initial criteria for consideration in the planning for the future of the Cogswell Interchange Lands. The design team worked with the HRM steering team to fashion the following

Absolute urban design criteria:

1. The thoughtful and future-forward mixture of cars, buses, cyclists and pedestrians is encouraged. To this end, grade separated roads are discouraged where possible.
2. Transit is the future of downtown and must feature heavily in all options.
3. Phasing for the removal of the interchange and construction of new roads and development blocks must be carefully considered in the analysis. The entire Cogswell district cannot be shut down in order to realize the future plans. All plans must consider staging of construction/demolition such that impacts to transportation downtown is minimized.
4. A street network that allows for traffic flows in and out of downtown equal to those before development, including transport of goods, must be provided
5. The sewage treatment plant (STP) and associated infrastructure must be dealt with in a sympathetic way (i.e. relocation is not an option so finding appropriate strategies to make it a positive urban design feature are encouraged).
6. The solutions must be tailor-made for Halifax. They must recognize the scale, special urban design issues, and special qualities of the city that make it unique.

7. The new district must connect the waterfront to the east with the city to the west and south.
8. The plan shall exhibit appropriate transition in form and land use to nearby neighbourhoods,
9. The street grid and streetscape of downtown should be extended while ensuring the design objectives are congruent with the DHSMPS,
10. Development must be phased in such a way that vacant and under-utilized lands in the traditional CBD are not adversely affected in their ability to access the market,
11. The concepts must, in as much as possible, be cost neutral to HRM and the must not hinge on additional land acquisitions. The idea of making all of Cogswell an urban park or moving all the roads underground was ruled out as not meeting the cost neutral requirements. The idea of bringing the harbour into the site was also viewed as a positive idea, however, the current ownership of the waterfront precluded this idea from going further.
12. Barrington Street must reconnect with Barrington Street as a primary conduit.

3.2 Concept Investigations

As part of the analysis of options, the consultants considered 4 development scenarios for the study area. The four concept options presented herein were developed using the guiding principles and urban design criteria established for this project. Each concept emphasizes different priorities, however, the follow assumptions were made for all:

Option #1: Mega Project

As outlined in the RFP, one of the potential solutions to be explored was that of a large grained, mega-project approach. The consulting team explored the potential of a large grained block solution that would require a mega

development catalyst like a new stadium or convention centre. During the interviews, it became evident that there is presently little desire or momentum for a mega project for downtown Halifax which could benefit from the Cogswell lands. The idea of the soccer stadium or moving the metro centre to a larger facility had some traction.

In reviewing precedent from other communities who have initiated similar projects, the economic realities of such a project raise significant concerns for the study team. The introduction of a single, large format structure with restricted types of activities and consumptive parking requirements tends to pose economic, urban design, and connectivity challenges to a downtown neighbourhood. The lack of constant activity, the disruption of pedestrian and visual connectivity, and the business case required render these projects difficult, if not impossible to justify.


The City of Markham just announced plans for 20,000 seat, \$325 million arena. The building's footprint (along with the Metro Centre for scale) shown in figure 3.1 demonstrates that the long, narrow strip of land that is the Cogswell will not easily accommodate a large facility.


Furthermore, the phasing of road networks to accommodate one large block would be very difficult and would most likely require the closing down of the entire interchange and construction of new roads over a 2-3 year period. The challenge with phasing, the issues with urban design, connectivity to the waterfront, and economics, and lack of any specific mega-project eliminated this option for consideration in this study.


All that said, if a mega project comes to Halifax before the Cogswell is dismantled there may be ways to accommodate it. It would be unrealistic to plan and build the roads for an unknown meg-project in advance. Figure 3.1 shows several known stadium projects to scale overlaid on the Cogswell site.

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Map 3.1 Option #1. Mega-Project

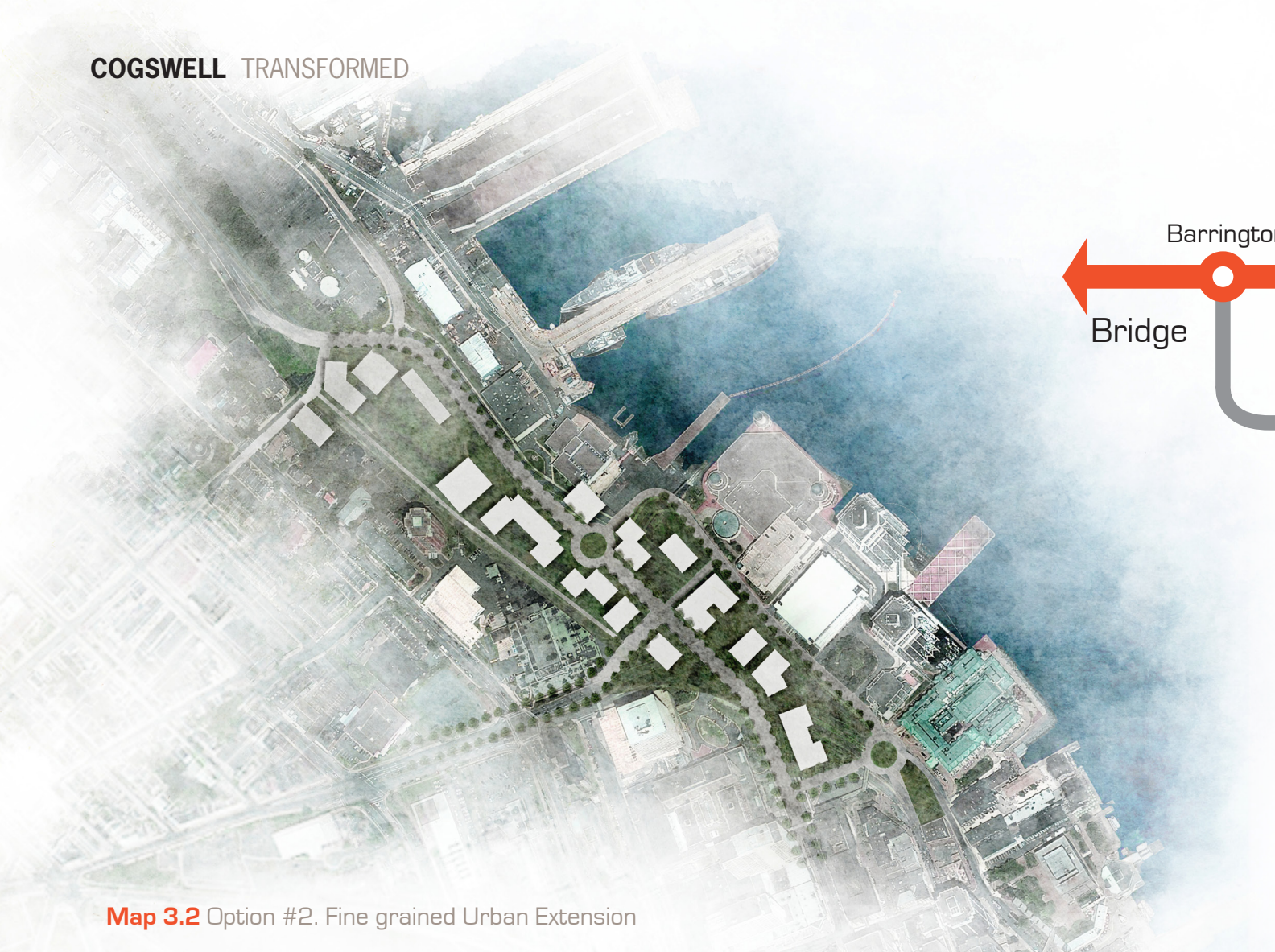
 Developable area from the removal of the Cogswell Interchange

 Metro Centre- Halifax, NS
Capacity: 10, 000- 13,000 people

 Markham Centre, Toronto
Capacity: 20,000 people, cost \$325 mill

Study Area





Map 3.2 Option #2. Fine grained Urban Extension

Option #2: Fine Grained Urban Extension

Option 2 focuses on extending the urban grid of downtown from the south all the way to the sewage treatment plan. The priority of this plan is pedestrianizing a new urban district with typical ‘Halifax-scale’ blocks and providing a large open space anchor for the Granville Mall. While road traffic capacity and travel time have been maintained in the road design, the emphasis of this concept is clearly on the pedestrian and alternate forms of transportation like buses and cyclists. The plan showcases a new urban greenway replacing some of the Barrington gateway, the extension of the Granville Mall into a new Granville Square, urban street cross sections with bike lanes, on-street parking and wide sidewalks, a transit block,

and five “Halifax scale” development blocks. The plan focuses on walkable, pedestrian oriented urban spaces.

In this plan, Barrington Street becomes the main transportation spine into the city diverting its routing to the old Upper Water Street location and freeing up the ‘old’ Barrington Street corridor as a new urban greenway. Switching from a two road entry into the city to a one road entry frees up a significant amount of land for open space and development. The new configuration promotes significantly improved traffic distribution to Barrington street, Brunswick Street, Hollis Street, Cogswell Street and Upper Water Street. Each intersection becomes a single decision point on Barrington Street, distributing the traffic efficiently through the city. This option presents a ‘transit block’ in the centre of the new Cogswell District

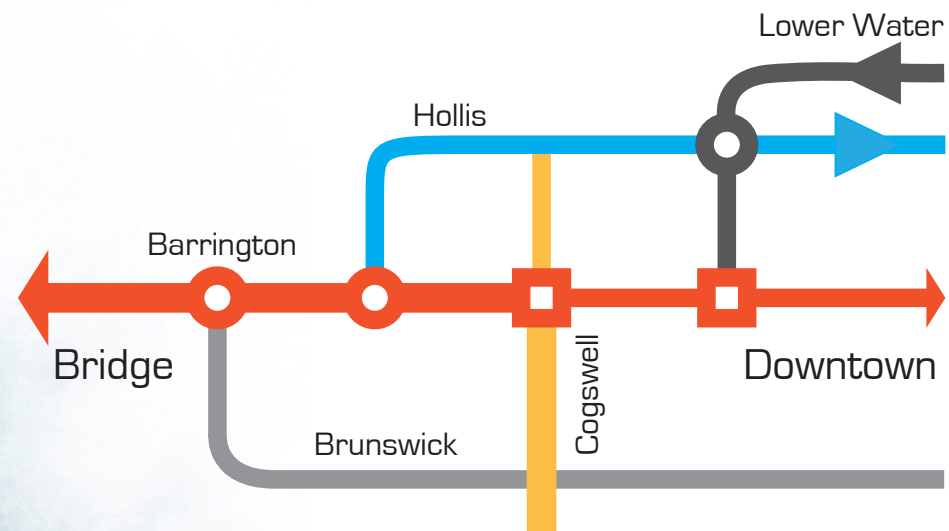


Figure 3.3 Option #2. Transportation Circuit Diagram

with a dedicated transit street and efficient transit oriented development centrally located in proximity to the Scotia Square, Purdy’s Wharf, the Casino and Ferry Terminal. This option also extends the Granville Mall into a large new urban park surrounded by the new transit block making it much more usable and relevant. The urban greenway connects through the transit block and Granville Square where it continues south on Hollis in accordance with the HRM Active Transportation Plan. On-street bike lanes and on-street parking are found on every street. The Barrington Corridor would have a wide (20’) urban streetscape sidewalk with ample urban furnishings, street art and wayfinding signage. A gateway roundabout would clearly define and showcase the new entry into the downtown. In this option, the waterfront boardwalk would effectively connect into the sidewalk of the new urban blocks. Signature urban parks are located in several areas of the district. The sewage treatment plant (STP) is given more room for expansion, however, strict architectural design controls and the mixing of other uses (like urban agriculture, active transportation and community park) with the STP would be a requirement for the future. A new waste to energy plant would allow for district heating in the new Cogswell District.

Option #2 provides the highest number of individual block developments (five blocks) compared to the other options. This option also provides the largest private parking footprint (950 spaces per level) and the 2.1 km of on-street parking (~350 spaces).

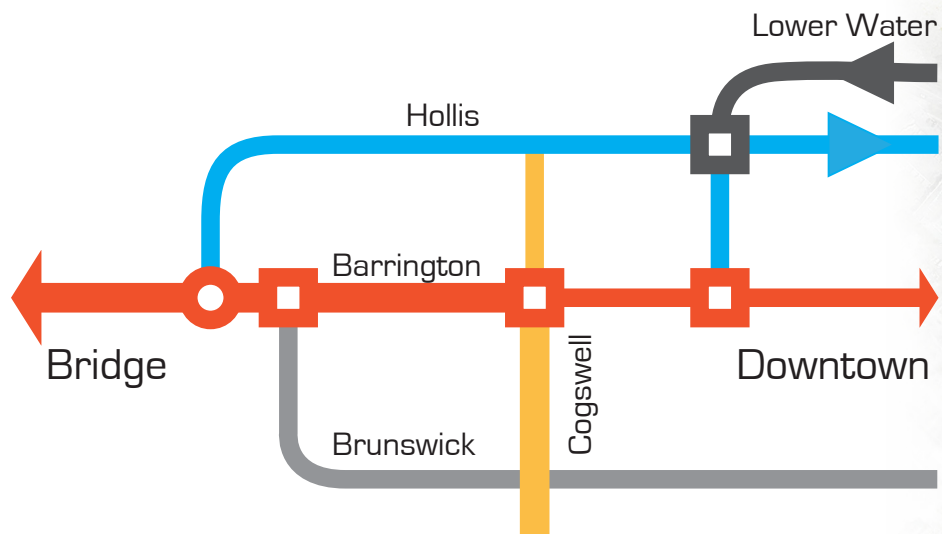


Figure 3.4 Option #3. Transportation Circuit Diagram

Option #3: Mid-Grain Blocks

Following Option 1 (Mega Project) and Option 2 (fine grained), Option 3 provides the next course grained level of urban development. This option presents three large urban blocks surrounded by Barrington Street to the west and Hollis Street to the east. One of the challenges with this option is that Barrington and Hollis are single loaded streets (i.e. there are buildings only on one side of the street); a function of trying to fit two streets in the narrow corridor versus the one street solution shown in options #2 and #4. This option effectively extends the grid of the city into the three larger development blocks. This option features a large urban park at the terminus to Granville Mall as well as several smaller urban parks in the areas of sensitive sewage treatment plant (STP) servicing infrastructure. This option also has full on-street parking and bike lanes but no dedicated urban greenway. In this option there are several large slivers of un-developable land; a result of the Hollis and Barrington configuration. This option provides little expansion potential to the STP and the proximity of Cornwallis Street to the new Barrington/Hollis roundabout could be problematic for getting traffic onto Brunswick Street. The block between Cogswell and Cornwallis is about double the length of the typical Halifax block. The old Proctor Street connection could be possible in this configuration.



Map 3.5 Option #3. Mid-Grained Blocks



Map 3.6 Option #4. Suburban Approach

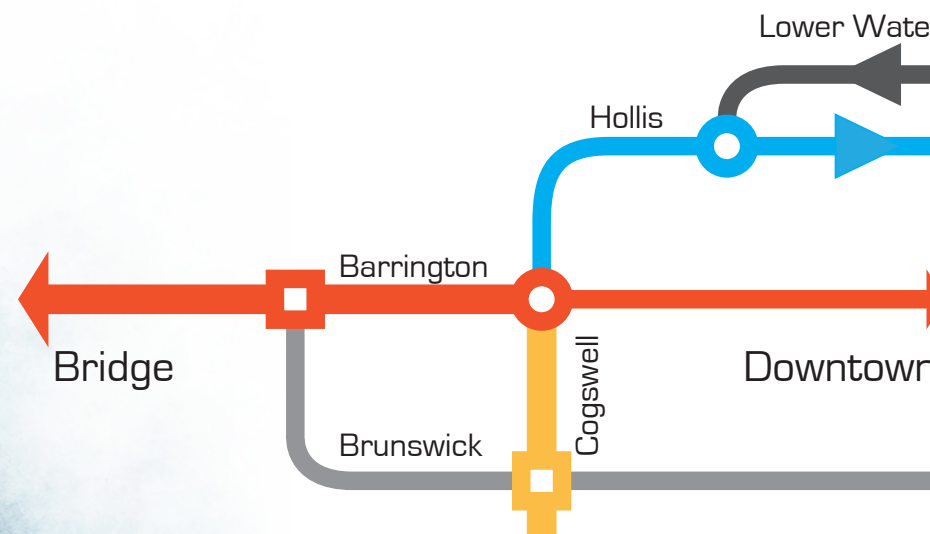


Figure 3.7 Option #4. Transportation Circuit Diagram

Option #4: Suburban Approach

Option 4 provides four development blocks and is a partial amalgam of option #2 and #3, with curvilinear streets, a single Barrington Street that allows for double loaded development, and the same multi-use trail corridor as option #2. One of the key differences with option #2 is that Barrington, Cogswell, and Hollis Street meet at a single roundabout providing one signature gateway element but also a central convergence point for downtown traffic. With this option, there's not as much open space and some of the roads are more challenging, with steeper grades and proximity of intersections to the central roundabout. Rather than the transit block found in option #2, option #4 extends the functionality of Barrington Street as an extended transit street, effectively creating a

large transit block around Scotia Square. Like Option #2, the sewage treatment plant (STP) lands are expanded and design guidelines are instituted to improve the character of future mixed use buildings on this site

3.3 The Preferred Option

An in depth review found that Option #2, the *Fine Grained Extension of the Historic City Grid*, offers the most balanced solution for re-development of the Cogswell Lands. The key to the plan is reducing the number of streets that are required in the lower part of the scheme by redistributing traffic early as vehicles approach downtown. This option allows the fine grained block to the south to be extended into the Cogswell Lands while creating a good number of economically feasible lots for

development. Shifting the alignment of Barrington towards the harbour allows Cornwallis Street to be re-graded to be a more approachable slope and a better connection to Gottingen Street. Increased and improved east-west connections mean greater distribution of traffic between the three north/south corridors (Water/ Hollis, Barrington, and Brunswick Street). Re-connecting Barrington Street north to Barrington Street south establishes it as the primary street in the downtown.

Option #2 was selected to be taken forward for more detailed examination owing to its overall congruence with sound urban design principles of walkability, intensity and compact form. An evaluation matrix for all four options can be found on page 48 (Fig 3.9.).

Before proceeding to the final master plan, the steering and technical committee asked the consultants to consider the following minor

Figure 3.8 Conceptual Design Options

Option #1



Option #2



Option #3



Option #4



modifications to Option #2:

1. the possibility of removing the third roundabout proposed for Lower Water and Hollis Street
2. The practicality of reinstating the Buckingham Street transit block road that separated the new Granville Square from the Granville Mall (the road would have been elevated above the Granville Mall due to the grade of Barrington Street).
3. The urban greenway trail location on Barrington running behind the new development sites and the large wall of the Trademart site. The preference was to bring it out to the street earlier.

4. The gateway roundabout location made entry/exit into the Halifax Dockyard problematic. This needed to be solved in the final iteration.

Other than these issues, Option 2 was seen to be the best suited solution for Halifax that provided the best open space scenario, the best connections and view corridors to the waterfront, the optimal 'halifax-scale' development blocks, the best transportation linkages, the least amount of road to successfully carry the traffic, a dedicated transit hub option and a dedicated urban greenway option.

Figure 3.9 Cogswell Lands Plan Analysis of Options

Objective	Option #1	Option #2	Option #3	Option #4
Creates Integrated Street Network	⊗	●	○	○
Accommodates Traffic Flow	⊗	●	●	◐
Integrates Active Transportation	⊗	●	●	●
Integrates Transit	⊗	◐	◐	◐
Walkable	⊗	●	○	⊗
Increases Intensity of Use	⊗	●	◐	⊗
Creates Compact Downtown Form	⊗	●	◐	⊗
Creates Developable Lots	◐	●	○	●
Provides People for Downtown	○	●	◐	◐
Creates Waterfront Connections	○	●	◐	◐
Creates Connections to Existing Neighbourhoods	⊗	●	○	⊗
Creates a North Gateway to Downtown	○	●	⊗	○
Provides High Quality Well Located Public Spaces	○	●	●	○
Advances LEED ND Sustainability Principles	⊗	◐	◐	⊗
Congruence with Adjacent Precincts	⊗	●	◐	○
Accommodates STP Infrastructure	○	●	◐	◐
Creates Neighbourhood	⊗	●	◐	⊗

Contribution	Weight
Directly Contributes	●
Partially Contributes	◐
Neutral	○
Negatively Contributes	⊗



Cogswell Transformed **4.0**

4.0 Cogswell Transformed

The Cogswell District Master Plan extends the urban grid of Halifax to become a grand gateway into the heart of downtown. In many ways, reviving the old grain of the city that was lost to the interchange in the 1960's. This plan is one more step in realizing the community's vision to stop Harbour Drive and invest in the livelihood of our downtown.

Map 4.1 shows the Cogswell District Master Plan meshed with the existing road patterns of the interchange. Even at this course scale, the pillars of the plan are evident:

- The urban street grid is reestablished.
- Barrington Street is re-linked to Barrington Street.
- Minor roads are reestablished to connect the waterfront back to surrounding neighbourhoods.
- Active Transportation takes equal priority with vehicles.
- a new hub for Metro Transit has been created at the heart of the District
- Granville Mall has been given new life and prominence by anchoring it with a large urban park and linking it back to the waterfront for easy pedestrian access.
- Five 'Halifax scale' development blocks are created which will finance the removal of the interchange and reinstatement of new public infrastructure.
- New connections to the waterfront are created to extend the vitality of the waterfront northward.
- The wastewater treatment plant is envisioned to provide a sustainable energy source for the new district and better community uses.





Map 4.1 New roads overlay

1. Barrington - Cornwallis Roundabout
2. STP District Energy & Gardens Hub
3. New Urban Greenway
4. Barrington - Hollis Roundabout & Gateway
5. Granville Park
6. Ornanse Square
7. Granville Mall
8. Privateers Gateway
9. Rainnie Greenway
10. North Park Roundabout

The following master plan was created for the purposes of exploring the financial, market uptake and urban design implications for the build-out of the surplus lands.

Within the Cogswell District Master Plan there are a total of nineteen (19) development sites, which have been labeled A through S. Of these sites, fourteen (14) are directly owned by HRM, one is co-owned with a private developer and the other three are controlled directly by local developers. Ten of these 14 HRM parcels are located around the existing Interchange, while the remaining four are located on the site of the existing HRM police station, Blood Services building, and a portion of the Centennial Pool. The nineteen parcels of land total 45,040 SM of land (11.13 acres) while 22.130 SM (5.5 acres) are located within the Interchange area itself with the remainder is clustered around the existing Police Station and Red Cross building.

Should the area be built out as illustrated in the concept plan, the cumulative development would create 236,750 square meters (2.5 million SF) of new space, with 78% (183,491 SM) of residential, while the remaining 22% of the space (53,259 SM) would be retail and office space.

The area allocated for residential use can accommodate 1,644 new units of housing (93 SM Net - 2 bedroom equivalents) with 2,491 new residents (assumes 1.5 residents per unit). Should developers build smaller units in order to attract more modest income families, it is likely that the actual number of units could exceed 2,000.

In terms of density, the new development has a Floor Area Ratio (FAR) of 5.3, and within the Interchange itself, the FAR averages 6.1. Closer to the downtown core, the FAR's range from 7.8 to 11.2, which is consistent with a dense urban core.

Parking is a major constraint to land development, and the goal of achieving density. For this project we have assumed that most development sites have two levels of under ground parking. In some cases, this parking was not sufficient to meet industry standard parking ratios for urban area, and in those cases, a third floor of parking was added on the podium floor of the building (i.e., above the ground floor commercial area). The rationale for the above ground parking is that it is usually much more cost effective than below grade parking, as hydrostatic pressure from the harbour will likely make deep parking structures very expensive and uneconomic.

Overall, the development plan allows for 1,588 parking spaces, and cumulative parking demand is assessed at 1,519 spaces, therefore they are roughly in balance. Parking ratios used to assess future demand range from 0.7 to 1.0 stalls per unit for residential land uses, and from 1.0 to 1.25 per 93 SM (1,000 SF) for commercial space.

4.1 Vision Implementation Tools and Methods

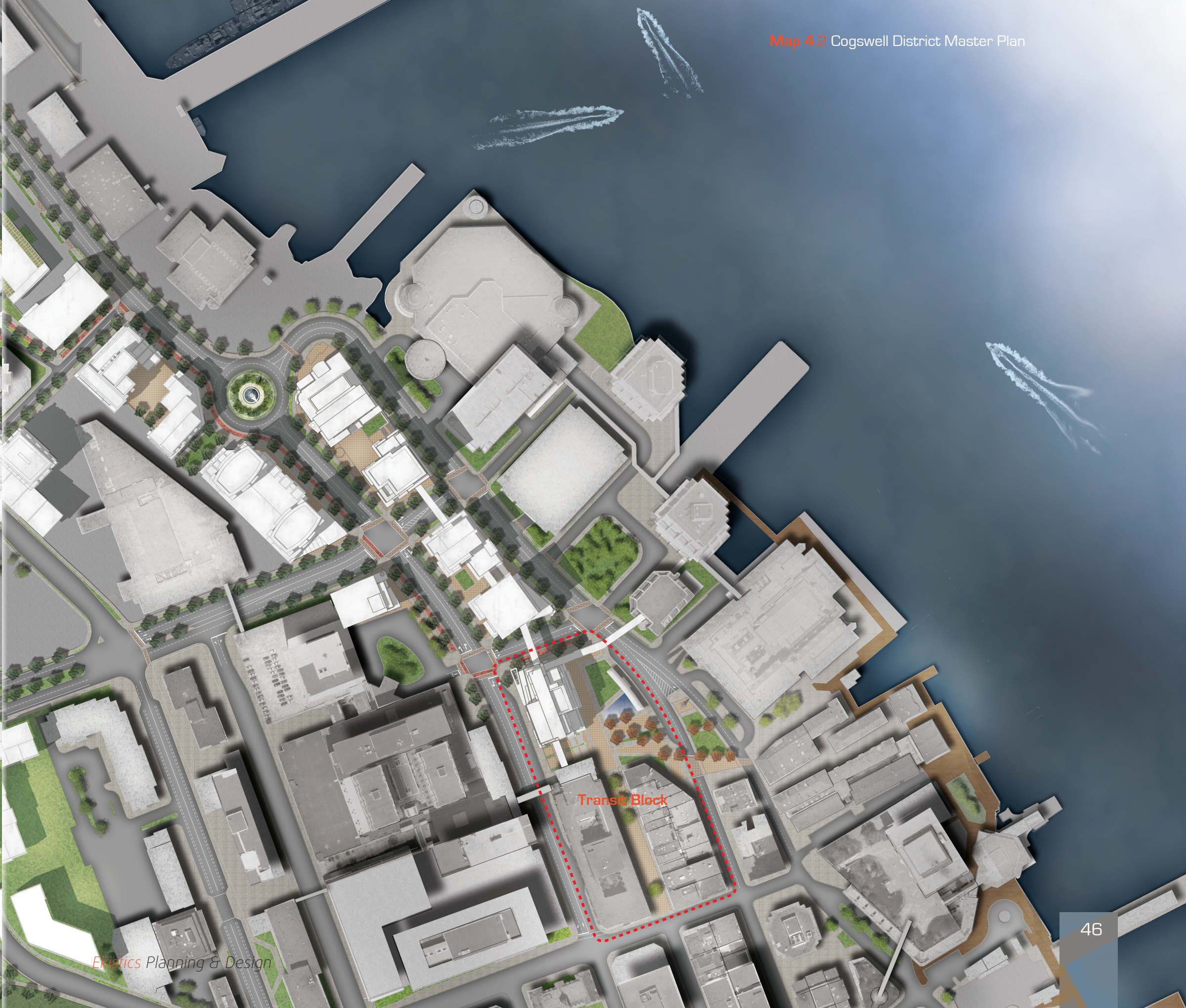
The master plan for the Cogswell District was designed to respond to the guiding principles and design criteria outlined in the previous chapter. The high level elements of the plan include:

4.1.1. Block Scaling

Life in Halifax is experienced block by block, whether you are a pedestrian, a cyclist, a driver, or a passenger, we mark our way through the downtown as we pass blocks and landmarks. Pedestrian culture in Halifax is strong due to our tight block scaling. In an effort to ensure that this culture envelops the Cogswell District we have kept block scaling in line with Downtown. This action will assist in the goal of stretching the downtown north. The plan extends the pedestrian oriented streetscapes of Barrington Street north into the Cogswell District to become the template for future sidewalks and street activated retail. These smaller grained urban blocks, along with their mid-block plazas, provide numerous connections between Barrington Street and the waterfront.

4.1.2. Transit

The plan recreates Metro Transit's Scotia Square Terminal through the development of a transit block centred on the new public space at Granville Mall. Barrington remains as a double sided loading area for through buses and Hollis becomes a turnaround point for Metro X and terminating Bus Rapid Transit. Both Barrington and Hollis buses benefit from frontage on the new Granville Square and there is potential for a small urban terminal within the new Crombie building servicing this new transit block. The entire block becomes transit oriented, providing new life for street retail and linking the pedway system to transit to improve



Transit Block

Fig 4.3 Site Perspective



winter comfort. These changes will work to:

- Minimize the travel distance and travel times for buses traversing the system;
- Provide potential for commercial or back of house space for Metro Transit on site;
- Consolidate of the various transit facilities in the area (terminals and staging areas);
- Provide the opportunity for clearer understanding of Metro Transit by the public with a true visible downtown hub;
- Keep the core transit terminal close to Scotia Square, but also naturally closer to the Ferry Terminal and Purdy's Wharf;
- Provide a linked hub for Active Transportation bike routes and pedestrian linkages.

4.1.3. Pedestrian Experience

The pedestrian feels the full effect of design while walking down city streets, the effects of grading, the materials selected for surfacing, the interaction with other forms of transportation, opportunity for engagement with the buildings, the exposure to the sun and wind, views of the harbour, chance for window shopping; all of this contribute to the pedestrian experience. In the Cogswell District Master Plan we are recommending the deployment of controls on buildings that have already proven effective in downtown and we are introducing design features at grade that have proven in other jurisdictions to be successful in creating a pedestrian environment in newly developed areas, such as;

- Separated Use Cycle Paths
- Ground Plane / Pedway Connections
- Material Delineation at Intersections
- Ground Floor Commercial Use
- Streetwall Stepbacks
- District Signage / Communication
- Variety in the scale of open spaces and parks

The Pedestrian experience has been the primary design focus, and it is through their eyes that we have considered infrastructure, civil works, and even traffic and transportation.



Fig 4.4 Examples of separated use cycle path at the Indianapolis cultural trail



4.1.4. Active Transportation

Provided with the opportunity to determine full street cross sections in the district we have included space for a separated use Cycle Path. The Cycle Path thoughtfully integrates with the Downtown grid and culminates in a grand station for cycling downtown within the new Granville Square. It provides a safe and level greenway between the MacDonald Bridge and the waterfront boardwalk. It also connects with planned bicycle routes through the downtown to the south

4.1.5. Connections

Linking the Brunswick Heritage Area, Gottingen Street and the residential neighbourhood that surrounds those corridors to the downtown and waterfront is a core objective and principle of the

Cogswell District Plan. The regular street grid and removal of all elevated infrastructure goes a long way to achieving this but the plan also has placed uses throughout the area that we believe will help draw people into the Cogswell District.

The inclusion of the Green Houses at the Halifax Harbour Solutions location is a direct attempt to break down the physiological barrier that Barrington Street has become. The phasing of the residential projects from the North down to the South will assist in early identification as a connected neighbourhood rather than a push North for the boundary of Downtown. The Cycle Path will become the preferred route for all cyclists out of and into downtown Halifax from the north.

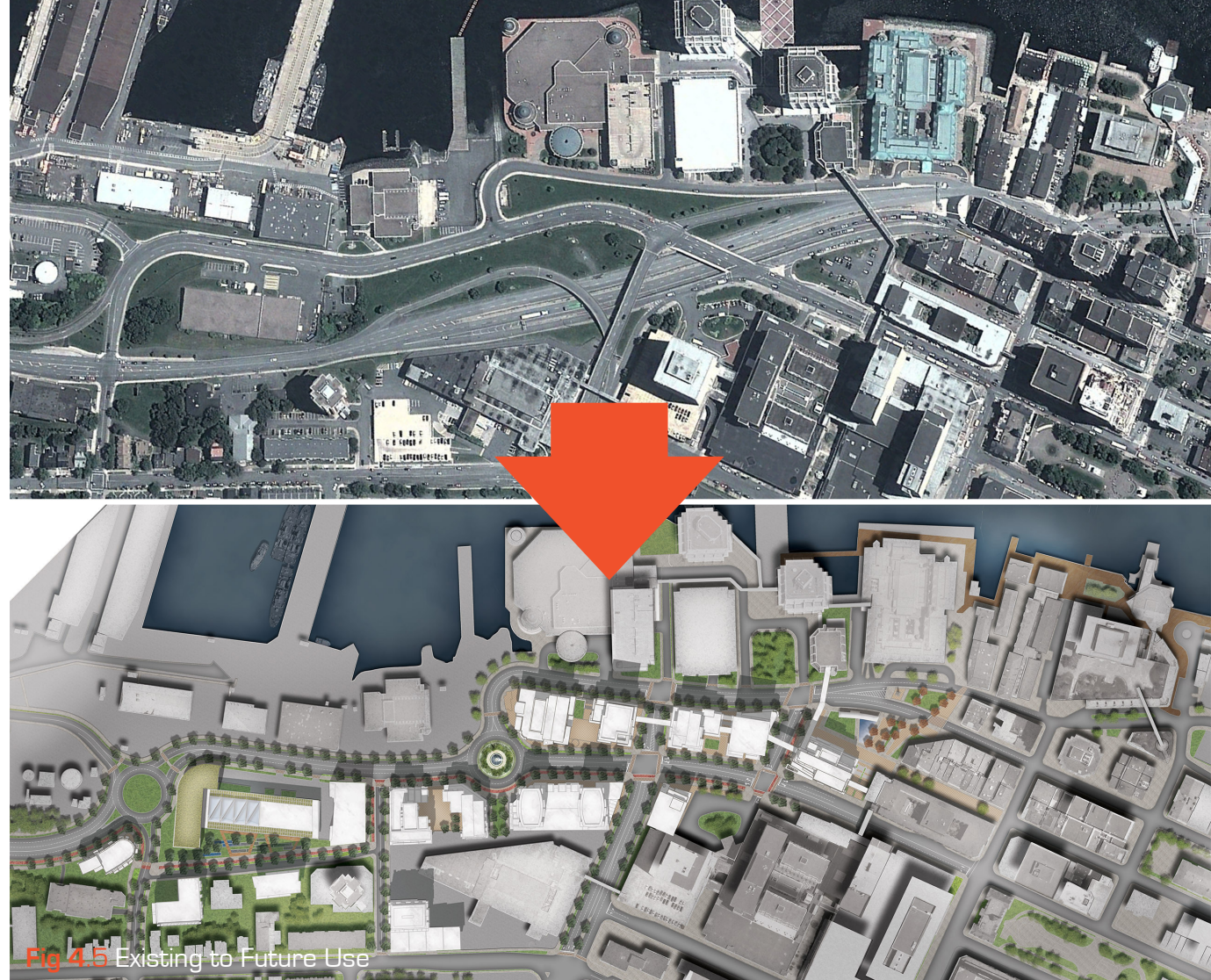


Fig 4.5 Existing to Future Use

4.1.6. Cashing in the Land Bank

The role of the Cogswell Interchange as “land bank” has been noted in this report, the analysis of the financials for the Cogswell District Master Plan have proven that out. The principle that we have followed in this plan is that for all the cost of removing the Cogswell Interchange and building new streets we should be able to regain that cost by carefully managing the creation and marketing of the surplus development blocks created. Strategies and mechanisms for success in this area are covered in the chapter on implementation.

4.1.7. Traffic

A well designed interchange or road network will ultimately balance capacities throughout the network at a relatively consistent level and optimally at a utilization level that maximizes usage and minimizes delays during the peak hours of flow. In theory, if a roadway is underutilized

during the peak hours, then there is excess infrastructure in place which carries a cost associated with the construction and maintenance of the unused infrastructure. This summarizes the very basic issue that HRM has faced while carrying the Cogswell Interchange for the last 40 years. Our analysis shows that the Interchange was operating at 60-70% of its capacity, we are able to accommodate these volumes and future growth with an at grade grid that is more accommodating of urban forms and residential development.

and surrounding neighbourhoods, a major open space terminus for the Granville mall, other smaller parks and plazas throughout, a central transit block that is well connected to the pedway system and close to the ferry terminal, NSCAD and historic properties, dedicated elevated and street level podiums with well designed spaces, major open space connections between the Cogswell District and the Halifax Commons to the west and the possible partial removal of Rainnie Drive back into a dedicated greenway connector.

The public and private spaces in the district will be designed with the highest standards of sustainable design. Buildings will be oriented to maximize solar exposure in public spaces and minimize the impacts of wind on the pedestrian environment.

This plan demonstrates that not only is the Cogswell redevelopment possible, it is feasible in the near term and catalytic in the long term. This plan provides the basis and framework for the next steps to see a downtown gateway realized.

4.2 Physical Interventions

4.2.1. Public Spaces

Public space will be emphasized in the plan with generous sidewalk widths sheltered by on-street parking and street trees, block lengths that provide walkable and easy connections to the waterfront

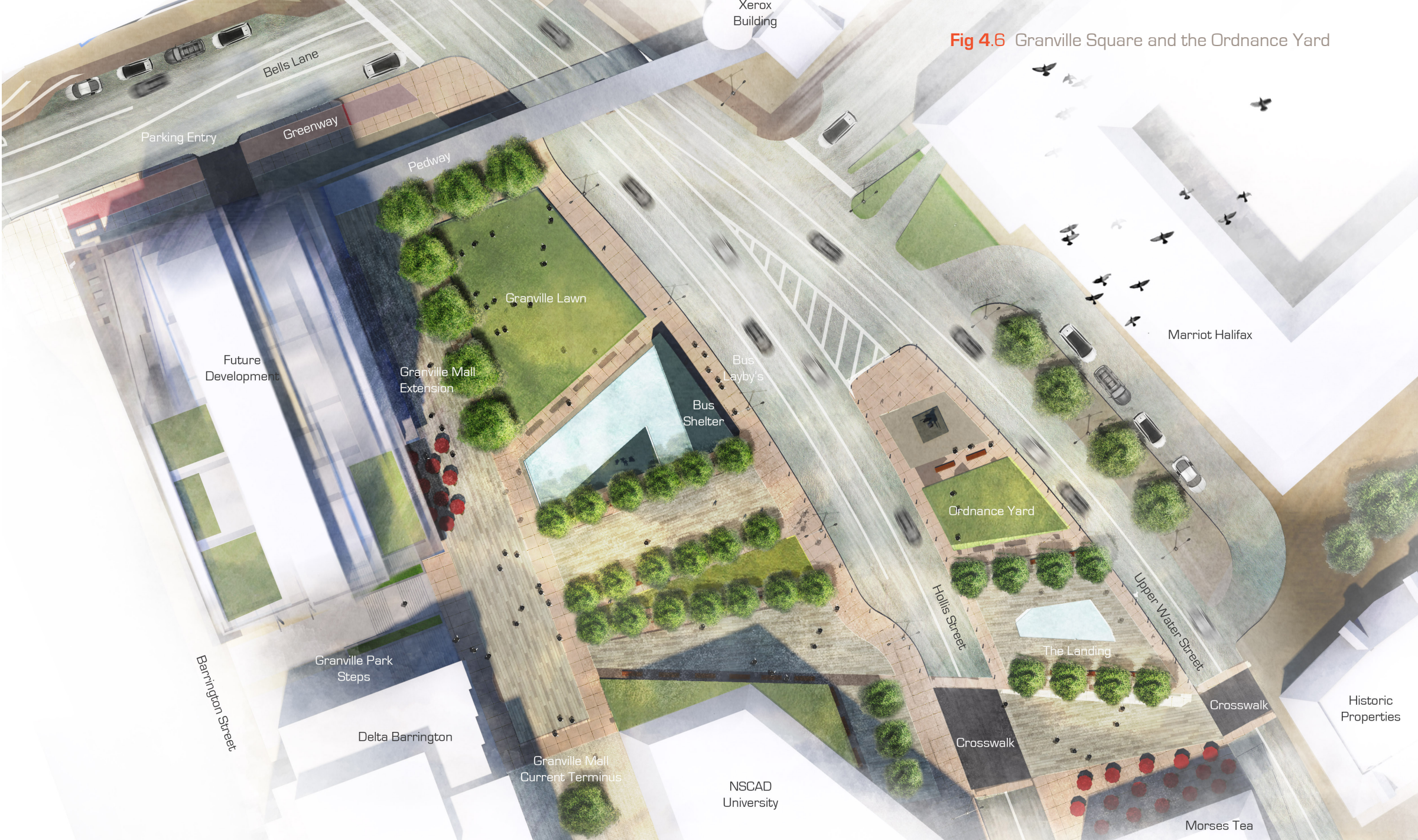


Fig 4.6 Granville Square and the Ordnance Yard

4.2.2. Granville Square

One of two large open spaces created in the Cogswell District Plan, Granville Square is a 3200 sq. metre urban plaza providing the Granville Mall with a terminus worthy of its status as Halifax's premier pedestrian oriented space (see Fig 4.6). The scale of the plaza is consistent with other plazas in downtown Halifax (the Grand Parade, Victoria Park, Bishops Landing, and Chebucto Landing). Granville Square will function simultaneously as; (i) an urban plaza faced by active commercial uses with the continuation of the Granville Mall, (ii) the transit hub for Metro Transit in the northern end of downtown, (iii) the connecting

point for the Barrington Greenway Cycle Path and downtown routes proceeding south, and (iv) as an east-west linkage between the downtown urban fabric and the Halifax Waterfront.

This is an important site in Halifax because it bridges the historic downtown with the modern downtown. It provides some breathing room for the historic buildings to be appreciated and provides a green base for the new buildings.

Critical features within Granville Square are the grand steps leading to Barrington Street, a relocated (and ground level accessible) pedestrian connector, a transit service facility, a reflecting pool/skating surface, and



Fig 4.7 Granville Square from the end of the Granville Mall

numerous opportunities for interaction and animation. The proximity to NSCAD affords opportunities for sculpture and art and a venue for students and performances.

One of the exciting potential uses for this space, and one that Halifax currently doesn't currently provide, is a 'media square' much like Dundas Square in Toronto, but on a smaller scale. This could include media boards on the new buildings that surround the square and concentrated urban lighting to showcase the space at night. While Halifax is often considered a historic city, the idea of a media square could provide a new context to showcase innovation and new ways of thinking. The view of it at the end of granville Mall would certainly enliven the space. There could also be opportunities for shared ad revenue for the City. This is an idea that merits more discourse.



Fig 4.8 Dundas Square, Toronto



Fig 4.9 View from in front of Morse's Tea building towards Granville Square

4.2.3. *The Ordnance Yard*

The Ordnance Yard is the forecourt for Morse's Tea building in an area that was traditionally the Imperial Ordnance Yard at the boundary of the commercial waterfront and the Royal Navy land. The area is historically significant as the "Landing" point for the British founders in 1749 and there were two royal batteries nearby. The interpretive value of this area is significant and it provides the bridge between the

Granville Square and the waterfront. High quality finish detail and formalized crosswalks allow this small urban space to flourish as both a destination and a conduit.

While the space has been improved, it should be noted that both Hollis and Water Street remain as vital transportation corridors. It will be important to define the edge of the Landing with prominent curb work and bollards.

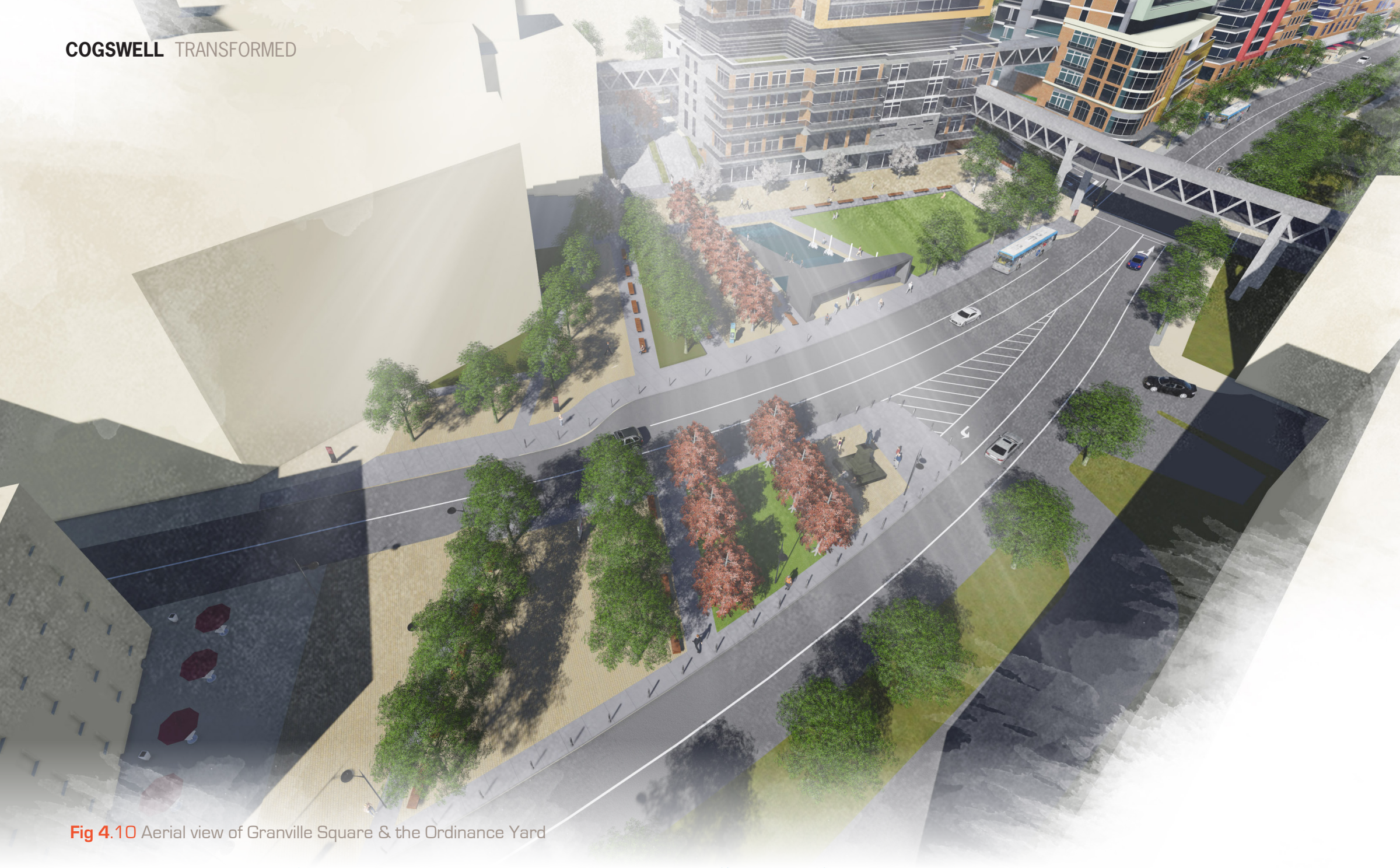


Fig 4.10 Aerial view of Granville Square & the Ordinance Yard

4.2.4 Waterfront

Connections to the waterfront are imperative for holistically connecting the Cogswell District to the Downtown. The boardwalk provides a pedestrian link between the Southern and Northern extents of downtown that has a distinct feel separate from the urban pedestrian environment on Hollis, Barrington, and Granville. The creation of street fronts for the blocks on Upper Water Street (Casino NS, Purdy's Complex, and the Harbourfront Marriott) means that there will be increased opportunity for East-West corridor connections to the already existing - and under utilized - boardwalk infrastructure in place.

4.2.5 Hurd's Lane Park

The development of the Trademart Building marked the closing and removal of Hurd's Lane, a short off-grid connector between Barrington Street and Brunswick street.

With the placement of the three legged roundabout we have the opportunity to reserve space adjacent to Blocks D & E that could potentially be used to recreate Hurd's Lane, either as a pedestrian only street or as the fourth leg to the roundabout. In the Cogswell District Master Plan this space will accommodate an urban Piazza on the edge of the roundabout until which time as it may be needed as a future road again.



Fig 4.10 Corner of Upper Water and Bells Lane



Fig 4.11 Aerial showing Upper Water Street



Fig 4.42 Barrington/Hollis Gateway Roundabout.

4.2.6 Rainnie Drive Greenway

With the proposed construction of the North-Park / Cogswell roundabout there is an opportunity to cease the split of traffic between Cogswell and Rainnie. The Cogswell District Master Plan calls for the recapturing of the full road right of way for Cogswell, creating a consistent 4 lane cross section from North Park to Water Street. The volume that this supports allows for the closing of Rainnie between Gottingen and North Park, essentially expanding the scale of Citadel Hill and bringing the green space to the edge of North End residential neighbourhood defined by Maynard, Bauer, Falkland, and Creighton Streets. The former road bed could be repurposed as a tree lined greenway that provides opportunities for small urban parkettes inviting residents to the edge of Citadel Hill. Subtle interventions like the parkettes draw

users into comfortable public spaces and contribute to the overall project goal of eliminating the barrier between downtown and the North End.

Existing infrastructure can be reused and the new greenway will provide opportunity to capitalize on the open space reserve that is the Citadel Hill. This will help bring the public closer to the National Park site and provide much needed public open space assets to the dense, residential North End.

4.2.7 Citadel Public Plazas

With the closing of Rainnie Drive and the notional continuation of Gottingen Street, a new major entry point to the Downtown is created at the intersection of Duke, Gottingen, and Brunswick Streets. This challenging gateway is being simultaneously tackled by HRM Planning

& Infrastructure and the private sector by way of improvements to the podium spaces at 1881 Brunswick Street. The continuation of the Greenway to a terminus at this intersection provides an opportunity to create a small public plaza where Duke Street meets Citadel Hill, an opportunity to provide amenities, signage, and way-finding to introduce Downtown Halifax to those arriving here. The Downtown Halifax Secondary Municipal Planning Strategy identifies this space, as well as others along the Greenway as potential plazas that should be designed to accommodate a variety of civic gatherings and performances and ensure uses that are public, highly visible and serve to animate the space. Brunswick Street between Cogswell and Spring Garden Road is another opportunity for future study.

4.2.8 STP Park

By capitalizing on the available space on the roof the Cogswell District Master Plan turns an awkward block left over after 5 lanes of Barrington are closed, into a district park focusing on local food production and active recreation. Building on the knowledge gained from CDHA's temporary farm at the former Queen Elizabeth High School site the greenhouses will produce food with the assistance of local community groups and professional farmers. The park also functions as a local community green space and is part of the Barrington Greenway system for multiple existing and new neighbourhoods bordering on the area. It will also serve to better integrate the STP into the community as was the promise when it was conceived.



Fig 4.13 Poplar Lane Gateway and STP Park.

Fig 4.14 STP Park Rooftop Greenhouses



Ekistics Planning & Design

Fig 4.15 Poplar Lane Gateway and STP Park.





4.3 Building Blocks

By designing the blocks and open space first, instead of the road patterns, we ensure that road design is not the priority of the redevelopment. This section outlines each of the new building blocks of the Cogswell District.

The following block summaries present the mid-rise development scenario which is currently permitted as-of-right under the downtown zoning bylaw. It will be up to council to decide which infill strategy best meets council's downtown and long-term financial objectives.

One of the limiting factors for development is the parking capacity of each block. Below the first level of parking, costs escalate quickly due to

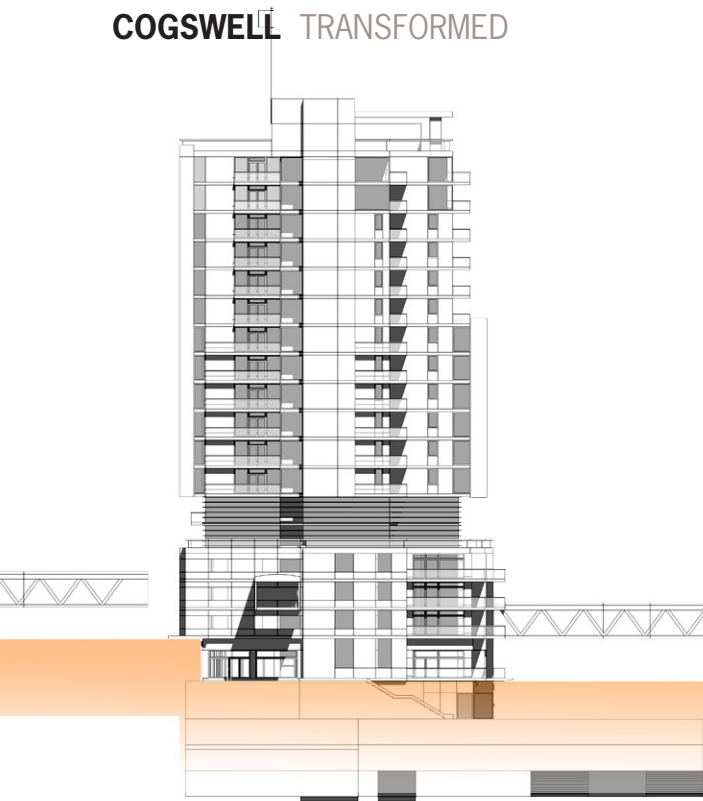
the water level of the harbour. Each development block has assumed two levels of parking below grade. This supports the buildings heights shown at 14-20 storeys. Additional height may require the consideration of upper level parking above street retail. This practice of 'disguising' upper level parking into the architecture is generally accepted where subgrade parking costs are excessive. Should buildings exceed the current height maximums of 49m (roughly 15-16 storeys of residential), it may require the consideration of upper level parking on the second or third storey of the building. In this case, the parking garage will need to be skillfully integrated into the building form so that it is not legible as a parking garage from the street (see fig 4.17)



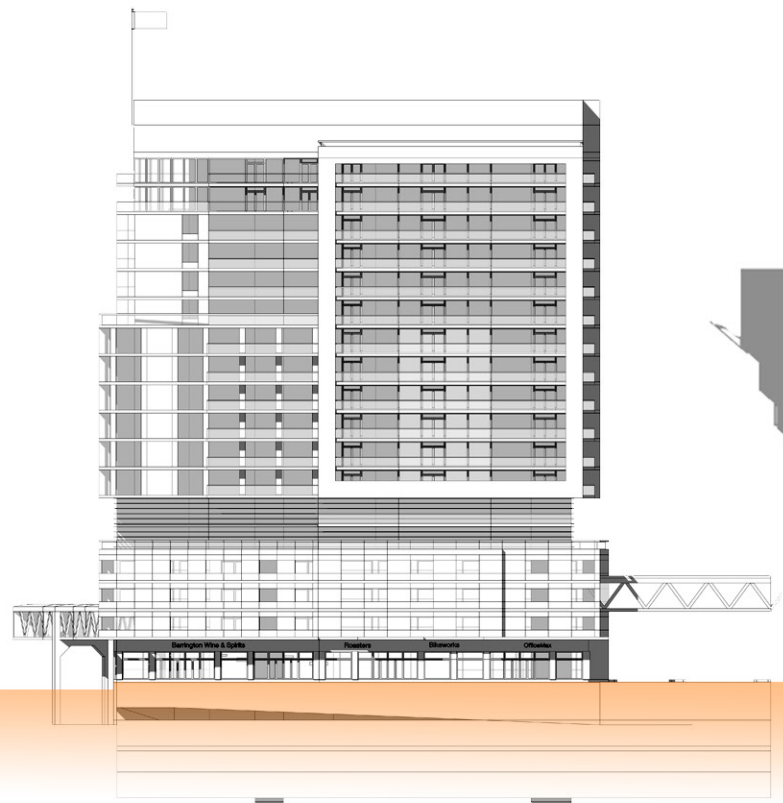
Fig 4.17 Example of upper parking podium

Map 4.17 Illustrations showing 14-20 storey build-out or 'mid-level' development scenario.

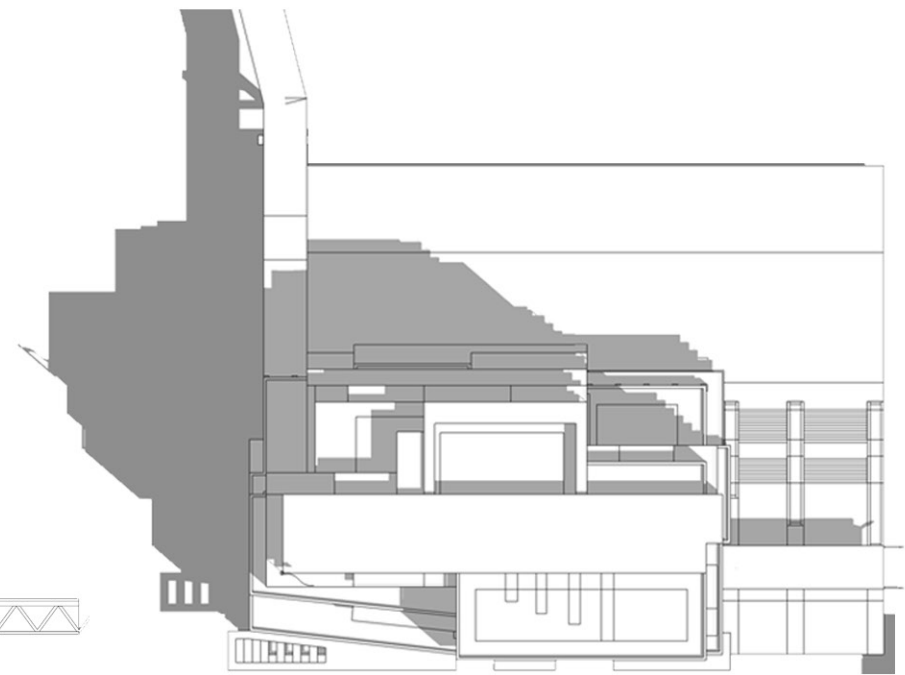




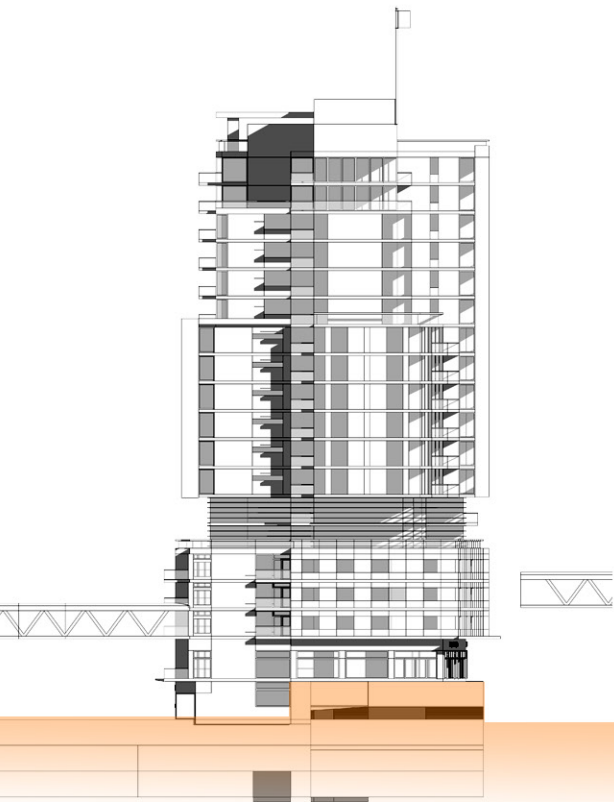
SOUTH ELEVATION



WEST ELEVATION



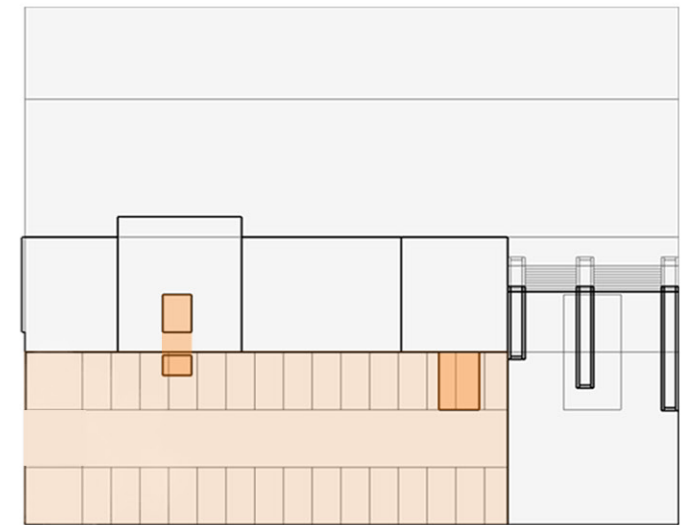
ROOF FLOOR PLAN



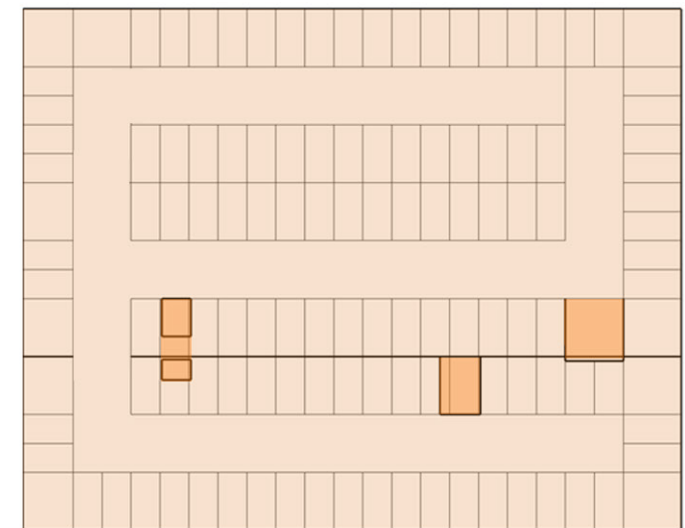
NORTH ELEVATION



EAST ELEVATION



PARKING FLOOR PLAN - ENTRANCE LEVEL



TYPICAL PARKING FLOOR PLAN

BLOCK A. Development Details

Lot Size (SM)	3675
Podium Footprint SM	1664
Podium Height (Floors)	1
Tower Footprint (SM)	1347
Tower Height (Floors)	19
Total # Floors	20
Total # Buildings	1
Total # Parkings	205



Block A - Granville Mall Terminus

Block A comprises Granville Square, the transit bock on the periphery and a development block that is partially owned by Crombie Developments. This is one of the few blocks in the District that is partially in private ownership. Some sort of land swap or negotiations will be needed, however, despite the ownership, the proposed road patterns remain unchanged. The triangular parcel of land is very inefficient for parking and is likely one of the reasons it has not been developed even though there is a grandfathered DA on the property (called

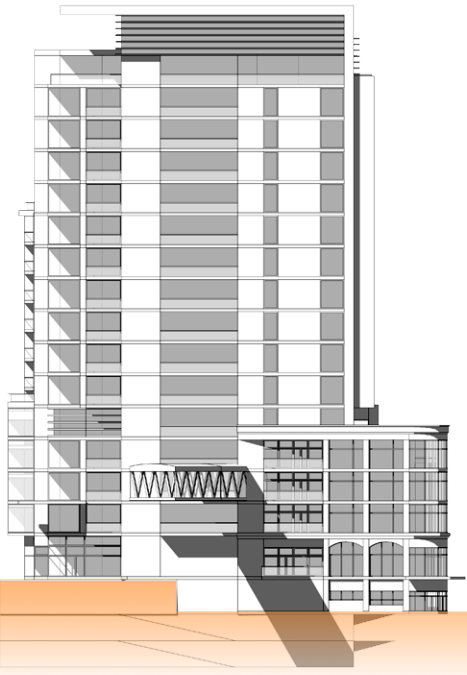
International Place) that allows 450k sq.ft. of development. Clearly, moving the building out of the Granville Mall view corridor but allowing for underground parking under Granville Square will take some negotiations.

The intent for Block A in the Cogswell District Master Plan is to take advantage of the public land created by the regularization of the street grid. By engaging Crombie Developments in a land swap, the municipality has the opportunity to create the Granville Square as a signature open space connecting the Granville Mall to the Cogswell District. Crombie would gain a development site

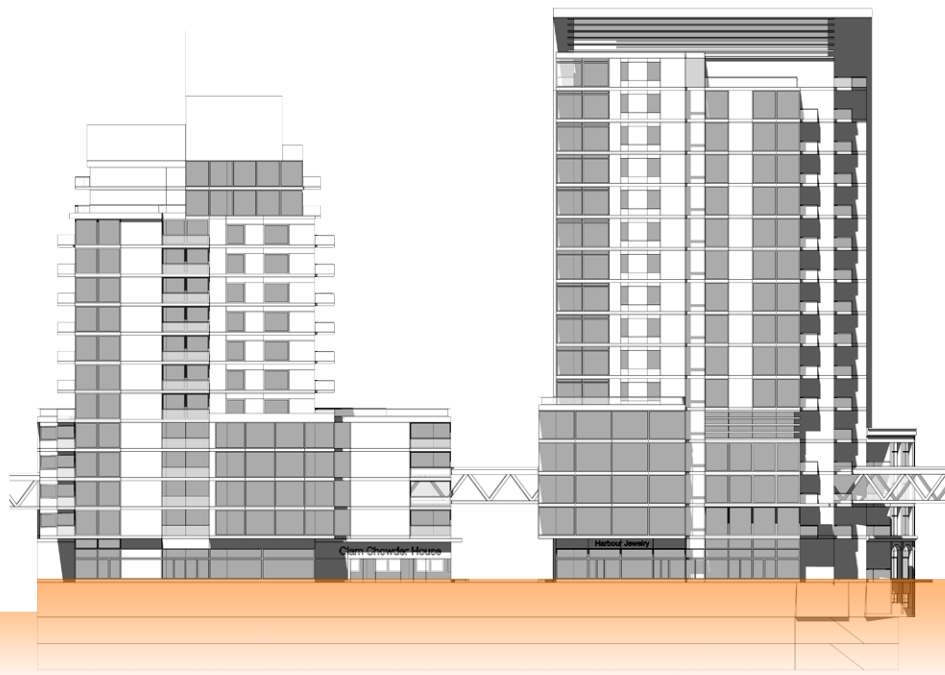
that would allow a development similar in scale to the International Place project but with the added bonuses of possible underground parking and better engagement with the city through high quality open space and street scape design around the development block.

By using the full Block, including the area under Granville Square, the developer can build up to 280 sub-grade parking spaces on two storeys of underground parking. With this much on site parking, the original development program can be supported in a building rising as high as 18 storeys from Granville Mall elevation.

COGSWELL TRANSFORMED



SOUTH ELEVATION

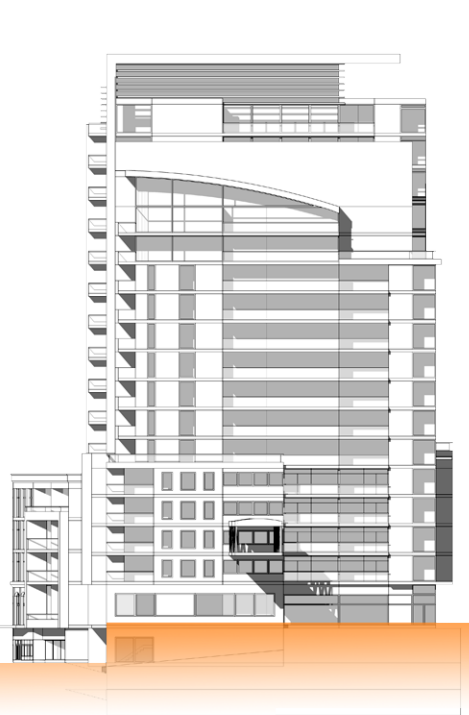


WEST ELEVATION

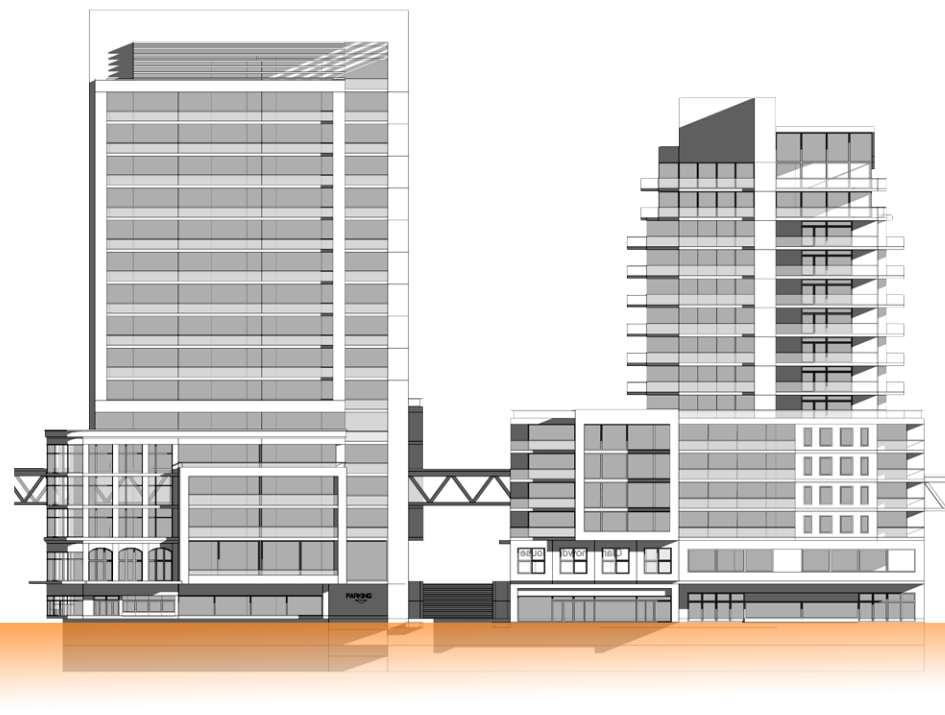


ROOF FLOOR PLAN

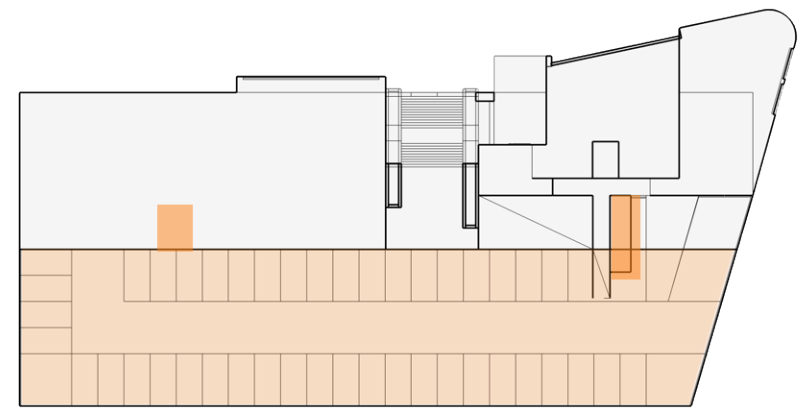
Barrington Street



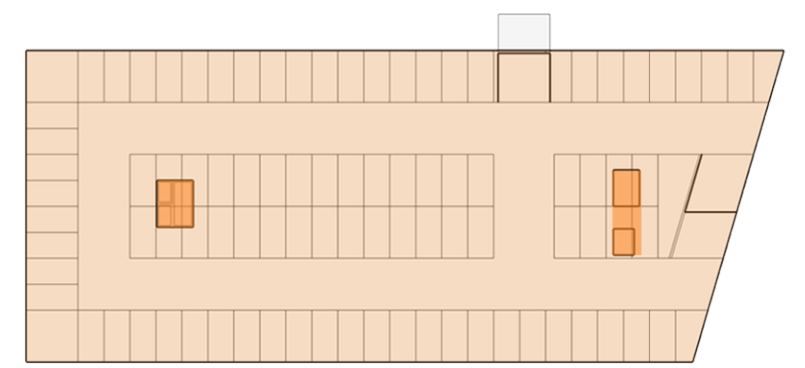
NORTH ELEVATION



EAST ELEVATION



PARKING FLOOR PLAN -ENTRANCE LEVEL



TYPICAL PARKING FLOOR PLAN

BLOCK B. Development Details

Lot Size (SM)	3455
Podium Footprint SM	2577
Podium Height (Floors)	1
Tower Footprint (SM)	1768
Tower Height (Floors)	17
Total # Floors	18
Total # Buildings	2
Total # Parkings	182



Block B - SE Cogswell / Barrington

At 3,455 sq. metres, Block B is one of the large, downtown oriented, development blocks in the Cogswell District Plan. Similar to Block A, the eastern edge of the underground portions of Block B are located at Hollis Street. There is substantial cost to developing underground parking on these sites and as such the design team worked with a minimal excavation profile in an attempt to minimize the anticipated high cost of developing the underground portions. With this limitation parking availability becomes a determining factor in the design of this primarily residential site and to alleviate that pressure

we are recommending elevated parking within the building at the L2 level as well. The block proposed here would hold a development with two 18 storey towers situated atop a 4-6 storey podium, mid block connections could be provided over / through the podium but are not necessary with the relatively short block length of 80m. Building on the criteria that the development pattern proposed in the Cogswell District Master Plan link the North End to the Downtown, it is a reasonable approach to begin stepping down the height of the buildings as we move North on the site. While increased density would be difficult to accommodate due to the relative paucity of parking, the mid to high-rise forms (and the level of residential opportunities

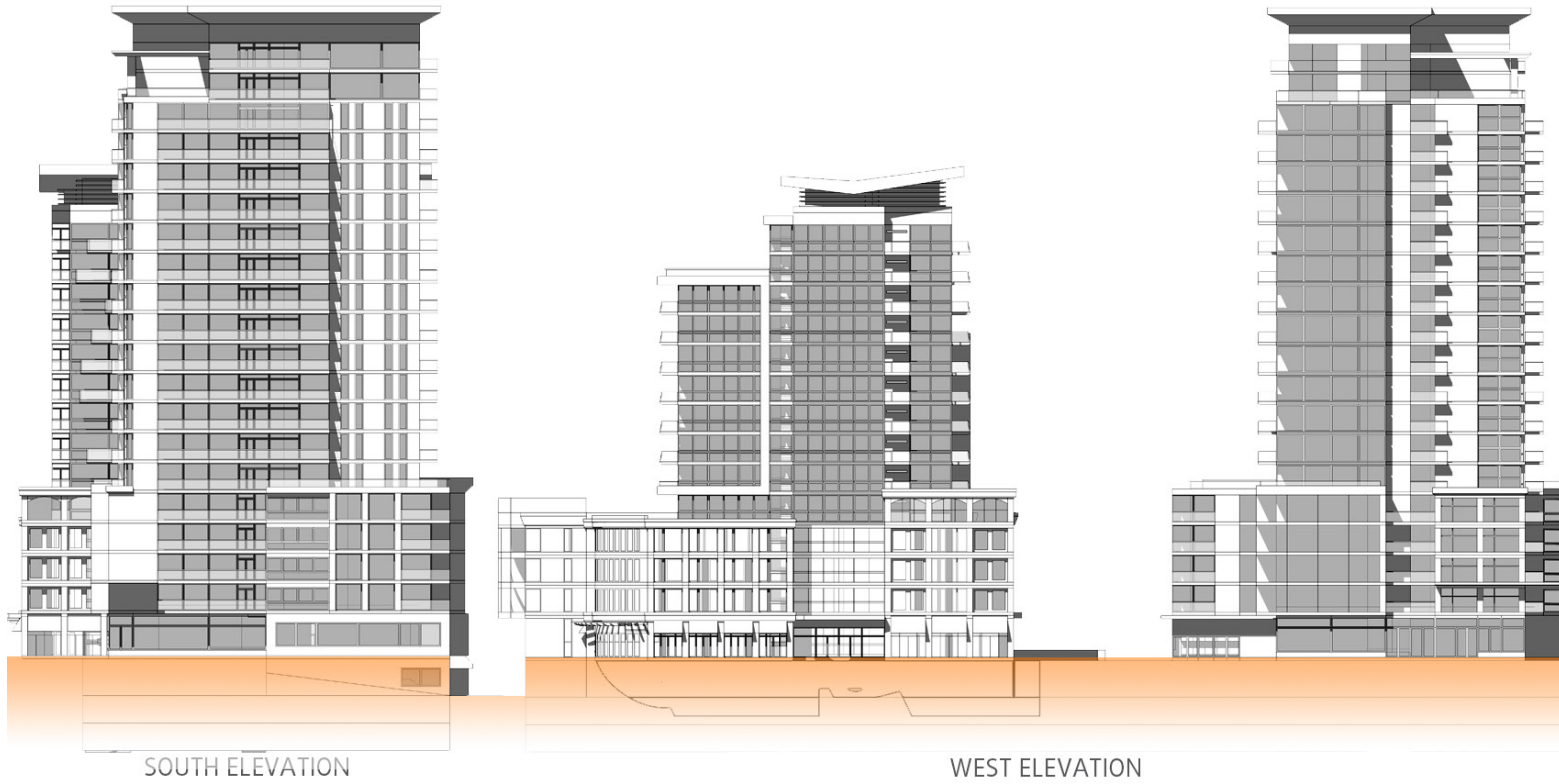
created by it) fit well with both the focus on relatable form and market viability.

There are other options for this site as well depending on how HRM wants to proceed with financing the redevelopment. This site could easily house an institutional use like the Art Gallery of NS, a police station, a new performance centre of the arts, etc. These could be accommodated as stand alone facilities or within other development schemes. In all likelihood, a mixed use development will maximize value and create the activity needed to catalyze the District. Or, the entire site could be treated as an urban park with a parking garage below much like Postal Square in Boston.



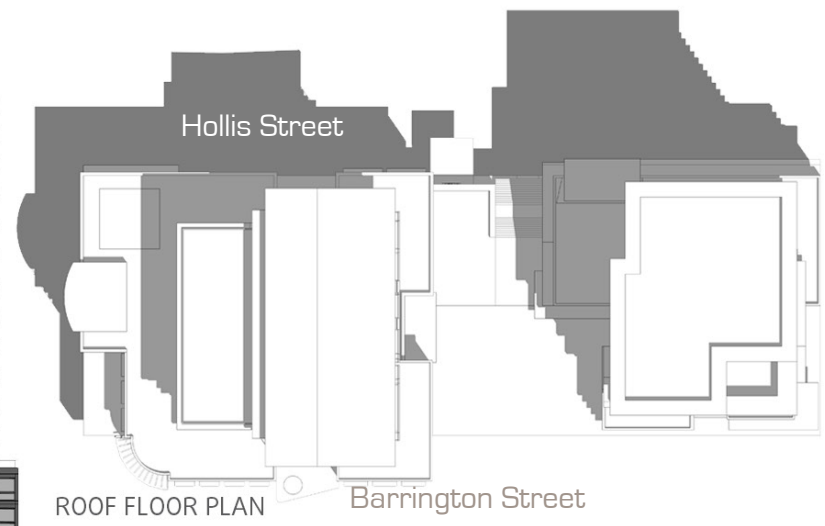
Fig 4. Postal Square Boston

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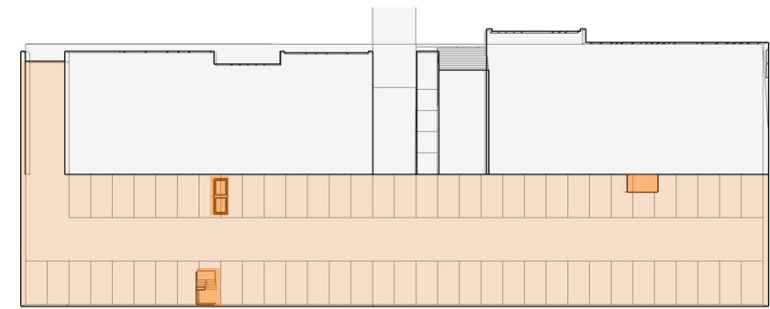
SOUTH ELEVATION

WEST ELEVATION



ROOF FLOOR PLAN

Barrington Street

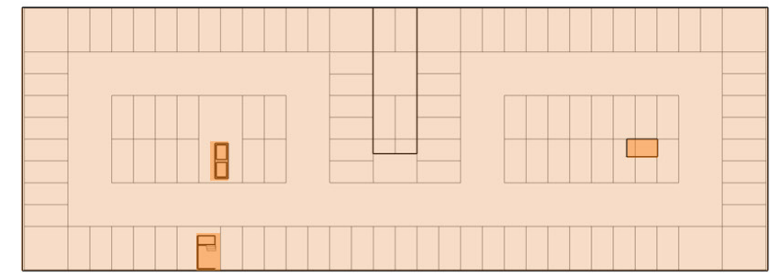


PARKING FLOOR PLAN - ENTRANCE LEVEL



NORTH ELEVATION

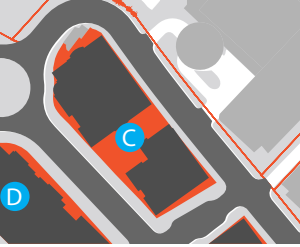
EAST ELEVATION



TYPICAL PARKING FLOOR PLAN

BLOCK C. Development Details

Lot Size (SM)	4230
Podium Footprint SM	3031
Podium Height (Floors)	1
Tower Footprint (SM)	1606
Tower Height (Floors)	20
Total # Floors	21
Total # Buildings	2
Total # Parkings	212

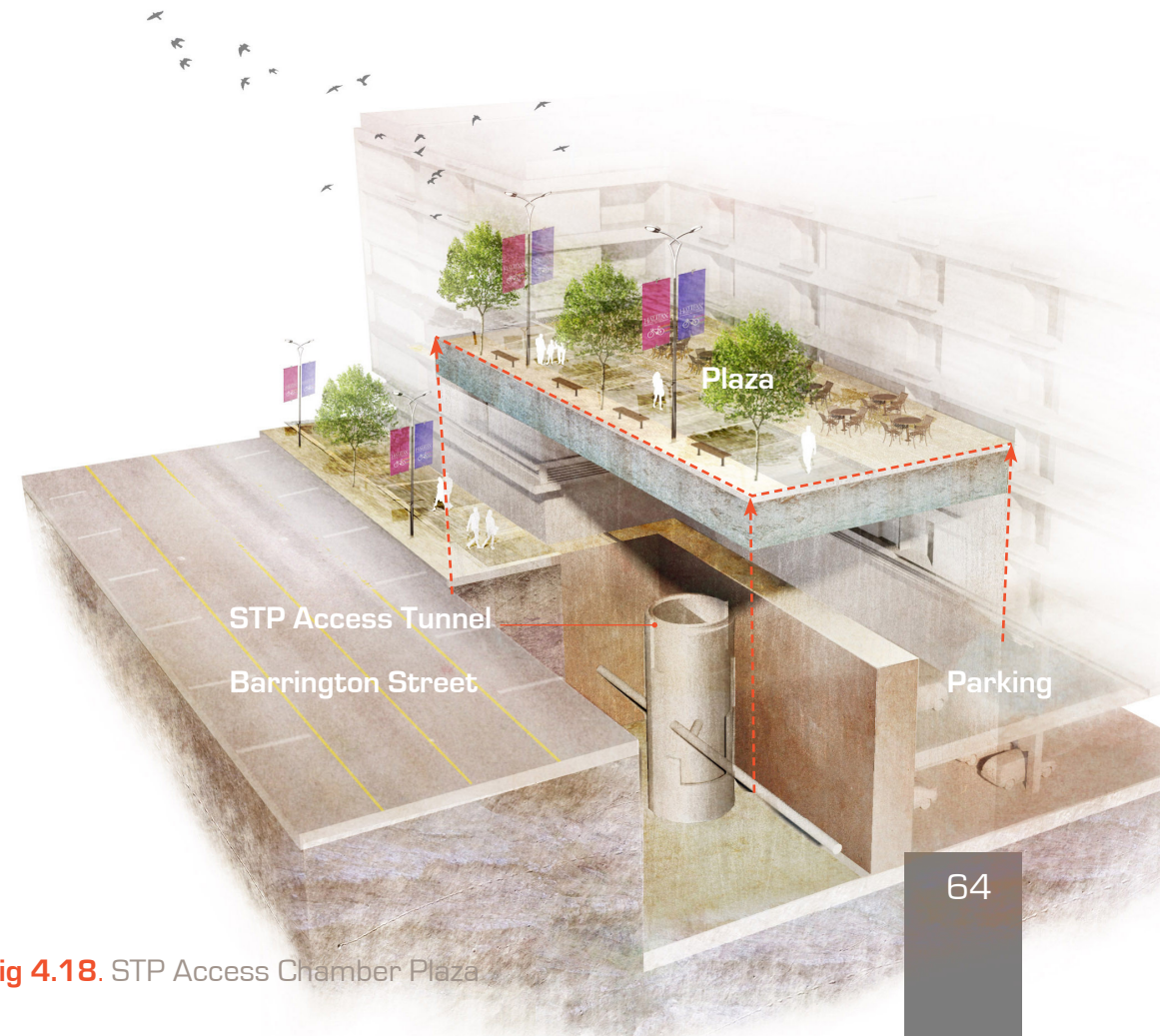


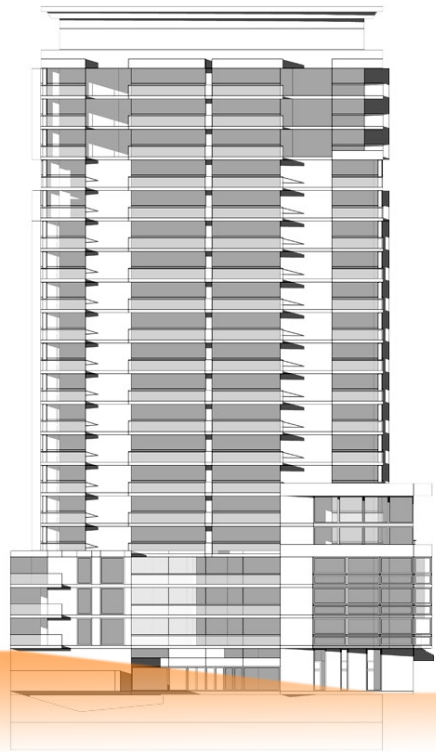
Block C - NE Cogswell / Barrington

Block C is the largest, by area, development block within the Cogswell District Master Plan with a lot size of 42,30 sq.m. The constraints and limitations of the Hollis Street sites apply to Block C as well and as such the suggested height remains at 18-20 storeys. Within this envelop it is possible to fit 200 parking spaces in two levels of underground and 140 residential units. The "excess" parking above what is required for the residential uses at

this site can be used to support the district's substantial commercial / retail footprints.

There are two infrastructure constraints with this site that need to be addressed. The entry point to the STP Access Tunnell and the CSO chamber for the sewage treatment plant are located on this block. The entire block has been carefully designed to preserve these two utilities on the fringes of the development parcels.

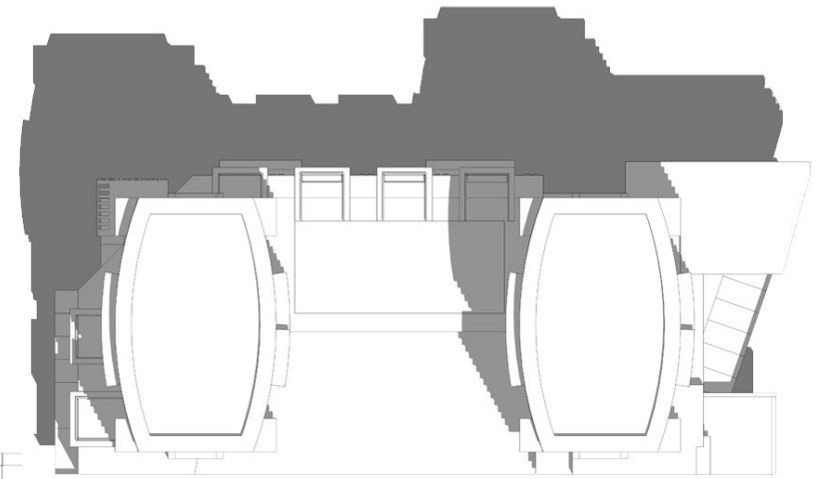




SOUTH ELEVATION



WEST ELEVATION



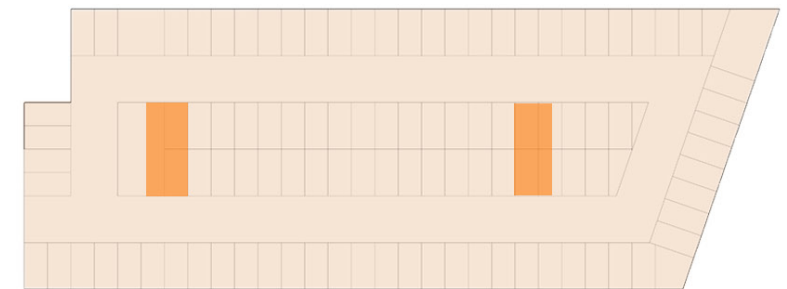
ROOF FLOOR PLAN



NORTH ELEVATION



EAST ELEVATION



TYPICAL PARKING FLOOR PLAN

BLOCK D. Development Details

Lot Size (SM)	3210
Podium Footprint SM	2490
Podium Height (Floors)	1
Tower Footprint (SM)	1362
Tower Height (Floors)	19
Total # Floors	20
Total # Buildings	2
Total # Parkings	202



Block D - NW Cogswell / Barrington

Block D represents an opportunity for a substantial mixed use development as one of the anchors of the Cogswell District.

Two towers on this site, with 75m separation distance, will frame the extended Barrington Street and potentially add significant

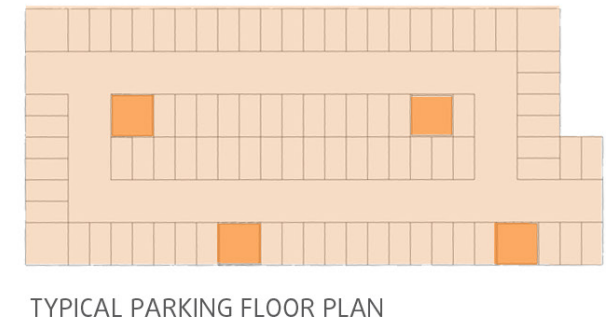
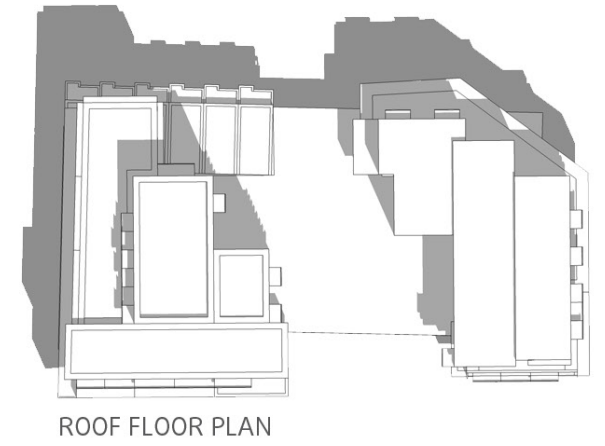
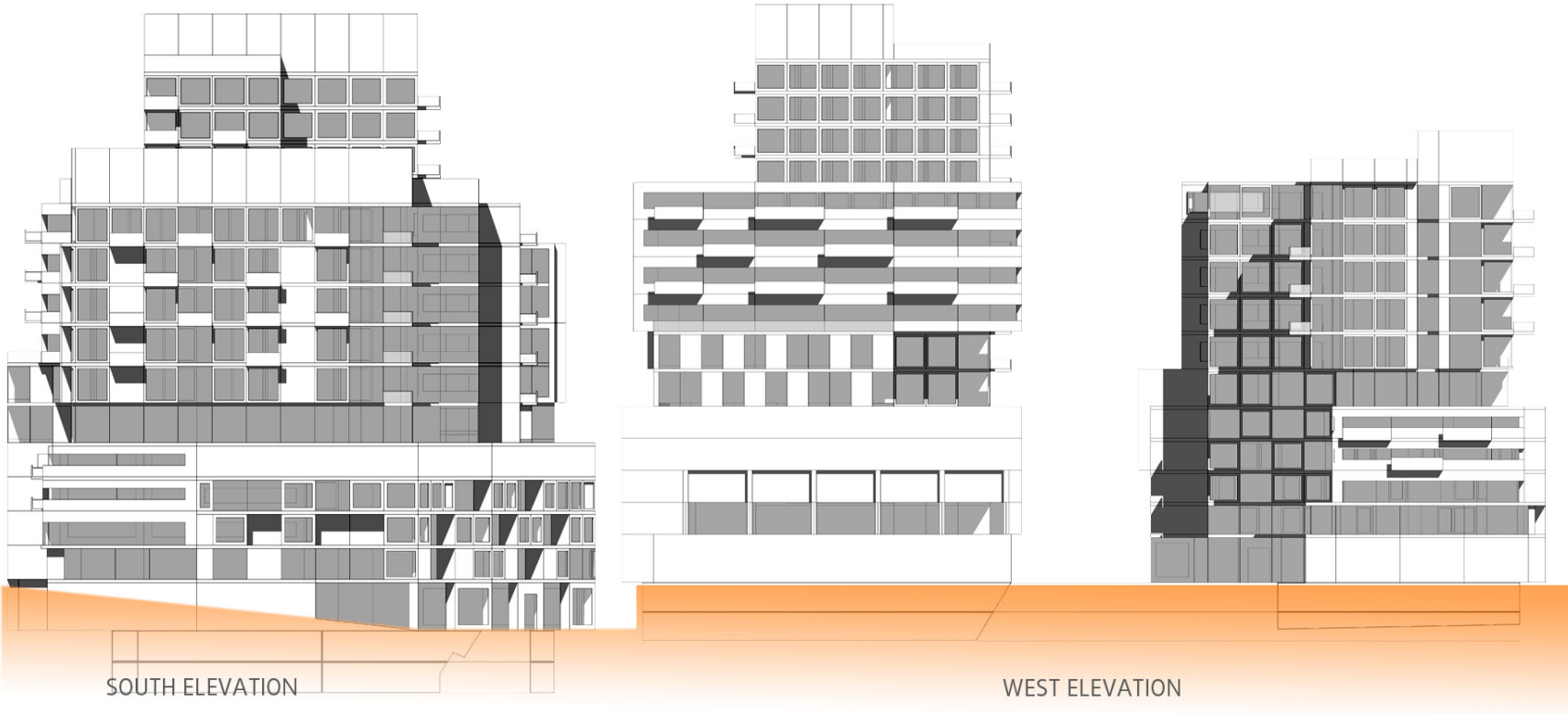
architectural features to the North Downtown skyline. The large separation distance between the towers ensures that sunlight penetrates through to Barrington Street public spaces. The tower height varies, decreasing as the development travels north away from the downtown.

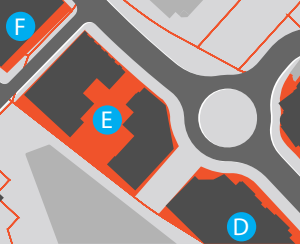
Proximity to the Trademart Building and the related infrastructure creates challenging

spaces for the building foundation. As such the plan envisions this block becoming available near the end of the projected time line.

Being adjacent to existing commercial offices increases the likelihood of office uses being located in the 3 storey podium. These uses will assist in reinforcing connection to the downtown along the Barrington Street alignment.







BLOCK E Development Details

Lot Size (SM)	4205
Podium Footprint SM	2313
Podium Height (Floors)	1
Tower Footprint (SM)	2109
Tower Height (Floors)	14
Total # Floors	15
Total # Buildings	2
Total # Parkings	172



Block E - Proctor / Barrington

The stepped progression of development height continues through Block E, the plan sees Block E as 14 storey tower with primarily residential uses.

Situated at the heart of the district, Block E is the other large development block the complements the large scale development at Block C. With 220 parking

spaces, and a prominent location it is anticipated that this block will provide good returns for the project.

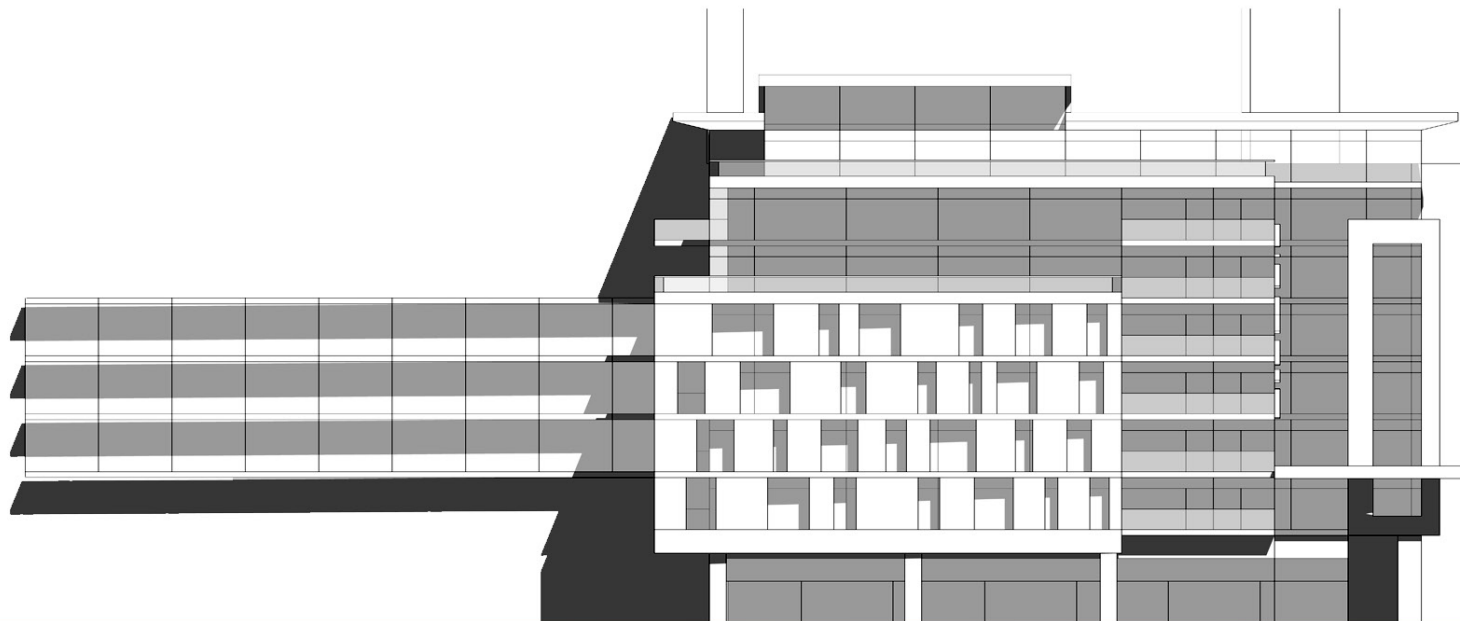
The face on Proctor Street allows for access to the back of house and underground parking without protrusion through the Cycle Path and without disturbance of the Trade Mart retaining wall.



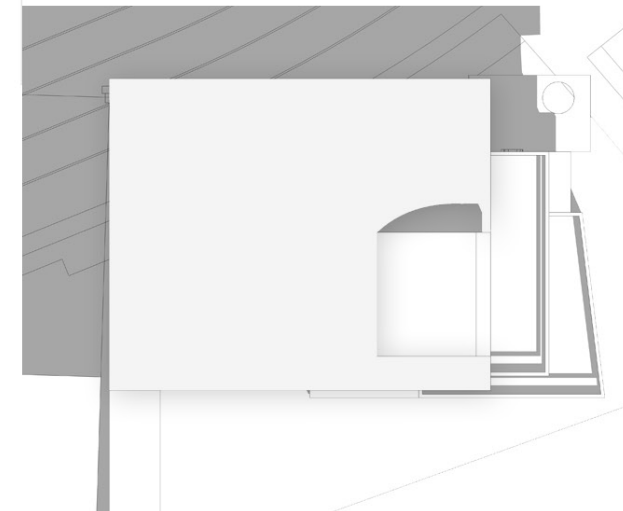
SOUTH ELEVATION



WEST ELEVATION



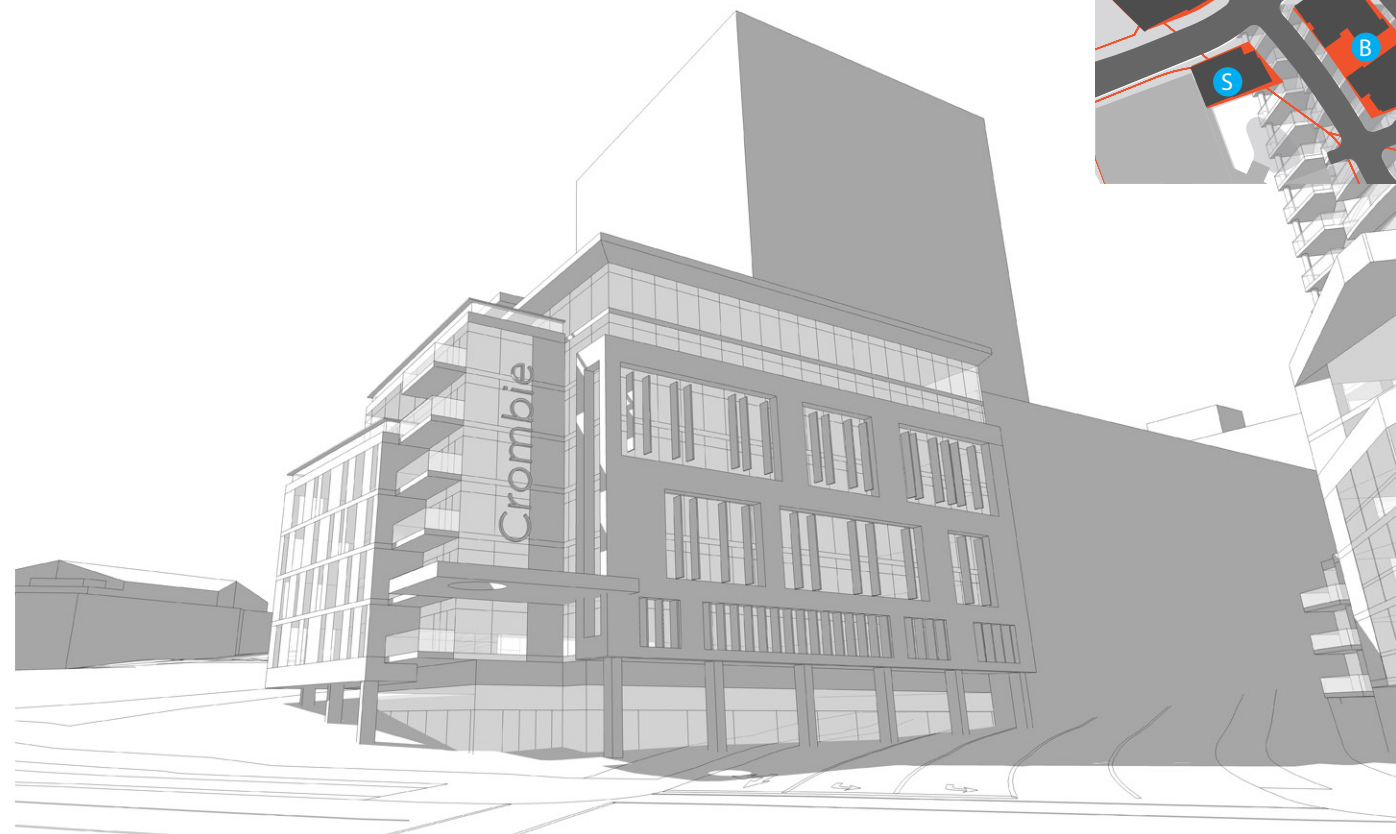
EAST ELEVATION



ROOF FLOOR PLAN

BLOCK S. Development Details

Lot Size (SM)	1250
Podium Footprint SM	742
Podium Height (Floors)	1
Tower Footprint (SM)	834
Tower Height (Floors)	7
Total # Floors	8
Total # Buildings	1
Total # Parkings	-



Block S - Brunswick Towers Expansion

With the realignment and drop in elevation of Barrington Street in front of the Brunswick Tower, a portion of land is freed up from the old interchange to provide another development site for Crombie Developments at a key location on Cogswell and Barrington.

The plan shows a mid-rise development due to

the 17m minimum tower separation distances between the existing Brunswick Tower and this site. This will allow a building to be built up to 33.5m in height (10-11 storeys).

The land would have to be purchased from HRM to complete this development.



Block F - Proctor/Barrington Development (HRM)

Development of Block F requires consideration of relocating an NS Power sub station (approx. \$750k in cost) and maintaining the current operation of the Sewage Treatment Plant. While the development density may allow for this work, the uncertainty in moving a substation may be detrimental to the marketability of this site. The possibility of extending the downtown boundary would improve the long-term development opportunity.

Block G & H - Sewage Treatment Plant Park

Taking advantage of the elevation change between the former Barrington alignment and Water Street the District Plan uses the roof of the Sewage Treatment Plant to support a community greenhouse project. The community greenhouse lands will build on the successes of other urban farming experiments in HRM and serve to demonstrate, teach and inspire the local community. An effective urban food production program will help build community and bring people from the nearby neighbourhoods to the Cogswell District.

Block H is reserved for the future expansion of the Sewage Treatment Plant, which should be more considerate of the public realm.

Block I & J - Northern Gateway Block (HRM)

Situated further North than other developments in the plan, Block I is scaled to match residential development in the Cornwallis Street area. The modestly scaled development requires deeper site specific analysis to determine viability, but could be an important gateway development.

Block J is a solid development site, and as there are little modifications planned for Cornwallis could proceed to development in the early stages of the project.

Block K - Service Centre

This small development site outside the downtown plan area is shown as home to a 65 units residential project in the Cogswell District Plan.

Block L/M - Proctor / Brunswick

The plan considers a development on the L/M Block similar to the townhouse Cunard Court development currently located across Proctor Street. The size of the overall Trade Mart block is very large and the plan, in addition to the MPS for Downtown have envisioned mid block connections through to Barrington.

Block N/O - Police Station

If the lands occupied by the Police Station were to be free for development the site would hold a highly desirable residential development adjacent Citadel Hill. The post bonus height currently is 23m (6-7 storeys). The Cogswell District Master Plan does not recommend any increase here.

Block P/Q - Blood Services

The HRM owned Blood Services building is currently vacant and if that land and the surplus land around the Centennial Pool were open for development there would be potential for additional residential density on the site. The Cogswell District Master Plan has allowed for two mid rise developments on this site.

Block R - The Drum

Westwood Developments has proposed a condominium development at Block R. A six storey development could house 45 residential units.

Map 4.19 Proposed Road Network



4.4 Networks

4.4.1 Road & Sidewalk Network

The new development will replace the existing over pass interchange with at grade intersections and will accommodate passenger vehicle traffic as well as heavy truck traffic. The alignment criterion is based on the Transportation Association of Canada (TAC) Geometric Design Guide. Due to the developments the proximity to the existing downtown core a design speed of 50 km/hr was used, with a standard cross slope of 2.0%. Based on HRM's urban

street classification it is expected that New Barrington, New Hollis Street and Cogswell Street will be classified as Minor Collectors and all other will be classified as Local roads.

Cogswell Street has traditionally created a significant challenge in terms of access from the upper elevations near Brunswick Street (~25 metres) to the lower elevations near the Casino (~3 metres). The connection of Cogswell Street through to the Casino area is considered a high priority component of the proposed design, therefore significant effort invested in analyzing potential options to make the Cogswell Street corridor work with as reasonable of a grade as possible. The discussion below identifies some potential options to help provide a workable corridor.

Raising the grade of the roadway adjacent to the Casino has limited opportunity to significantly impact the overall Cogswell grade. That said, the most likely solution for minimizing operational grades will be in finding a series of small improvements as opposed to finding a single solution that solves the issue.

Lowering the grade at the upper portions of Cogswell Street provides some opportunities to reduce the overall grades on Cogswell Street. The lowering of the grade will need to carefully consider the current roadside environment and current access to roads and parking areas.

Given the desirability of the direct

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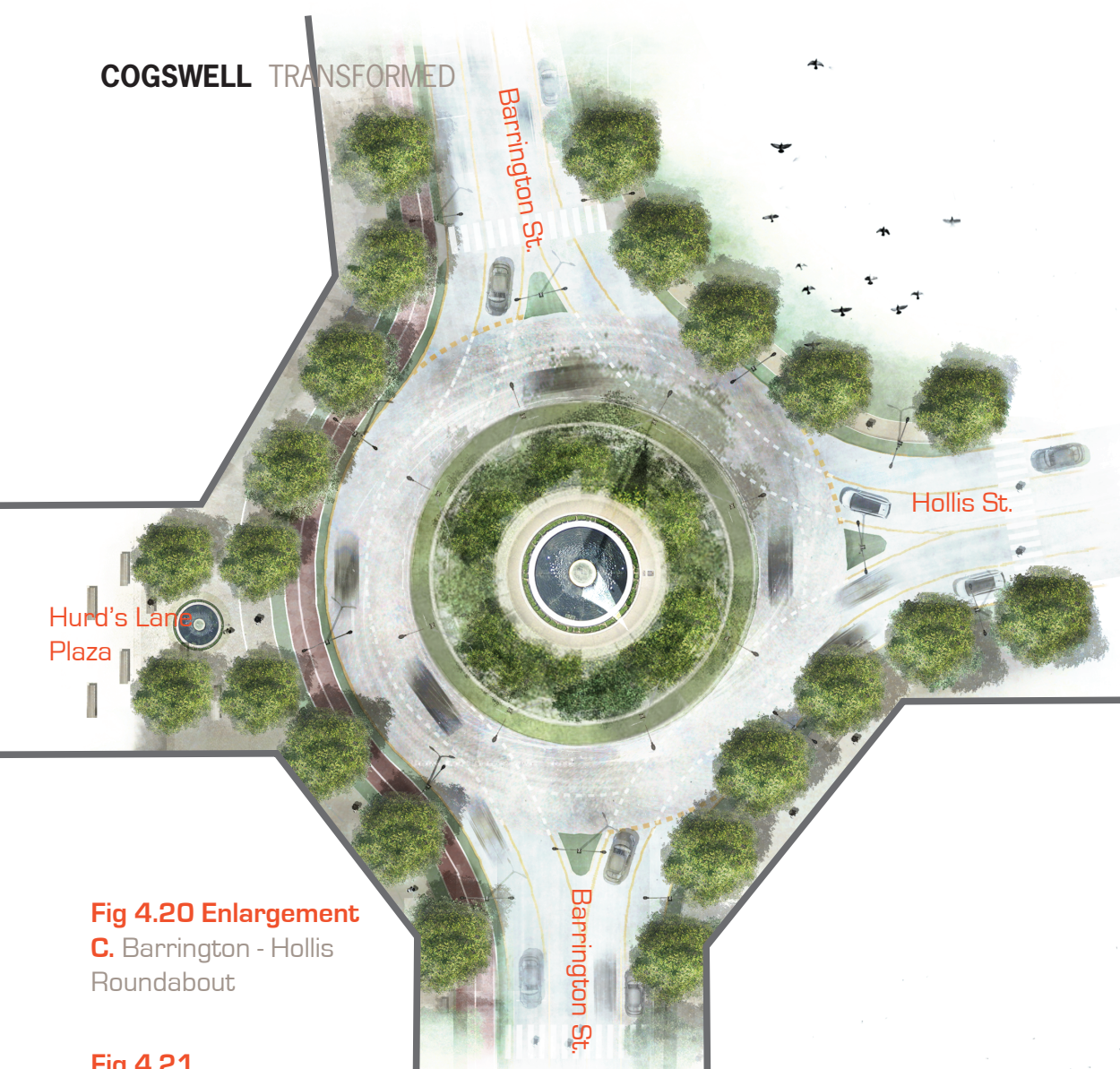
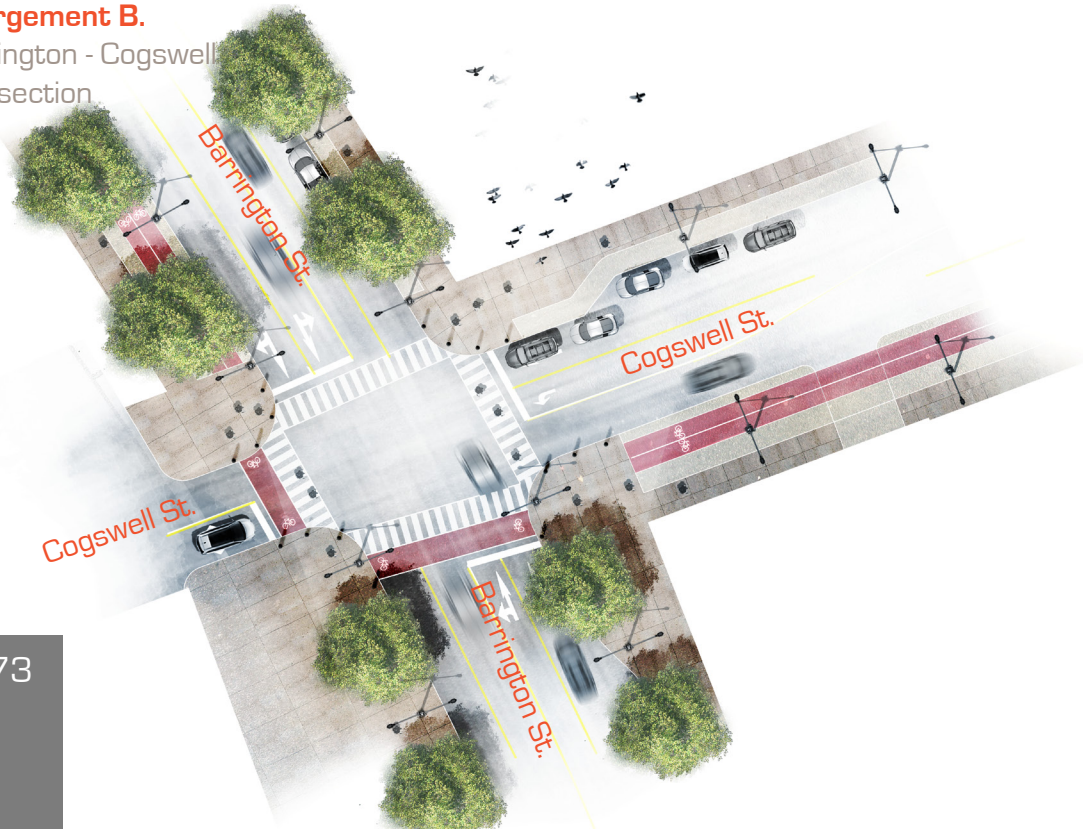


Fig 4.20 Enlargement C. Barrington - Hollis Roundabout

Fig 4.21 Enlargement B. Barrington - Cogswell Intersection



connection to the waterfront, The resulting Cogswell Street will have grades in the range of 10- 12 percent. Similar to Duke Street, Cogswell will be required to have Priority 1 status for maintenance during snow and ice events. It is acknowledged that grades in this range are not friendly for many pedestrians, especially for wheel chairs, strollers or the elderly. While continuous adjacent sidewalks would be provided, integral to the road section, it is desirable that alternate, more accessible slopes be provided within the development parcels to allow for vulnerable users.

Lower Water Street passes between two buildings in the Historic Properties area. This "pinch point"

limits sight distances and reduces the lanes widths into a range that can be hazardous for drivers to interpret. The lanes are narrow enough to be interpreted as a single lane, but are wide enough to permit the passage of two vehicles. Depending on the drivers' interpretation, this ambiguity has the potential to contribute to collisions. Widening the lanes are not an option given the close proximity of the buildings therefore its recommended that they be left as two lanes but work be carried out to improve site lines in the "squeeze" and to eliminate the acceleration that presently happens as drivers come out of the chute onto the Cogswell super highway.

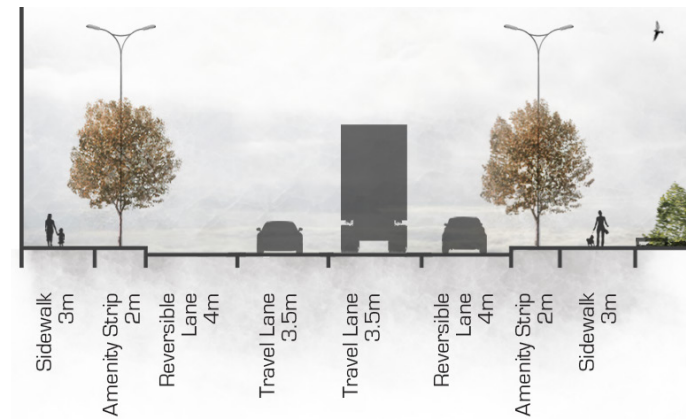
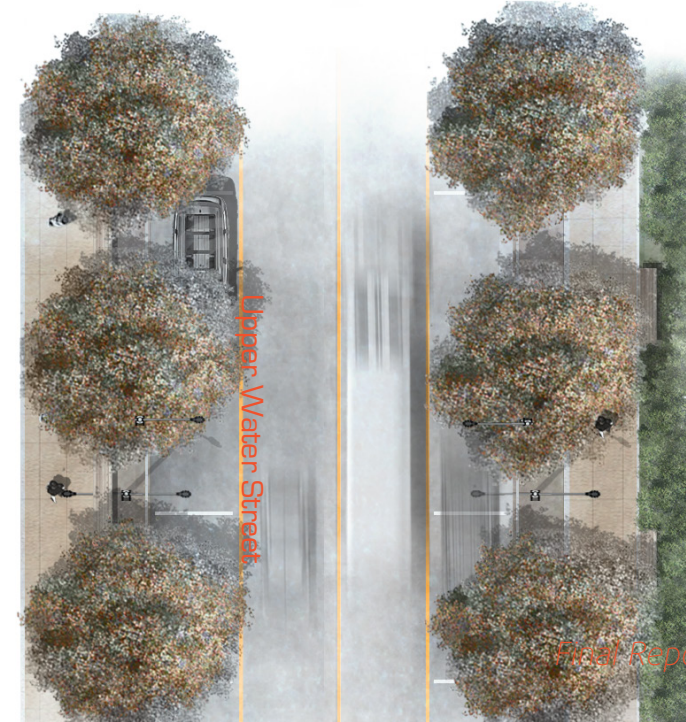


Fig 4.22 Section E. Hollis Street



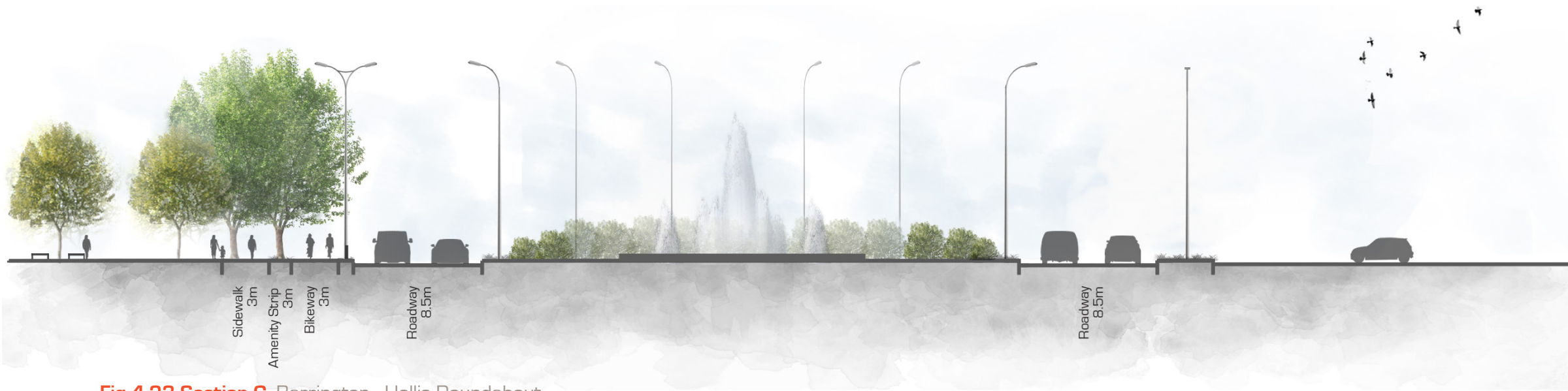


Fig 4.23 Section C. Barrington - Hollis Roundabout

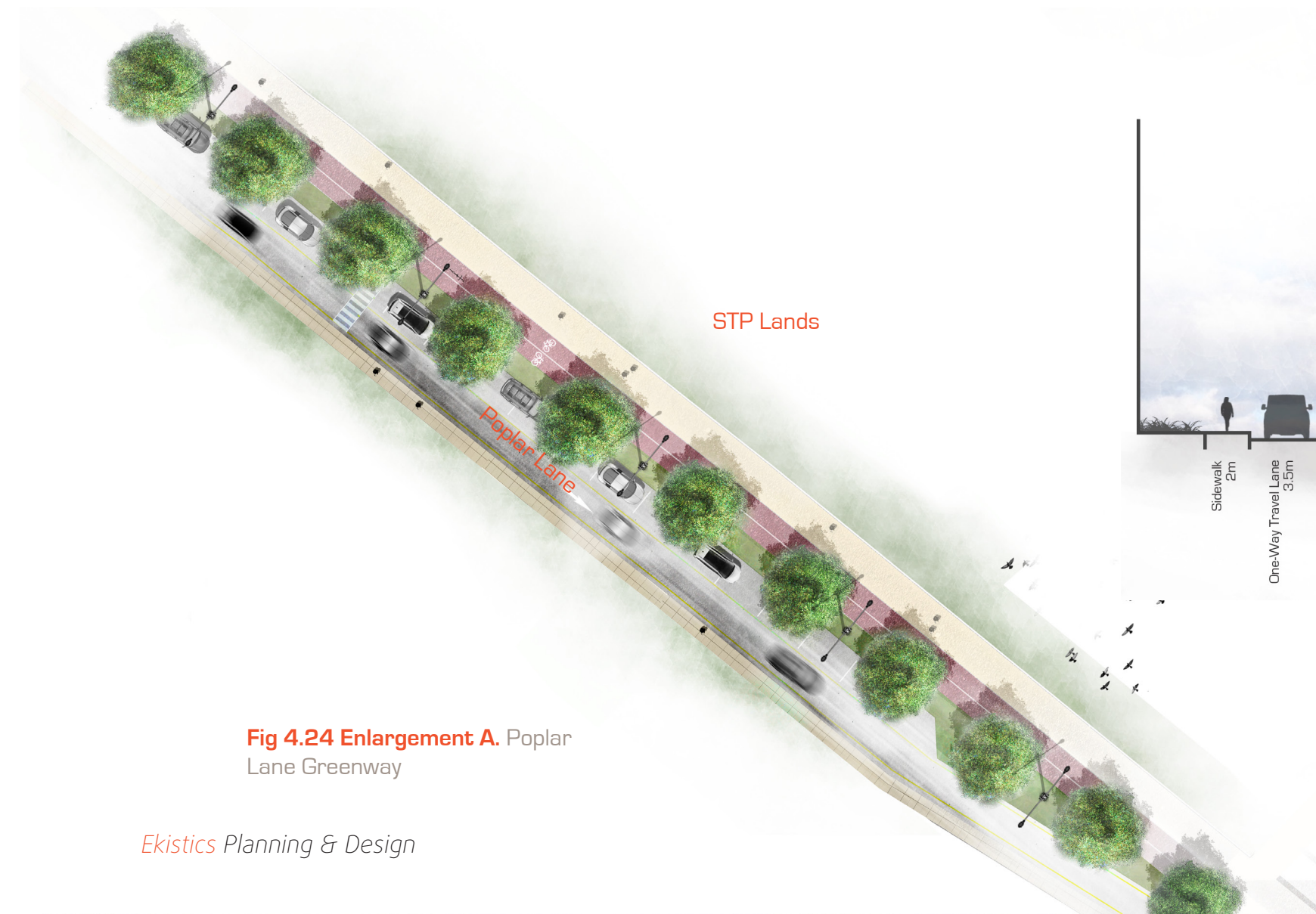


Fig 4.24 Enlargement A. Poplar Lane Greenway

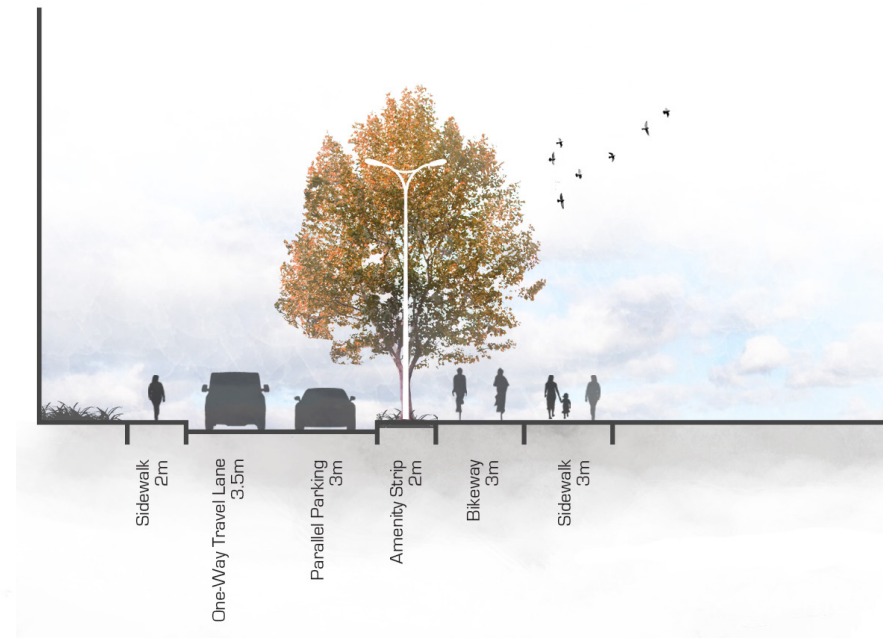


Fig 4.25 Section A. Poplar Lane Greenway Section



Fig 4.26 Enlargement D. Cogswell Street Plan and Section

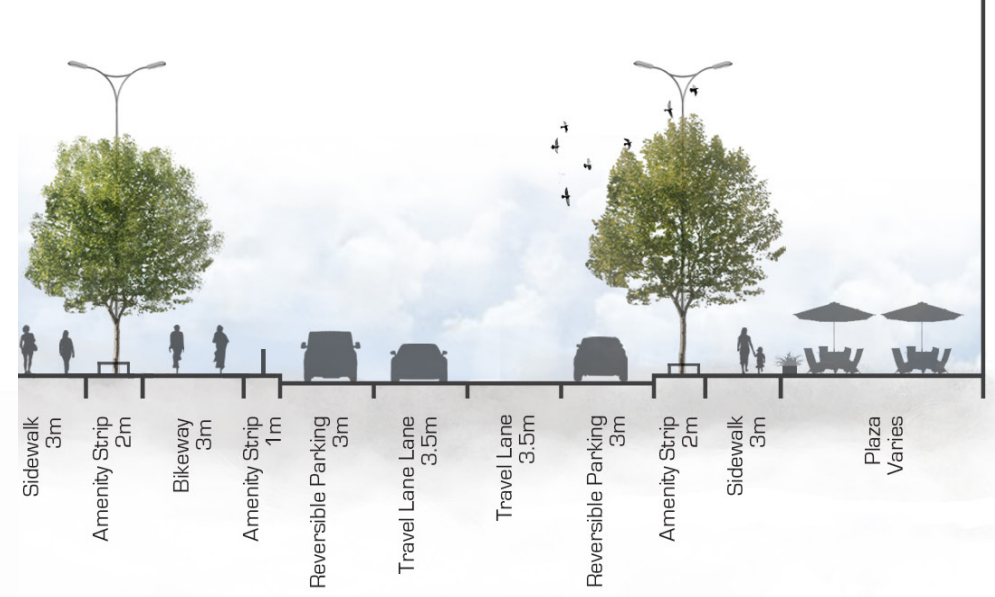
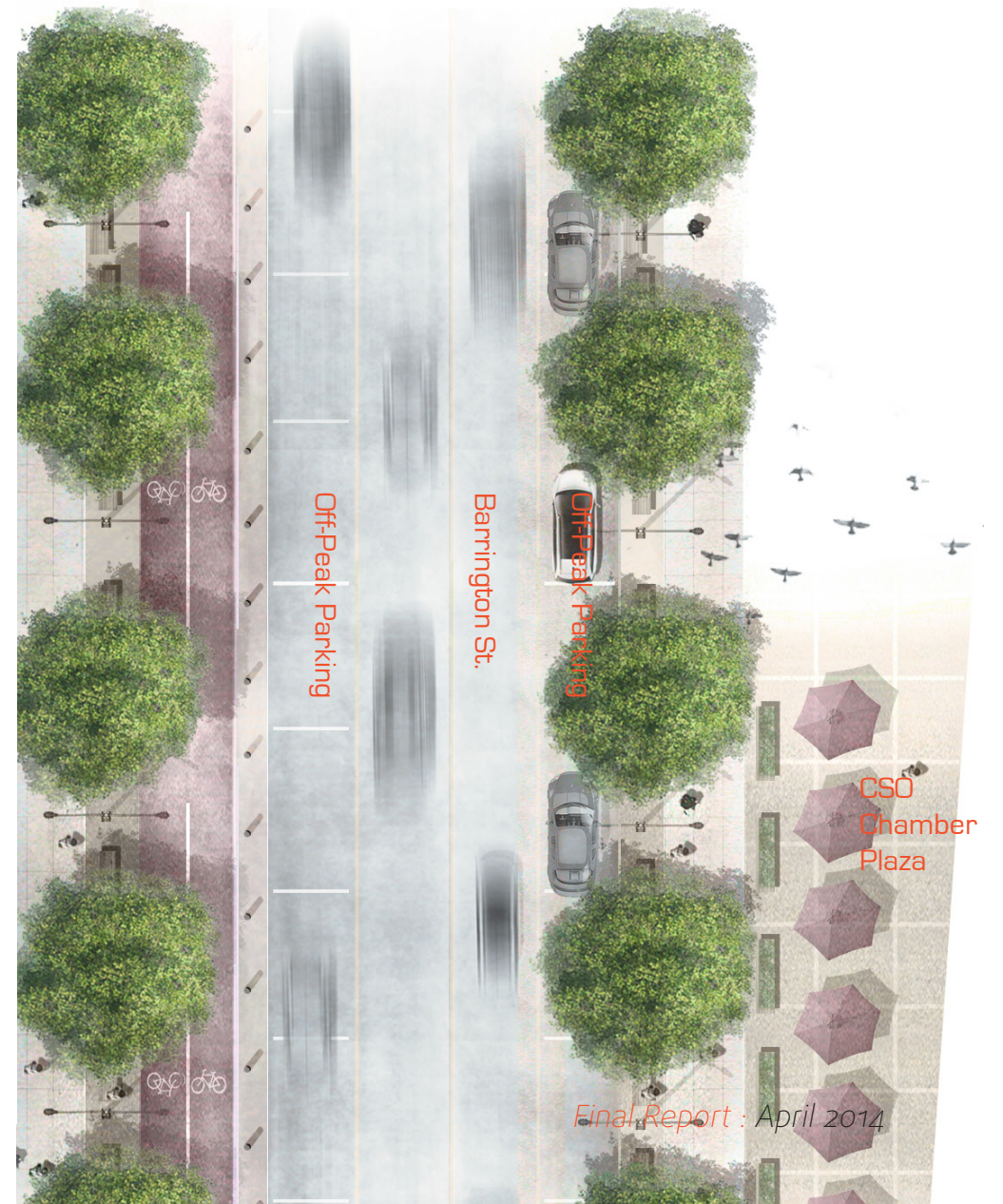
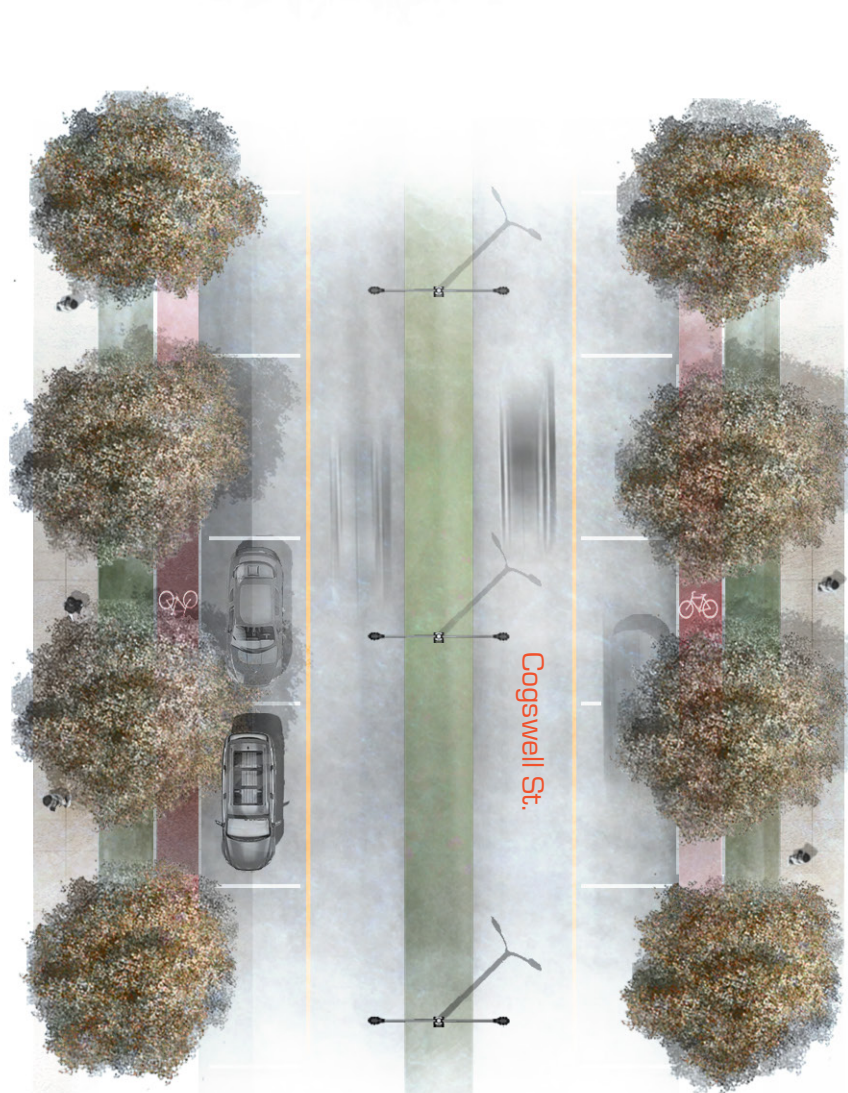


Fig 4.27 Enlargement B Barrington Street Plan and Section



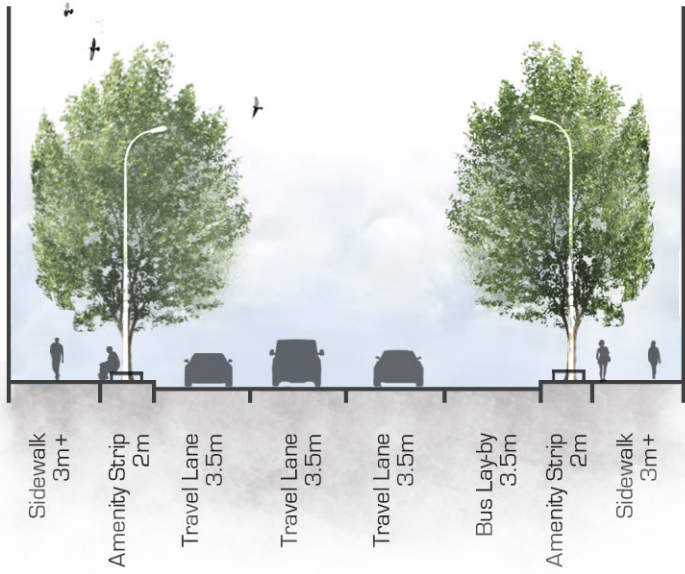


Fig 4.28 Enlargement F Barrington Street Plan and Section

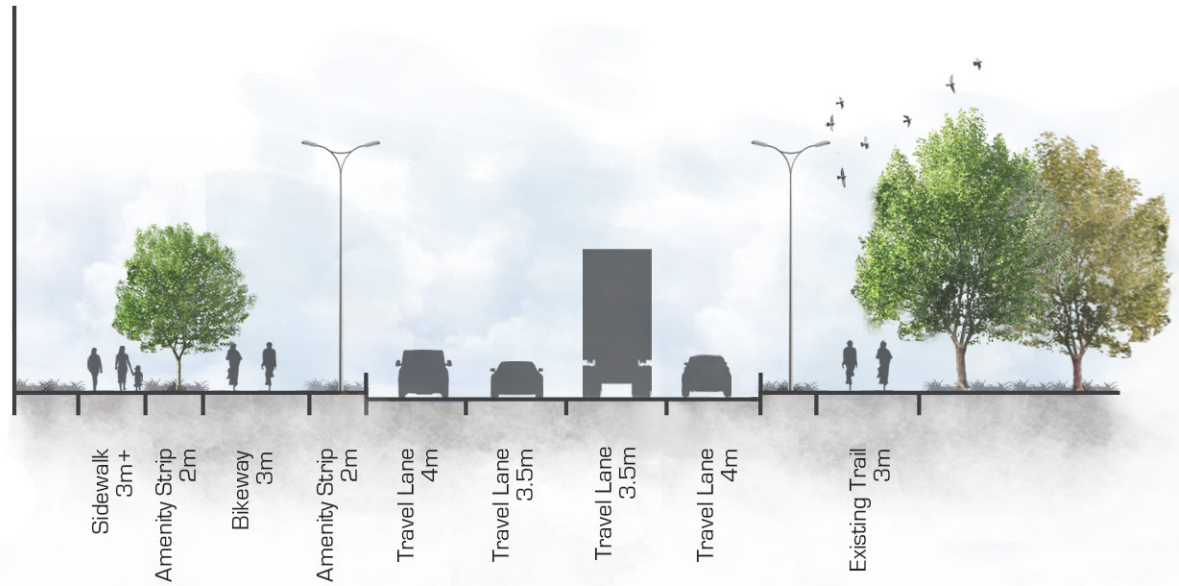
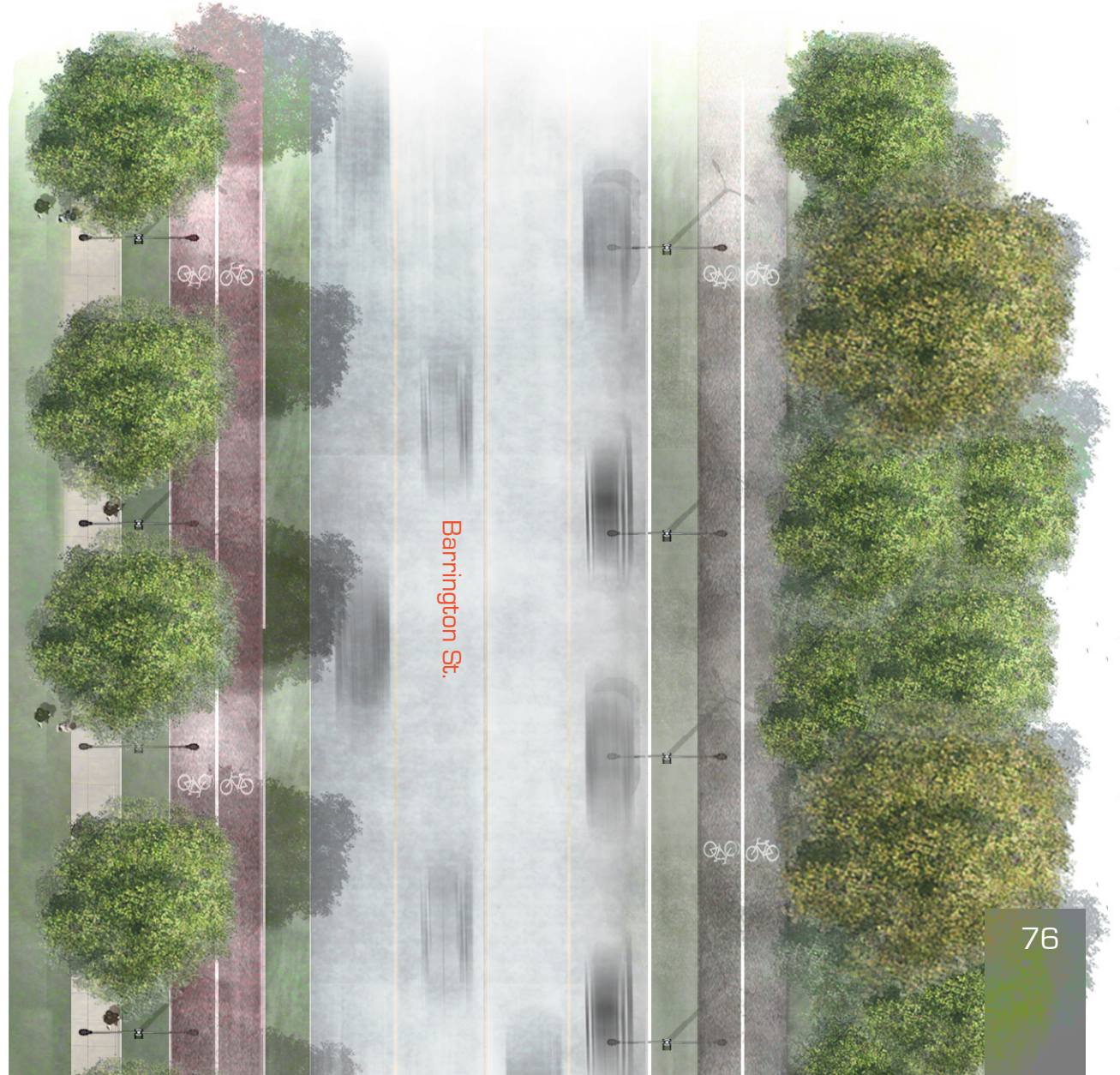
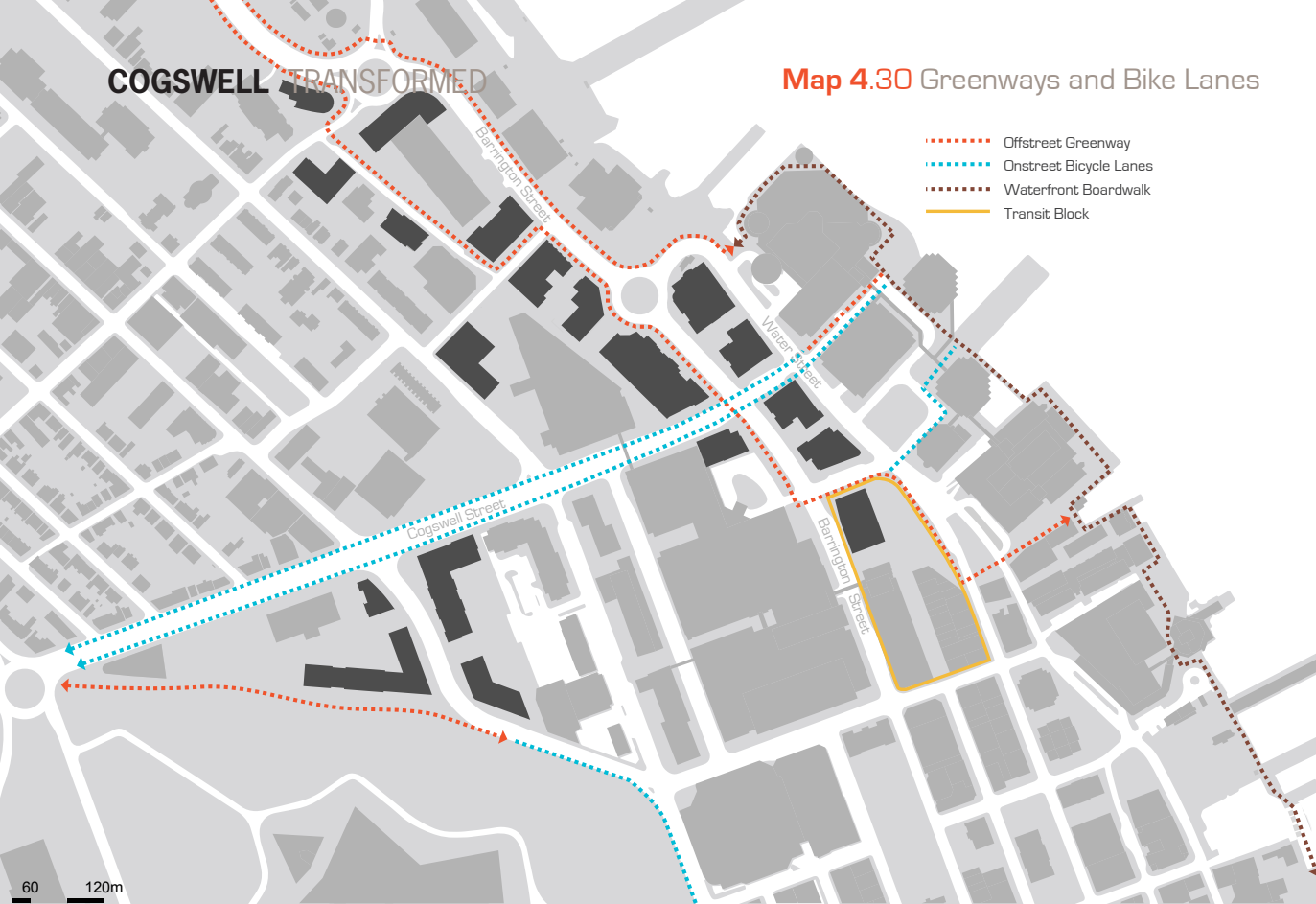


Fig 4.29 Enlargement G Barrington Street North Plan and Section



Map 4.30 Greenways and Bike Lanes



4.4.2 Active Transportation

The Cogswell District Master Plan takes advantage of a clean slate to introduce Halifax's first in right of way separated use Cycle Path. Stretching from Barrington Street north, through the Sewage Treatment Plant Park, and the newly developed Barrington Street, the Cycle Path connects to the Hollis Street cycle route and the waterfront at the Ordinance Yard plaza, providing an opportunity for HRM to showcase the best of multi-modal design at the new Transit Hub. Permanent bike repair stands, a high volume of protected bicycle lockups, and potential for bike related commercial opportunities will ensure that the Cycle Path doesn't peter out lightly as it enters downtown.

On-street bicycle lanes have been included on the cross sections of streets identified as cycle routes in the downtown Secondary MPS.

Borrowing from existing policy delineating the connections to the Waterfront, the Cogswell District Master Plan creates three new important east-west connections that will assist in creating a viable boardwalk north of Historic Properties.

Immediately North of the Casino an extension to the existing Active Transportation path on the east side of Barrington Street will connect with the boardwalk around the Casino as an effective starting point to the Halifax boardwalk. Additionally, a new Cogswell boulevard will intersect Water Street at the point where the Purdy's and Casino parking lots meet. This alley will be a key entry point from the Cogswell District to the Waterfront. Finally, the connections from the Granville Mall and the new Ordinance Yard plaza (across The Landing) will give the Marriott a prominent front entry and take advantage of the strong existing Waterfront connection in the alley between the Marriott and Historic Properties.

4.4.3. Transit

With the shift to a human scaled Barrington Street there is great advantage to moving transit capacity away from the single street right of way. The Cogswell District Master Plan situates the northern end of the block bound by Barrington, Bells Lane, Duke St, and Hollis as a public space and transit access block. Barrington remains as a double sided loading area for through buses and Hollis becomes a turnaround point for Metro X and terminating Bus Rapid Transit.

This site is located closer to the Ferry Terminal than the current Scotia Square terminal, thereby providing a more rationale set of connections to the city's ferry system and the Waterfront. The transit block also provides good linkages to the pedway system and the offices connected therein and provides opportunities for Metro Transit to provide services for drivers in the adjacent

Map 4.31 Open Space and Waterfront Gateways



commercial spaces.

4.4.4. Waterfront Gateways

The plan allows for three new major gateways to the Waterfront, as detailed in the active transportation section above, and two minor gateways through the Purdy's Wharf grounds.

To fully understand the opportunity that exists to capitalize the far northern reaches of the Halifax Boardwalk we are recommending a Waterfront Development led study building on the outcomes of the Cogswell District Plan.

4.4.5. Urban Agriculture & Forest

In addition to the Greenhouse proposal for the rooftop of the Sewage Treatment Plant, the Cogswell District Master Plan offers opportunities for greening throughout the district. The large podiums that are emblematic of the Urban Design in the Cogswell District Master Plan present magnificent opportunity for green roofs and active elevated spaces.

As part of the HRM Urban Forest Master Plan the North End has been designated as a pilot neighbourhood for interventions. The Cogswell District Master Plan sees this pilot expanded to the Cogswell lands to allow for exploration of best practices in integrating trees with new sidewalk and roadway infrastructure, and in complementing and working with new development in the downtown context.



4.5 Policy Implementation

The implementation of the Cogswell District Master Plan will require adjustments and modifications to existing planning policy.

4.5.1. Secondary Municipal Planning Strategy

The lands included within this study bridge over both the Downtown Secondary Halifax Municipal Planning Strategy area as well as the larger Halifax Municipal Planning Strategy area.

The majority of the lands are located within the Downtown area, and those that aren't fall within Peninsula North Plan area in the Halifax MPS. These lands - north of Proctor Street - are designated as high density residential even though they are outside the Downtown area are designated

The Cogswell District Master Plan recommends unifying the Cogswell Interchange lands under the Downtown Halifax Secondary Municipal Planning Strategy.

All discussion of policy and plan changes in this document assume that the Cogswell Lands identified in the study have all been brought under the jurisdiction of the Downtown Secondary MPS.

Within the Secondary MPS there is much to support the work planned for the Cogswell District. Specifically policies 45(c) and 45(d) which cite the redevelopment of underutilized land and the need for a capital investment program, respectively.

It also should be noted that **section 5.3 of the Secondary MPS** is dedicated to defining the scope of this study. This section **should be revised or removed upon the acceptance of the Cogswell District Plan.**

In many regards the Cogswell District Master Plan

is a direct response to the Downtown Secondary Plan's guidance for public realm streetscapes, open spaces, gateways, and transportation.

4.5.2. Downtown Halifax Land Use By-law

Requirements from the Downtown Halifax Land Use By-Law were taken as a starting point for the design of the Cogswell District. To aid in development buildability and streetscaping we are proposing alterations to the requirements and associated alterations to the By-Law Maps.

Discussion

Views: With the extension of the urban fabric to the north it is important to ensure that the common feel of downtown Halifax is also carried through the new District. Downtown Halifax is defined by views to and of the water. We believe it is important to mark Cogswell Street as an important east-west corridor in line with Duke Street, George Street, et al. The protection of the Waterfront View Corridor will help encourage continuity from the traditional core of downtown.

Streetwall Setbacks: In the Cogswell District the development blocks are designed to allow a 4.0m setback from the property line. This space will be used to deliver the high quality pedestrian oriented commercial space

Streetwall: By reducing the requirement for streetwall on all faces of the development block we are allowing the opportunity for unique and signature building design. The intention is that the designs will fit the high standard set in the design manual but also free the architectural community to fully participate in designing the Cogswell District.

Tower Dimensions: In an effort to maximise the utility of the residential space within the development blocks we are recommending a wider tower form for the Cogswell District. We understand the desire to ensure a good return on the lands and the more economical towers, which

take specific advantage of the Cogswell block dimensions, will help developers see the value in the development blocks that have been created.

Proposed Changes

1. To add to Land Use Requirements (Waterfront View Corridors (18)):

Cogswell Street shall be added to the list of east-west streets with protected View Corridors. Since this view doesn't currently exist, the new alignment will bring the view of the harbour into play from upper Cogswell Street. Note that an overpass already exists at the end of this street between Purdy's and the Casino. Bell's Lane should be excluded since there is no view of the harbour possible and no connection to upper streets beyond Barrington.

2. To add to Precincts: Additional Requirements

Precinct 8: Cogswell District

11(8) Within the Cogswell District the streetwall width may be reduced to no less than 65% of the width of a lot abutting a streetline, provided the streetwall is contiguous.

11(9) Within the Cogswell District any portion of a building above a height of 33.5 metres shall be a maximum width of 60m and a maximum depth of 38 metres.

3. By-Law Maps Requiring Updates:

Map 1 - Zoning and Schedule W

As recommended in section 4.5.1. the Downtown Halifax Zone shall be extended north to include all development blocks in the Cogswell District Plan. The extension of this zone will allow for consistent design guidelines throughout the new district. Additionally Granville Mall and the Ordinance Yard Plaza should be identified as Open Space.

Map 2 - Downtown Precincts

In concert with the extension of the Downtown Halifax Zone, Precinct 8 shall extend to the new northern boundary to encompass all development sites in the Cogswell District Plan.

Map 3 - Pedestrian Oriented Commercial Streets

This map will require an update to include the new Cogswell District street grid. Within this grid the new Barrington Street (to the southern-most roundabout), shall be designated on Map 3 as Primary Commercial Streets.

Maps 4 / 5 - Maximum Pre/Post-Bonus Heights

These maps require an update to include the new Cogswell District Street grid.

Map 6 - Streetwall Setbacks

This map will require an update to include the new Cogswell District street grid. Within the Cogswell District all streets shall be noted as

0-4.0m setback. Discussion of this policy change is detailed on the following page.

Map 7 - Streetwall Heights

This map will require an update to include the new Cogswell District street grid. Within the Cogswell District Water Street shall have a maximum streetwall height of 18.5m and all other streets shall be noted as 21.5m maximum height.

Map 8 - Central Blocks

This map require an update to include the new Cogswell District Street grid. An extension of the Central Block designation into the Cogswell District is not recommended or required by the plan.

Map 9 - Prominent Visual Terminus Sites

This map require an update to include the new Cogswell District Street grid. The location of the terminus at the north end of Granville Mall shall move to the face of development block B. Sightlines shall be added looking down Cogswell

terminating at the Waterfront. The visual terminus at the north end of Barrington street shall move to the southern roundabout.

Map 10 - Archaeological Resources

This map require an update to include the new Cogswell District Street grid and an extension of the Downtown Halifax Zone. The notation of archaeological buffers is relevant and should be included for the entire Cogswell District.

4.5.3. Steps Forward

With the approval of the Cogswell District Master Plan the necessary conversations and consultations around changes to the Secondary MPS and By-Law can begin. It is imperative that the planning policy lead the deconstruction of the interchange, and reconstruction of development blocks to ensure that all stakeholders understand the opportunities that are being created in the new Cogswell District.



Fig 4.33 Bell's Lane from Upper Water Street with Granville Square to Left.



Demolition / Reconstruction **5.0**

5.0 Demolition / Reconstruction

The deconstruction and reconstruction of the area requires careful planning to safely remove large structures within the core of Halifax while maintaining access through the area for traffic, creating viable development blocks as we proceed, and maintaining access to adjacent businesses.

The existing structures are highlighted in map 5 (opposite) and include three bridge structures and a network of retaining walls described as follows:

- A. **Cogswell Street Bridge** The existing “Cogswell Street Bridge” consists of 5 spans of approximately 29m each, for a total length of 145m. The superstructure is made of a hollow concrete slab having a width of 11m and can accommodate two traffic lanes. The spans are supported by 5 concrete piers and two abutments.
- B. **Directional Ramp Bridge** The existing “Directional Ramp Bridge” consists of a curved elevated ramp for total length of 69m. The superstructure is made of a hollow concrete slab having a width of 8.54m. The spans are supported by 3 concrete piers and two abutments.
- C. **Barrington Street Bridge** The existing “Directional Ramp Bridge” consists of 2 spans of approximately 17.1m, for a total length of 34.2m. The superstructure is made of a hollow concrete slab having a width of 17.7m and can accommodate four traffic lanes. The spans are supported by 4 concrete piers and two abutments.
- D. **Barrington Street Walls** The street at that location is bound by two adjacent concrete retaining walls. The North wall has an average height of 6.4m and a total length of 168m. The South Wall has an average height of 5m and a total length of 217m.
- E. **Upper Water Street Wall** The existing “Upper Water Street Wall” consists of a concrete retaining wall. The wall has an average height of 7m and a total length of 310m.
- F. **Trade Mart Wall** The existing “Trade Mart Wall” consists of a concrete retaining wall. The wall has an average height of 3.5m and a total length of 145m.



Map 5.1 Existing Infrastructure

- A** Cogswell Street 5 span structure over the directional ramp and the four-lane arterial
- B** 4 span directional ramp from Cogswell to Barrington Street
- C** Barrington Street two-span structure over the four-lane arterial
- D** Retaining wall on Barrington Street
- E** Retaining Wall on Upper Water Street
- F** Trade Mart wall



5.1 Demolition and Construction Phasing

Phasing has been designed to accommodate the needs of all stakeholders, and to efficiently reconstruct the Cogswell District. The overall phasing concept can be seen in Map 6. This section details the analysis and logic behind each phase, the intent of the phasing design is to show that the Cogswell District Master Plan is an expression of a winning vision and a winning process for building our city.

Three sub-phases have been identified that allow for consideration of what will be a complex implementation

process. The phases are identified as follows and illustrated in maps 5.2 through 5.7.

Phase 1: Construction of the Northern Gateway Roundabout

Phase 2: Cogswell Street Re-Construction

Phase 3: Barrington Street Re-Construction

5.1.1. Phase 1 - Construction of the Northern Gateway Roundabout

Figure 5.2 illustrates the construction of the northerly

gateway roundabout which connects Barrington Street, Cornwallis and Valour Way. During this phase the east west connector roads – Cornwallis and Proctor Streets would be constructed.

Demolition

During this phase demolition will consist of earthmoving and removals of roadways, sidewalks, curbs, storm sewers, and sanitary sewers in the immediate area of construction (northerly area of the site). No major structures would be removed at this phase.

Streets, Amenity, and Services Construction



The roundabout and associated 4 legs would be constructed as well as the retaining wall adjacent to the DND property. During this phase the east west connector roads – Cornwallis and Proctor Streets would also be constructed. Given the grade change proposed for Cornwallis (raised above existing) and Proctor (cut below existing), construction, planning and sub-phasing is required to allow for continuous north-south traffic on Barrington Street. The existing sanitary trunk sewers and storm sewers would be replaced to suit the new grades. Based on the information available, it appears that the Upper Water Street area does not have a separate storm sewer system. Existing catchbasins are connected to the sanitary main. With the street construction, a new storm

main would be installed and directed to a new outfall across DND lands (see fig 5.13)

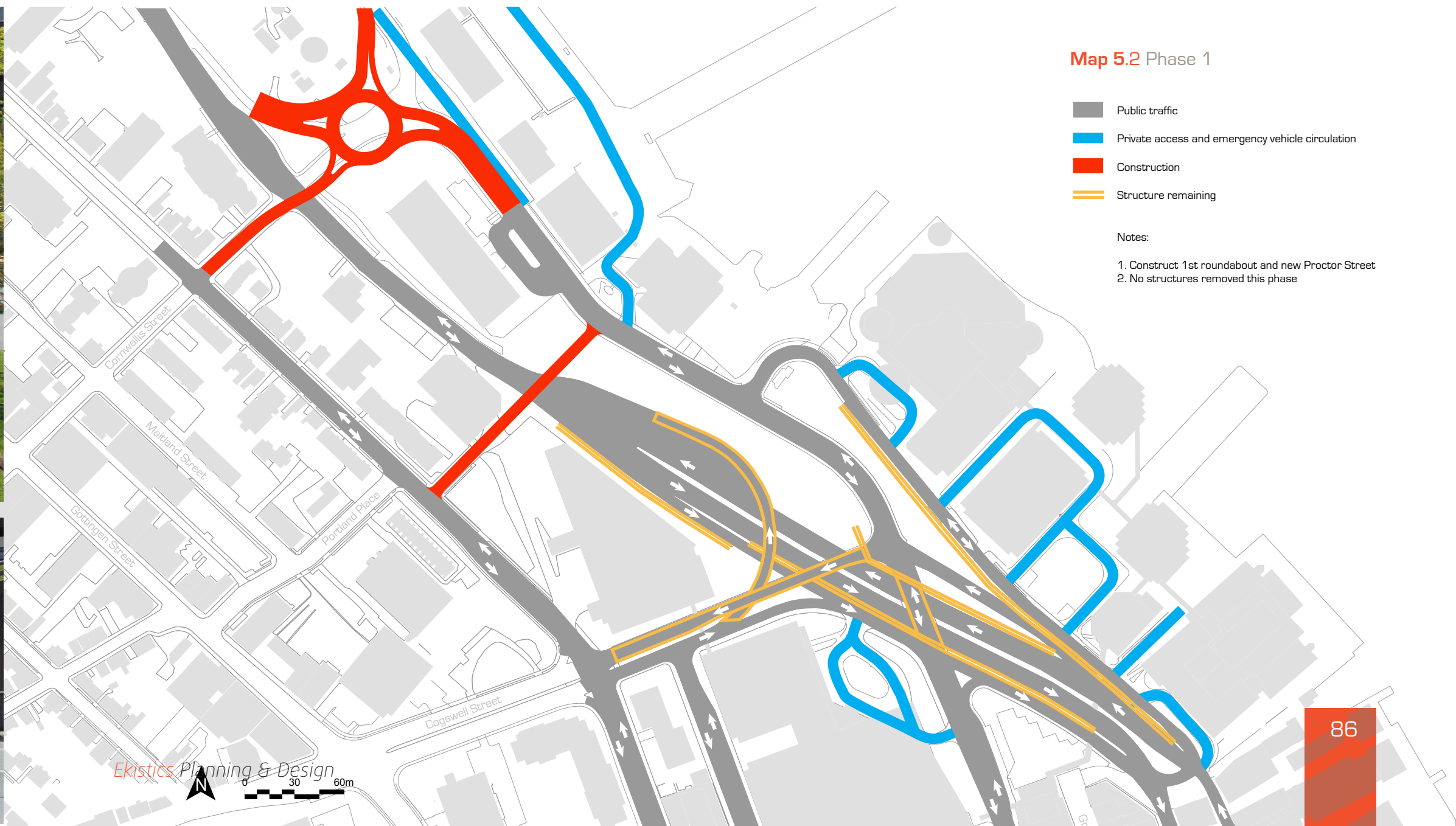
Traffic Implications

For this phase, the primary traffic flows north-south can be maintained on the existing Barrington Street to Hollis Street Corridor. Upper Water Street would be closed at the northerly end, providing for local traffic to the Sewage Treatment Plant and DND. Valour Way would also be closed for the duration of construction. While Provo Wallis Street will remain open and limited traffic would be permitted though the site, it is acknowledged that an alternate access for DND traffic will be required.

It is expected that traffic would be directed to the northerly Dockyard gate (at the MacDonald Bridge). Since traffic that uses the southerly gate is generally accessing the MacDonald Bridge, a shift to the MacKay Bridge would be expected.

5.1.2. Phase 2

Phase 2a and 2b illustrate the demolition and partial construction of the new Cogswell Street at the centre of the site as well as the Upper Water Street area near the Halifax Marriott (southerly area of the site).



Demolition

During this phase the Elevated Cogswell Street structure (A) and the Directional Ramp structure (B) would be demolished. As well the southerly portion of existing walls on Upper Water Street wall (E) would be removed.

Streets, Amenity, and Services Construction

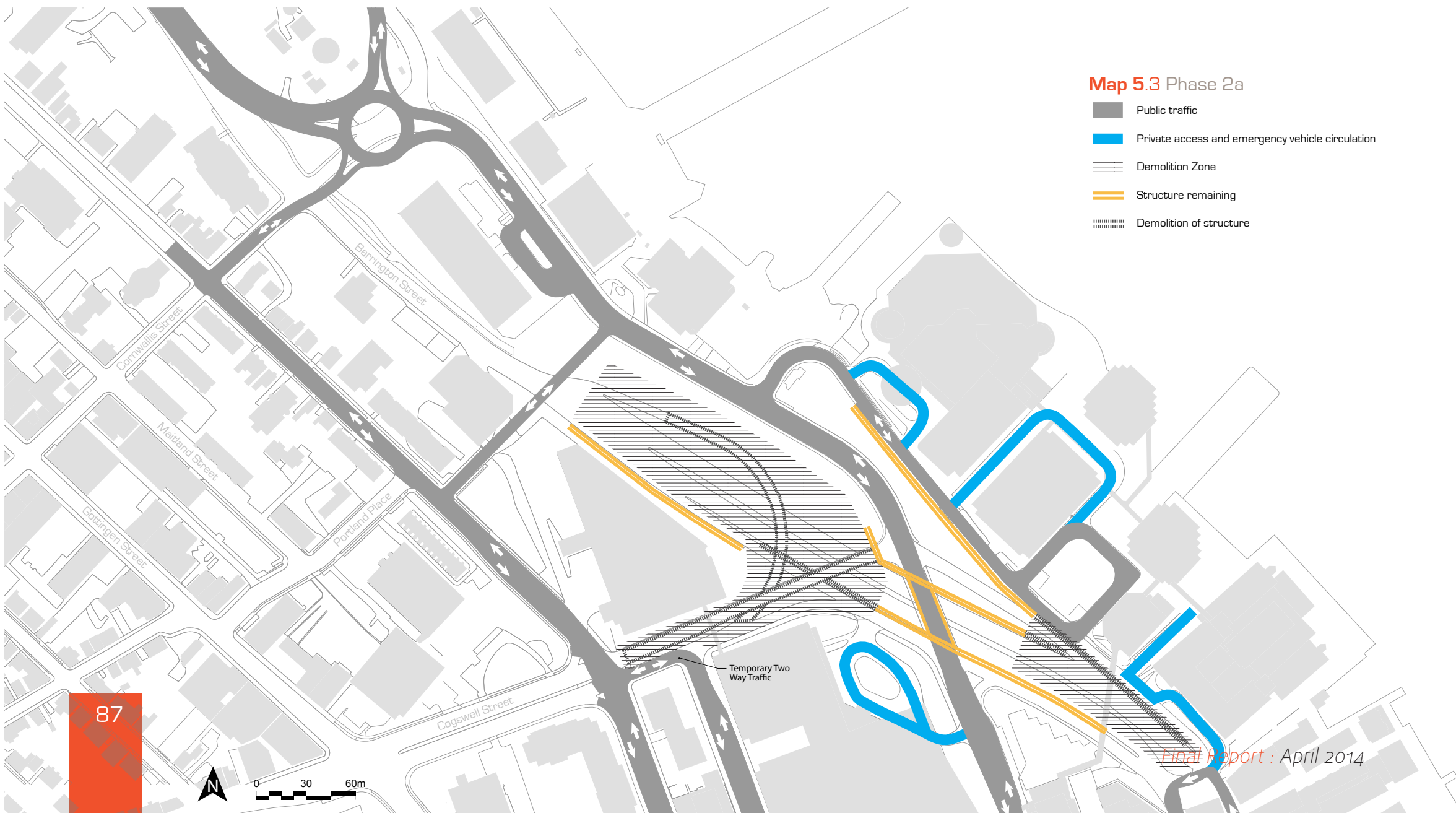
The new Cogswell Street from Brunswick Street to the centre of the site would be constructed as well as

the new Barrington Street from Cogswell to the new roundabout. Trunk services would be installed with the roadways. Existing services which run from Cogswell in front of the Delta Halifax to Hollis Street will need to be maintained in the roadways until subsequent phasing of new services.

Traffic Implications

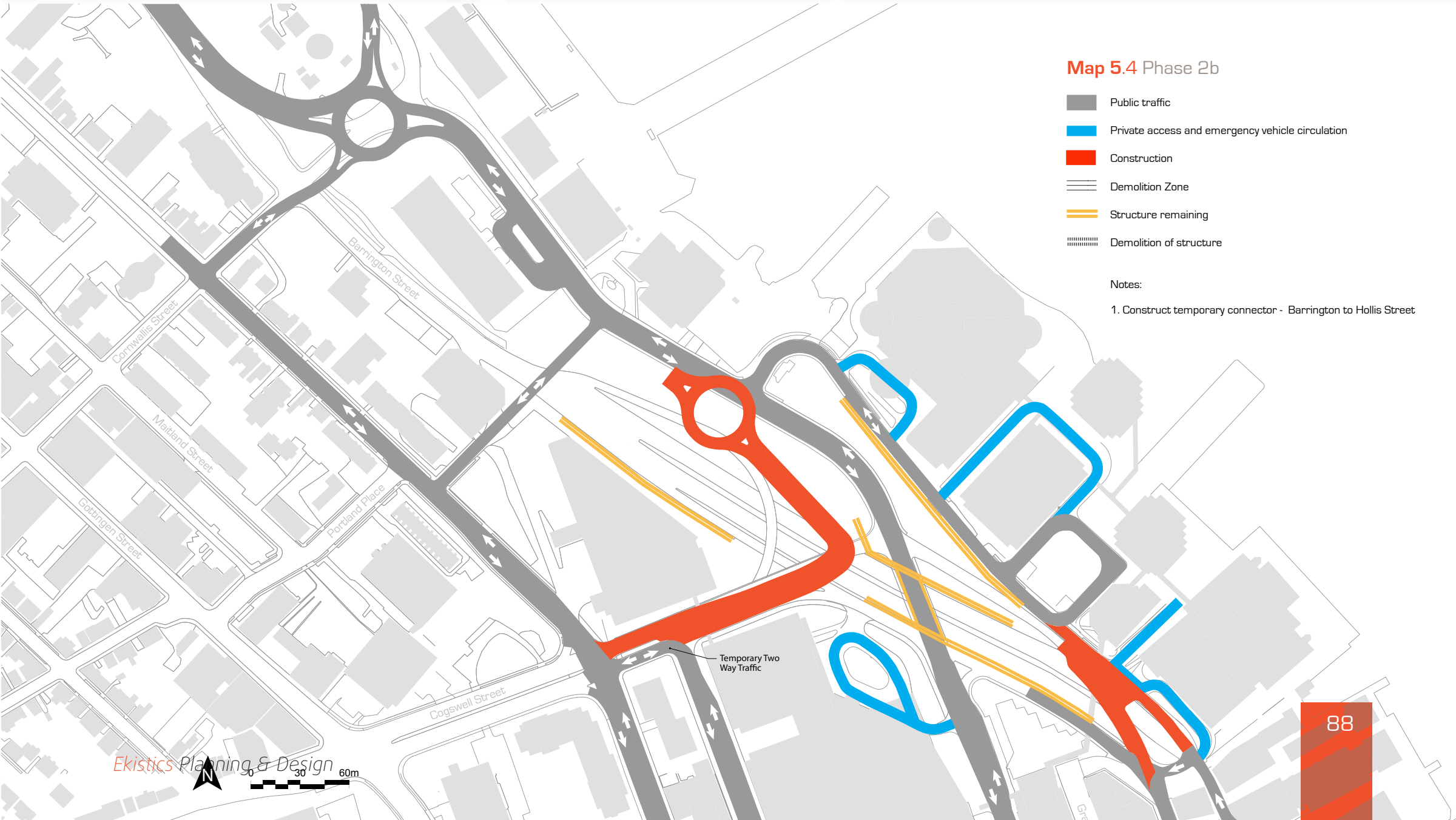
The primary traffic flows north-south can be maintained through the new Gateway Roundabout

to Barrington Street. A temporary connector road between Hollis and Barrington would be established primarily along the existing ramp to permit circulation and service during future Phase 3. The existing eastbound lanes of Cogswell would be used to permit traffic to access Albermarle Street (and Scotia Square parking).



Map 5.3 Phase 2a

- Public traffic
- Private access and emergency vehicle circulation
- Demolition Zone
- Structure remaining
- Demolition of structure



5.1.3. Phase 3

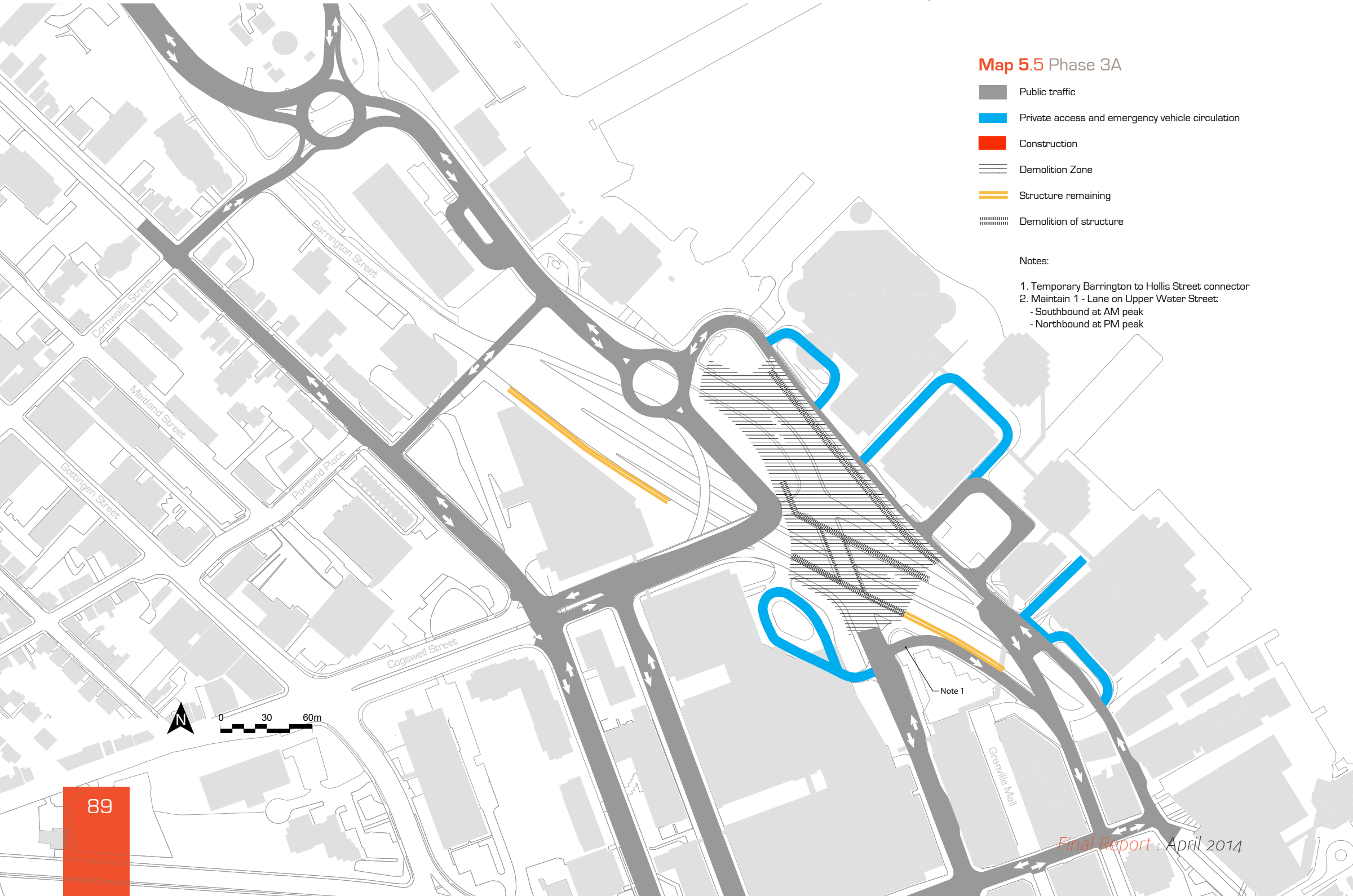
Phases 3A and 3B illustrate the demolition and construction of the remaining sections of the new Cogswell Street and Barrington Street at the centre of the site as well as the east-west connector street between the Delta Halifax and Purdy's. This represents the primary block at the centre of the site.

Demolition

During this phase the Barrington Street structure (C) and associated walls as well as the remainder of the Upper Water Street wall (E) would be demolished, see map 5.5

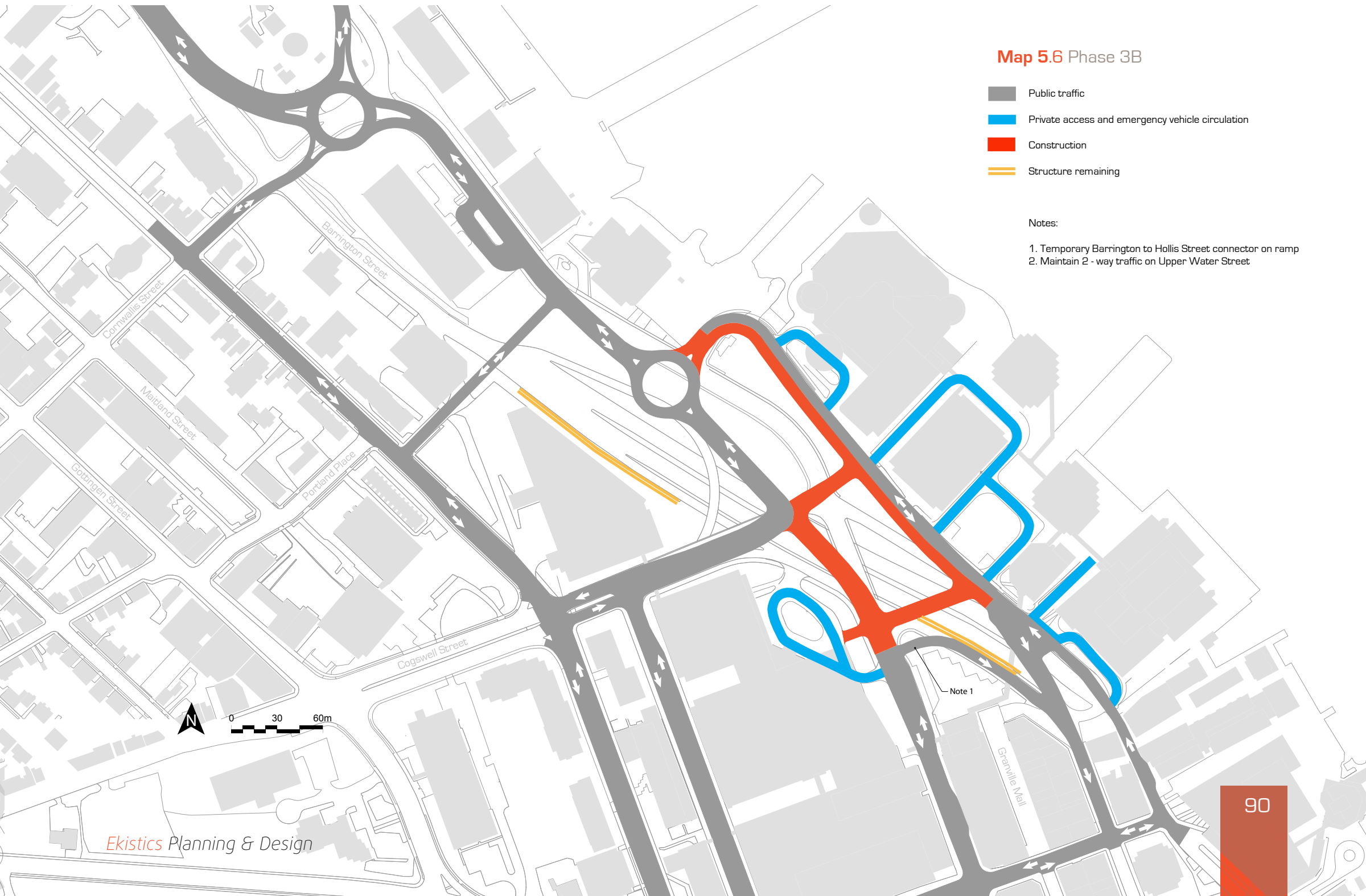
Streets, Amenity, and Services Construction

As noted, the centre block of the site would be constructed, including the remainder of Cogswell Street and the remainder of Barrington Street. Trunk services would be installed with the roadways, including a new trunk sanitary from Cogswell (as shown in Drawing 107), allowing for the decommissioning of services along the ramp.



Traffic Implications

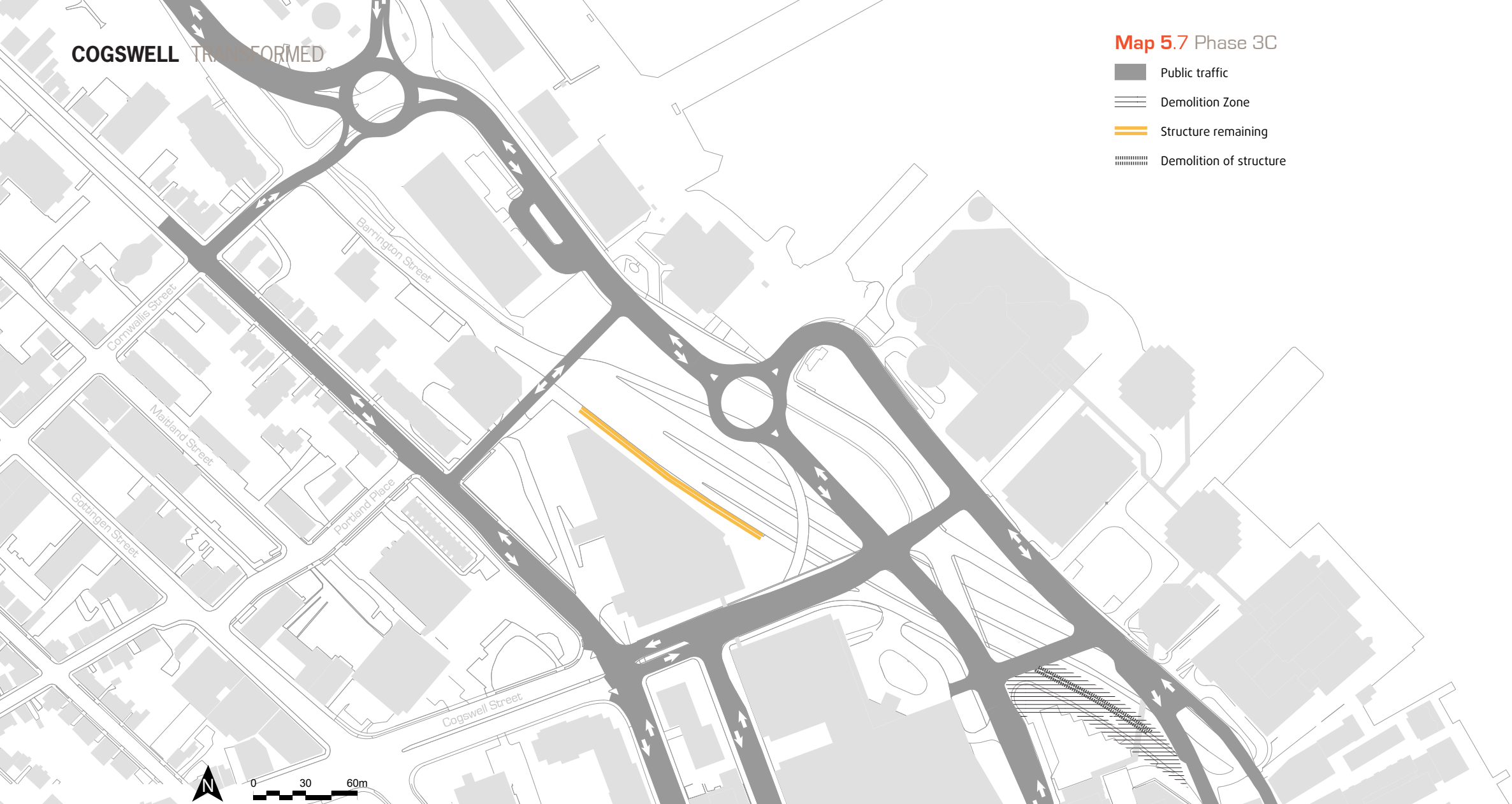
In this phase, maintaining the primary traffic flows North – South is challenging. During the demolition of the Upper Water Street wall, it is expected that one-way, peak hour traffic can be maintained on this street. To make this possible, it is expected that the primary demolition of this wall would occur during the night.



COGSWELL TRANSFORMED

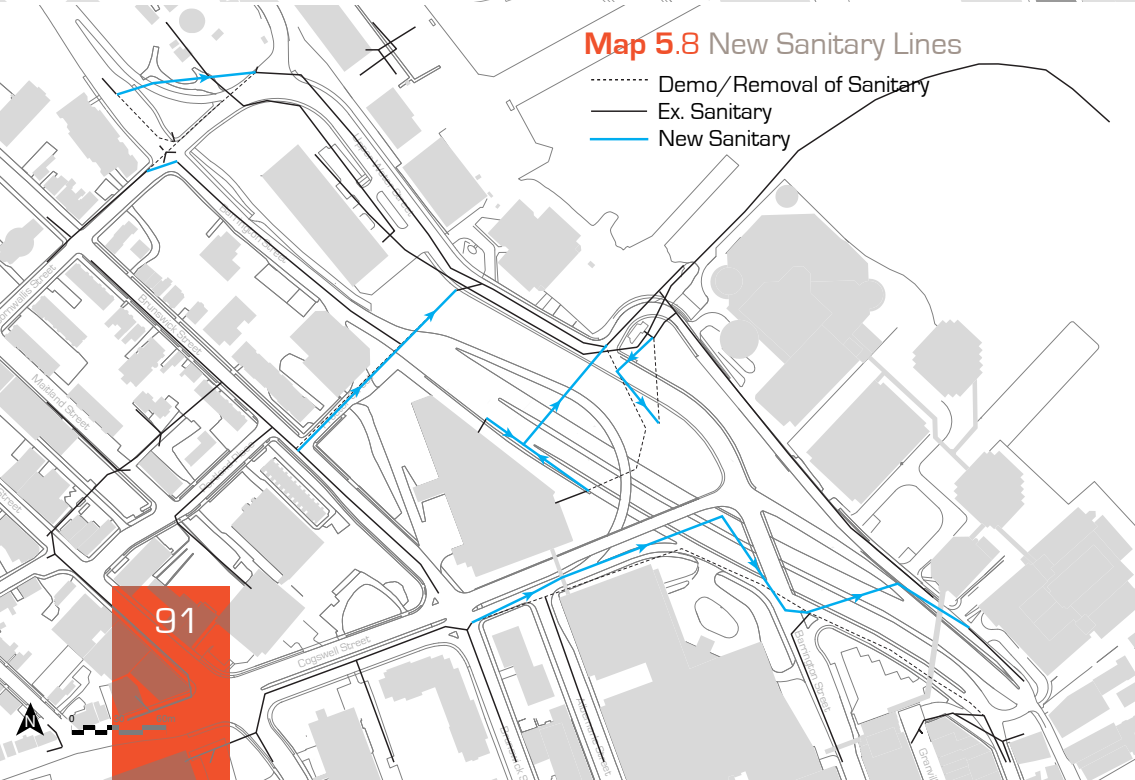
Map 5.7 Phase 3C

- Public traffic
- Demolition Zone
- Structure remaining
- Demolition of structure



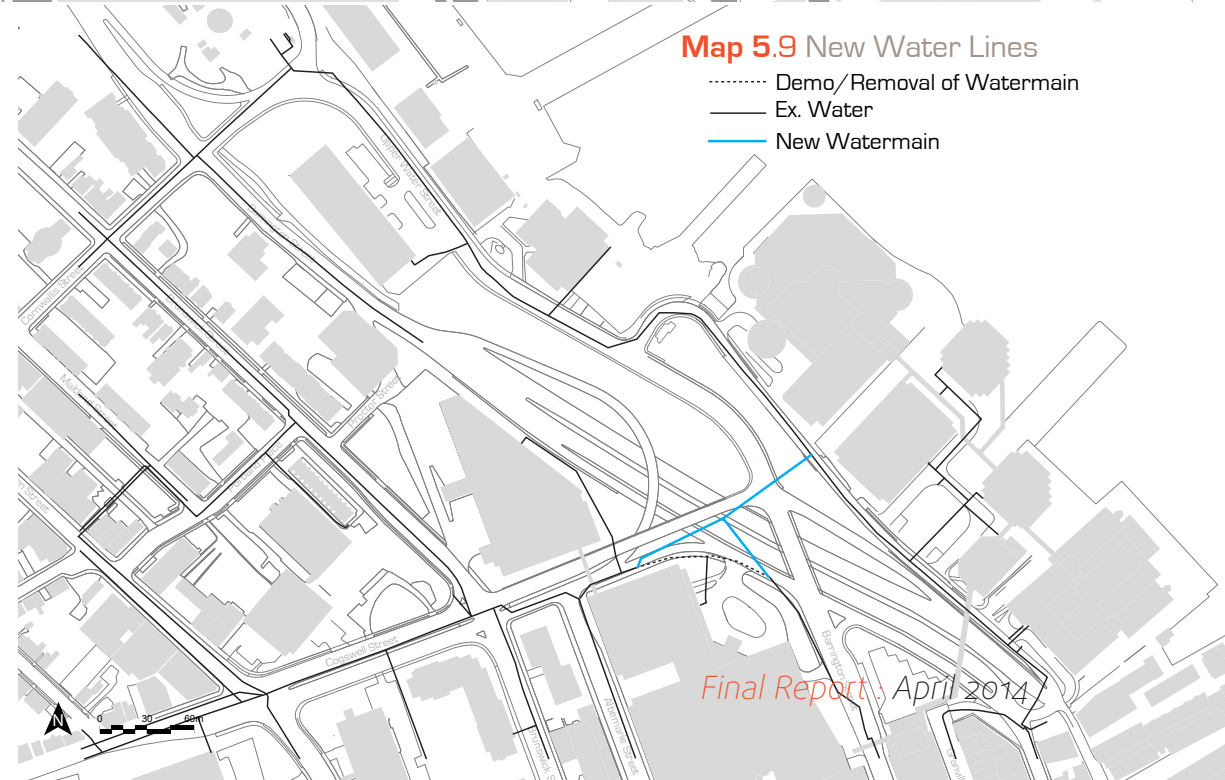
Map 5.8 New Sanitary Lines

- Demo/Removal of Sanitary
- Ex. Sanitary
- New Sanitary



Map 5.9 New Water Lines

- Demo/Removal of Watermain
- Ex. Water
- New Watermain



5.2 District Energy

In addition to the underground services described above, it is possible that a District Energy System (or "Green Thermal Utility" - GTU) would be developed for the Cogswell district. In terms of impact in the street, 6-12 inch diameter supply and return pipelines would be expected which would be easily accommodated within new street right-of ways as new infrastructure is constructed. The exception may be the existing Upper Water Street (New Hollis Street) where there is significant existing underground infrastructure that will remain in-place. In addition to the distribution system, a power plant adjacent the existing wastewater treatment plant would be required, with an estimated footprint of 1,000 m2.

As part of the development, HRM has indicated that "Sustainable Community Development Best Practice Recommendations" are to be included in the plan. The Halifax Wasterwater Treatment Plant is being considered

to provide a sustainable energy source for the new development. In this way, the Plant has an expanded role in the district. Central heating using waste heat from the Plant could provide green energy to the buildings.

HRM has studied the feasibility of similar projects. Green Thermal Utilities (GTU's) have been considered in Bedford (Provident Development Inc.), Dartmouth (Queen's Square, King's Wharf) and Halifax (Emera on Lower Water Street). As well, Halifax Water has investigated the potential in terms of energy produced at each of their main sewage treatment facilities. The current Halifax Water Five Year Business Plan reports that the Halifax Wastewater Treatment Facility (WWTF) produces an estimated 55.7 MW based on the average sewage flows of 114,000 cubic meters per day into the plant and an average temperature of 10 degrees C. This low grade waste heat can be captured using heat exchangers and heat pumps. Halifax Water

provided the Cogswell team a brief summary of facts regarding the potential of the Halifax WWTF. This is included in Appendix A for reference. Halifax Water has put into operation an Energy Department and has expressed a keen interest in developing energy from waste. They have recently received approval from the UARB to operate as a Power Utility. The report in Appendix X suggests that significant potential exists to develop a GTU for the Cogswell district. However it is also acknowledged that detailed study is required to make an economic case for the Utility. Following the first step of understanding the potential, which appears to be complete, the technical and financial challenges need to be defined, then a suitable project identified and implemented. It would appear that new Cogswell development adjacent the largest WWTF in the region represents a significant opportunity that warrants a detailed analysis of a GTU.

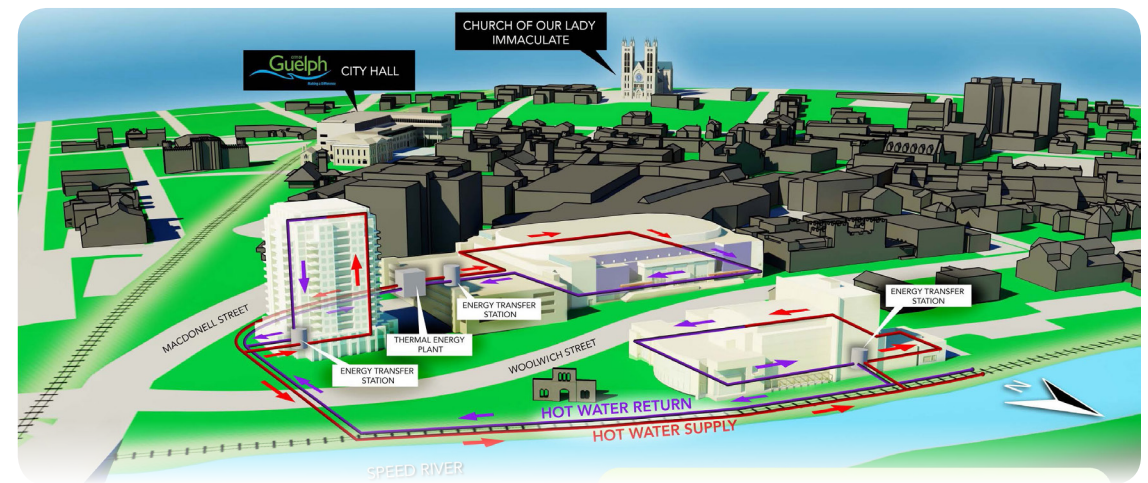
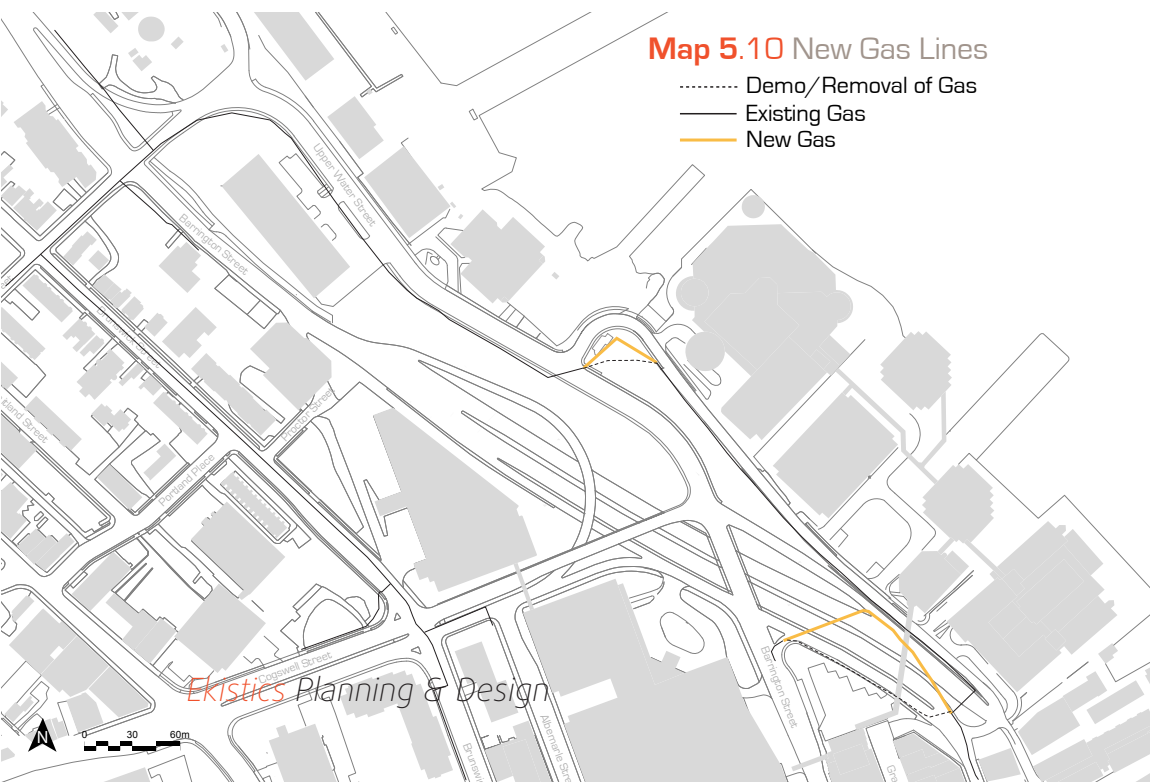


Fig 5.12 City of Guelph District Energy Diagram

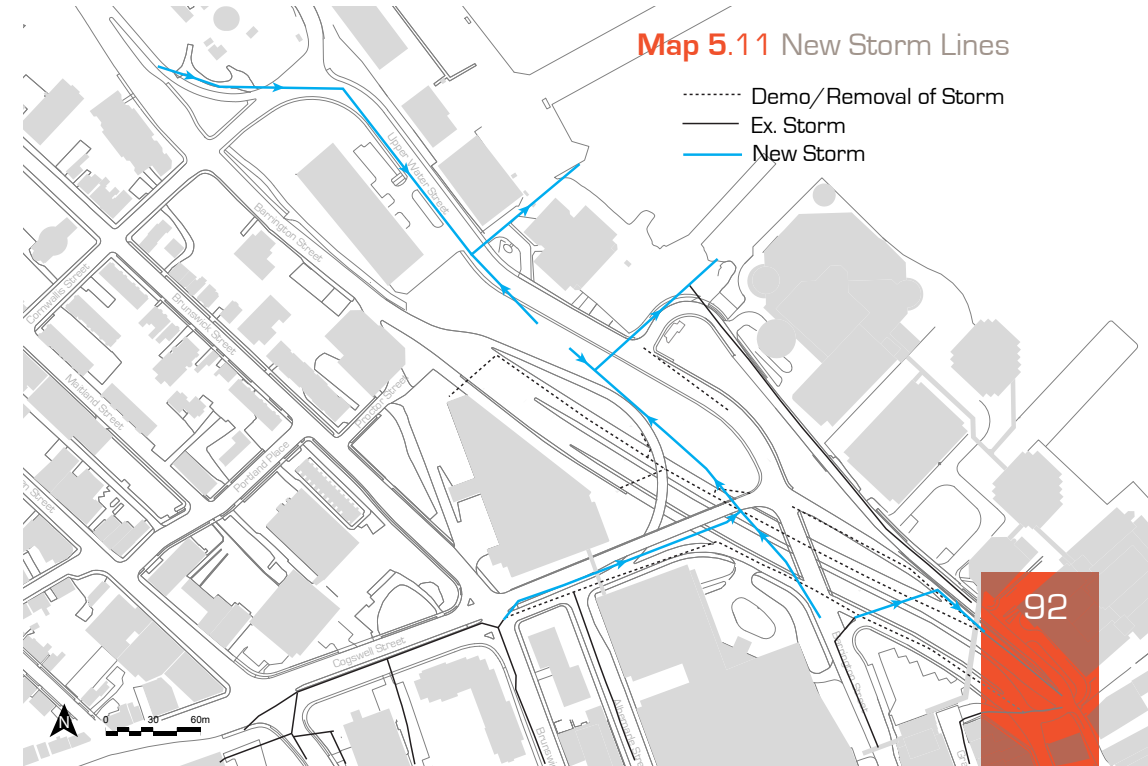
Map 5.10 New Gas Lines

- Demo/Removal of Gas
- Existing Gas
- New Gas



Map 5.11 New Storm Lines

- Demo/Removal of Storm
- Ex. Storm
- New Storm



5.3 Cost Estimating

Cost estimates are provided under a separate cover

5.4 Development Potential

Revenue estimates are provided under a separate cover





Implementation **6.0**

6.0 Implementation

Objectives for the Cogswell Interchange have been formulated from a series of public consultations, studies and Council deliberations. They are primarily found in the approved HRM Regional Plan, Downtown Halifax Secondary MPS and HRM Economic Strategy. The Cogswell Shakeup confirmed many of these high level objectives, provided detail and refinement as well as new and updated ideas.

Most of what the Cogswell Lands Plan provides is currently called for and permitted under the DHSMPs, LUB and associated DH1 and ICO zones for the area.

The solution presented under the Cogswell Lands Plan and associated studies represent a balanced approach to the complexities of city building. It recognizes the hard engineering requirements necessary to ensure an operational municipality but does not lose sight of the reasons we are building a city and strives to put people first. The Plan intentionally stayed away from dependence of a large public project such as a future performance arts centre or aquarium, even though these come up regularly in public

discussions. While some of these facility types could fit, they have very special requirements and would have to be carefully considered as to their impact on HRM's primary objectives for Cogswell as outlined in policy. Instead, the Plan focuses on giving Council what can be best achieved to meet stated objectives in a timely manner. The Plan focuses on addressing the complexity of robust everyday requirements. A scan of sites and locations in the other areas of downtown indicates that there are opportunities for special facilities outside of Cogswell and are not, therefore, dependent on the Cogswell Lands.

6.1 Next Steps

The consultants and HRM Steering Team recommends that HRM take the next step and move the Cogswell Lands Project forward into detailed design. A three phase 30/60/90 percent approach is recommended. It is expected that 18-20 months



would be required to work through this step. The three phase approach allows Council logical assessment and decision points where, owing to unforeseen circumstances or changing priorities, Council could redirect the project. Council should not proceed fully to this next stage if they feel that the redevelopment of Cogswell does not figure into the municipal priorities within the next three to five years. Beyond five years too many factors are fluid for the City to be tied to a final detailed design. However, the three phased approach is designed to allow the plan elements to be advanced to a stage where issues and design can be developed without completing the final drawings (i.e. 30% or 60%). This could be used as a means to reduce required lead times to trigger the project if and when timing is seen to be better.

Phase 1: Design Development

The Design Development Phase is where the Cogswell Lands Plan conceptual work is refined to a detailed level. Choices are made where options currently exist, and HRM is able to consider approaches on matters surfaced in the Plan which are currently without adequate policy or direction. Generally, it presents the opportunity for uncertainties to be resolved. All elements of the plan and all affected service providers will be involved early in this phase. This allows requirements of the redevelopment to be

advanced in concert to ensure that transportation, utilities, open space, real estate, development and financing remain integrated and balanced as they are intended by the Cogswell Lands Plan. This phase is where all planning compliance and land issues are also considered. The completion of this phase provides the information which allows real estate negotiations, and any planning regulation amendment processes to commence. A 30% review ensures that issues are identified and moved towards resolution early in the process, prior to the point where modifications would be disruptive later in the process. A Design Development Report is produced for Council's review.

Phase 2: Technical Design

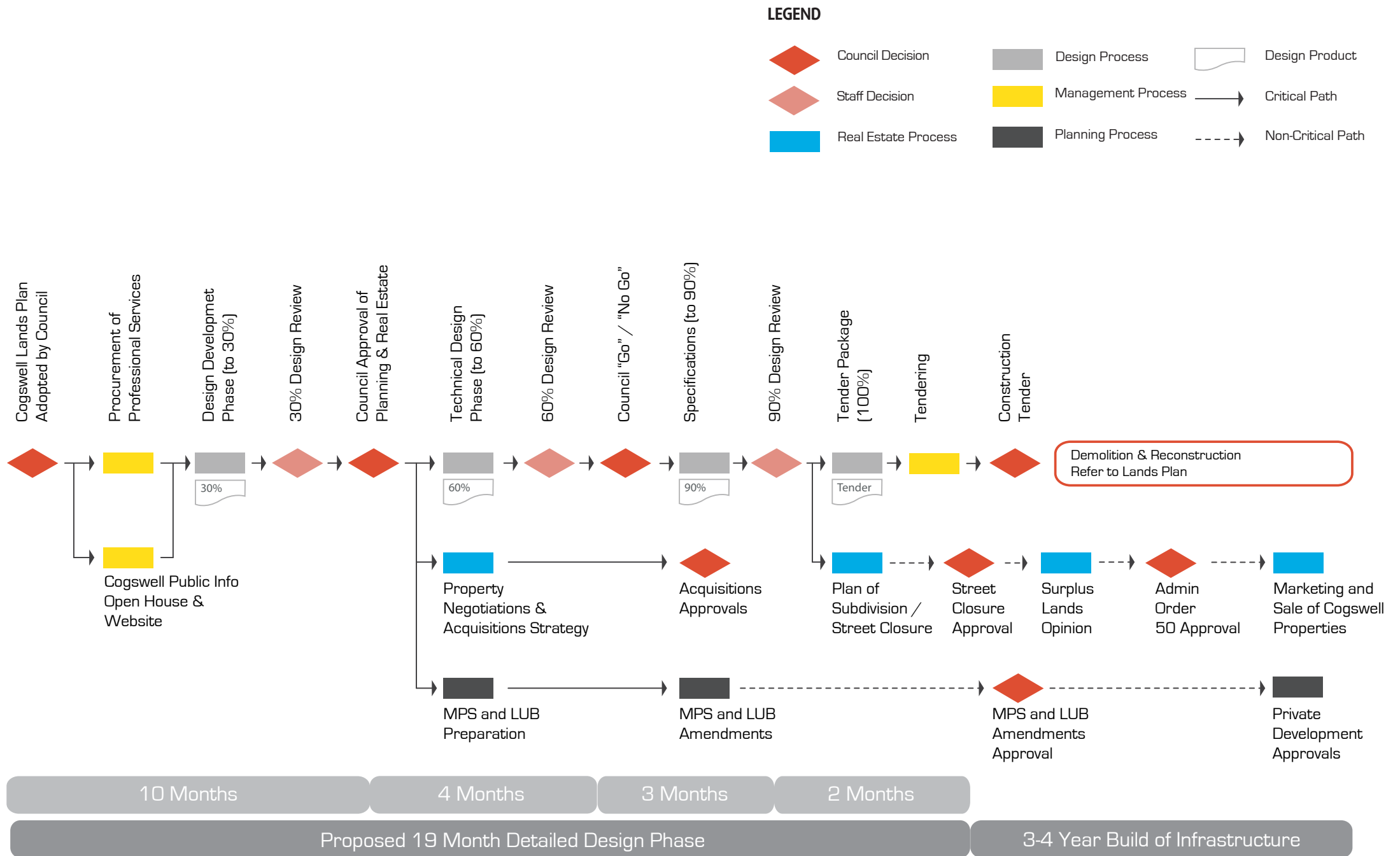
This is where technical engineering is undertaken. All municipal infrastructure requirements are laid down in detail and dependable cost and construction estimates are undertaken (Class B estimates). This phase allows a detailed financial plan to be created. Combined with a Market Update, Council would have the necessary information to make a "go/no go" decision to move forward to the next phase which results in final construction documents followed by tendering and award. The 60% decision by Council to proceed would also trigger the requirement for closing on

final purchases of any necessary properties and commencing the necessary planning regulation changes to see the project proceed beyond construction of municipal infrastructure into private development of lots.

Phase 3: Specifications

This is where the final drawings and associated specification for construction are prepared and given a 90% review. Following the final review the tender documents are prepared and the tender let to the market for bidding. Prior to this point all necessary lands for construction of municipal infrastructure would have been secured and regulatory changes would be made to allow the construction to begin.

Requirements to undertake street closures, subdivide lands, declare lands surplus and market lands for development would proceed after the construction was underway. Changes to the DHSMPs and LUB would be required prior to marketing and sale of building lots slated for development.



6.2 Planning Regulation Changes

The Plan contemplates necessary changes to the DHSMPs and LUB regulations. As there was no Cogswell Lands Plan at the time of creating the DHSMPs and LUB, they do not try and pre-suppose the specifics of what the development would be beyond the higher level principles covering the entire downtown. As the Cogswell Lands Plan was largely able to stay within these principles and integrate with the visions for the adjacent precincts it is not anticipated that the amendments to the DHSMPs and LUB will be dramatic. Instead they will consist of extending specifics such as the downtown road network classification over the new road network, adoption of a refined Precinct 8 Vision and fixing those public and private amenities in place which are key to the future success of the new neighbourhood. Some changes, such as alterations to podium and tower setback requirements to allow better sunlight penetration and ground level public space as well as appropriate height limitations will be explored as part of the Design Development Phase (30%) of Detailed Design. A Five Year Review of the DHSMPs is slated to commence this year (2014). It may be possible, but not a requirement, for the Cogswell changes to be part of that review. This would be dependent upon how quickly the Detailed Design proceeds through to the 30% phase.

The Plan does recommend changes to the DHSMPs boundaries in order to capture a small but pertinent area of District 7 under the Halifax North Plan Area which was part of the study. This may require legislative changes and is not absolutely necessary. The best means to proceed with amendments involving the Halifax North Plan Area should be contemplated at the 30% Design Development Phase.

6.3 Public Consultation and Council Deliberation

The Cogswell Lands Plan is a direct result of years of public consultation and Council deliberation. If Council decides to move forward with the Plan, that consultation and deliberation will continue. Regulatory Plan amendments, in themselves, will trigger public consultation processes and public hearings. Design of public spaces is an area where traditionally HRM has conducted public consultation to receive ideas and direction and tailor the product to specific user requirements. Consultation with surrounding land owners will also be required for integration of the new networks (i.e. street, servicing, shared amenities) with existing development. Continuity of service and access will be especially important during phased demolition and construction and will require a good deal of communication and feedback.

Council will be involved in the process at a number of junctions and decision points. Detailed Design phasing (Chapter 5) indicates council oversight and decision making at each of three phases. Budget approvals, financial plans, land acquisitions, planning regulations changes, tender awards all require the approval of Council. As the process continues, Council's public debate and HRM's web presence and information sessions will provide the public, development community and stakeholders details so that they may participate as appropriate and incorporate Cogswell into their own planning and business cycles.

Staff recognizes the importance of informing the public of the direction that the Plan has taken to date, especially owing to the Cogswell Shakeup process and preceding public input. This can be achieved through a public information session and through the HRM website. As the [Strategic Urban Partnership](#) was the key provider of the Cogswell Shakeup, HRM staff should work with this organization to provide the follow-up public information session.

6.4 Matters Impacting the Next Steps - Cogswell Detailed Design

Several municipal matters have been raised which have the potential to impact the Cogswell redevelopment.

Housing Affordability

The DHSMPs and public consultations indicate an expectation that Cogswell will play a role in the provision of affordable housing in the Regional Centre. It does not, however, articulate what exactly that role will be. There is a wide spectrum of approaches possible, ranging from a free market supply approach to public subsidies. The solution depends on what Council wishes to impact. Currently, HRM has no policy or a program to enforce affordable housing on Cogswell other than through voluntary measures by developers. The HRM and the Province is engaged in developing its affordable housing program approach but that program is not fully detailed. HRM and the Province will have to advance their efforts on Affordable Housing if Cogswell is to play a prescribed role in the affordability issue.

Transit

Transit is a key element of both the success of Cogswell and of the downtown. At the time of development of the Cogswell Lands Plan the existing transit system along with an allocation for increased frequency was accommodated into the creation of a transit hub. Since that time Council and Metro Transit have initiated an effort to develop a new transit strategy and network. The extent of change and the ensuing requirements which will be placed on the Cogswell lands are

not known at this time. While options exist in the Cogswell Master Plan for a new Transit Strategy, direction is required for input into detailed design in a relatively short period. Transit is a substantial municipal service and could carry considerable costs and/or land requirements depending on HRM's ambitions. Either new transit requirements will have to be articulated during the Design Development Phase or the capacity of the Cogswell Master Plan to accommodate new transit requirements will have to be fed into the Transit Strategy process similarly to other existing parameters for the downtown.

Traffic

A traffic study was carried out as part of the Cogswell Lands Plan. It demonstrated the ability of the proposed street configuration to accommodate and distribute traffic throughout the downtown. The modeling demonstrated the use of roundabouts for the Barrington and Cornwallis intersection and for the Upper Water/ Barrington Street as the best solution for the flow of traffic. At present, there is an issue with the PM (outbound) peak north bound traffic on Barrington backing up to Cornwallis Street and beyond owing to the MacDonald Bridge. If solutions for long standing issues at the Halifax bridgehead remain there is concern that the use of a roundabout at Cornwallis would create a traffic blockage when bridge traffic backs up beyond 1 kilometer. An examination of how to make traffic flow better at the Halifax bridgehead along with needed solutions for bicycle and bus bridge access is being considered. The timing of this work should be advanced to a point where a decision for the Cornwallis/Barrington intersection can be made during Detailed Design. Failing a solution for the Halifax bridgehead it is likely that a conventional intersection will be chosen as the preferred option for the Cornwallis /Barrington intersection or additional traffic controls incorporated.

Parking

There is a wide spectrum of opinion on the need for parking and/parking solutions in the downtown. Adjacent to Cogswell there is already a good deal of commercial office parking available including Purdy's, which is underutilized at night, and hourly public parking at Scotia Square. Additional on-street and private commercial parking to meet the incremental needs of the development is part of the Cogswell Lands Plan. At this point there is no intention to provide a dedicated municipal public parking facility within Cogswell in aid downtown parking issues. Additionally, the eastern portion of the site is proximate to the Harbour water table. The cost of excavation and sealing against water affects construction costs, so underground parking solutions can be expensive and limited to just a few floors. It is important to know if Cogswell is to play any role in an overall downtown parking solution. To that end an HRM team is working on implementing the HRM Parking Strategy including higher utility of existing parking resources. The Cogswell Lands Plan needs to be incorporated into the overall Downtown Parking Strategy.

Density Bonusing

As an undeveloped municipal brownfield site, the Cogswell Lands Plan takes the simple approach of articulating the value of land sales for private development against the construction cost of required municipal infrastructure, including open space and streetscapeing. It does not contemplate density bonusing as the means to achieve these basic objectives. The Plan articulates building height based on a number of factors including reasonable parking, surrounding use and location. The HRM by Design practice of determining maximum height and reducing it by 30% to create incentive for developers to provide discretionary public amenities

through density bonusing is not the best tool to achieve required streets, parks and other public amenities on lands where HRM is both the vendor of developable lands and the developer of new public infrastructure. Instead, direct revenues from the sale of land are seen as the appropriate means to those ends. However, developers may be wishing to build higher than is articulated in the Cogswell Master Plan and HRM may be willing to allow greater height on particular properties owing to minimal Citadel View Plane restrictions. Work will be required under the next steps to determine the appropriate use of density bonusing and as of right height allowances for the Cogswell Lands with an eye to market absorption, build out period and the best means to achieve public benefits.

Infrastructure Phasing

The plan outlines a three phase, 4.5 year approach to dismantling and re-constructing the municipal infrastructure on the Cogswell Lands. This is not unexpected as it took a similar approach to build the Cogswell Interchange owing to the need to maintain access and continuity of service to the downtown. Discussions with others who have undertaken similar projects indicate that there may be ways to reduce that time frame. The next steps in the Cogswell project will place focus on the means and mechanisms to reduce the impact and duration of the demolition and construction period. It may also look at how the sequence of sale of surplus lands might be utilized to provide laydown space for the construction of private developments after the municipal work is complete.

Market Absorption

Given the significance of the municipal infrastructure program and multi-year construction schedule,



it is difficult to precisely predict the lot sale and development program that follows. The market conditions will need to be continuously monitored and assumptions and revenue forecasts adjusted as required.

Conclusion

None of the matters articulated above are reason not to move forward with the next step of the Cogswell project. They simply need to be advanced or considered as the project moves forward.

6.5 Final Words

The Cogswell Lands Plan provides a feasible direction, meeting the highest balance of municipal objectives set by Council and the public for the Cogswell Interchange

Lands. Indications are that the redevelopment of these public lands will have a positive impact on the region while being financially feasible. A highly concentrated mix of streets, public spaces, residential and commercial activity will serve to knit the downtown, North End, CFB Halifax Dockyard, and the waterfront together. The addition of 2,500 persons in a desirable, compact, and walkable new neighbourhood is one of several initiatives contributing to Council's goal of sustaining and growing the regional centre. The release of six acres of underutilized public lands to the market will serve to attract more development to the downtown and impact an additional six acres in the direct vicinity. An anticipated 8-13 year build-out for redevelopment reflects a realistic approach to market absorption and market shifts.

Council has set the direction and a good number of parameters for its demolition and redevelopment. Therefore, it is not anticipated that MPS and LUB changes will be dramatic if we choose to stick to the

direction Council has set.

There must be a public understanding that the Municipality is embarking on a long term project to seek long term benefits. This is not unlike other strategic opportunities that are brought before Council. However, like all development, the final details of cost and impact will only be known at the end of the project. Therefore, Council must make its decisions based on the best information that it has available now and as the project advances.

The Cogswell Transformed project is a city-scale urban redevelopment initiative designed to change the focus of the area from the car to people, trucks to transit and active transportation, concrete to art, abandoned patches of grass to beautiful open spaces, barriers to connectivity, and ramps and overpasses to new places to work and live. These new features better reflect our community's current priorities while anticipating our priorities for future generations.



Appendix **A**

A : Appendix

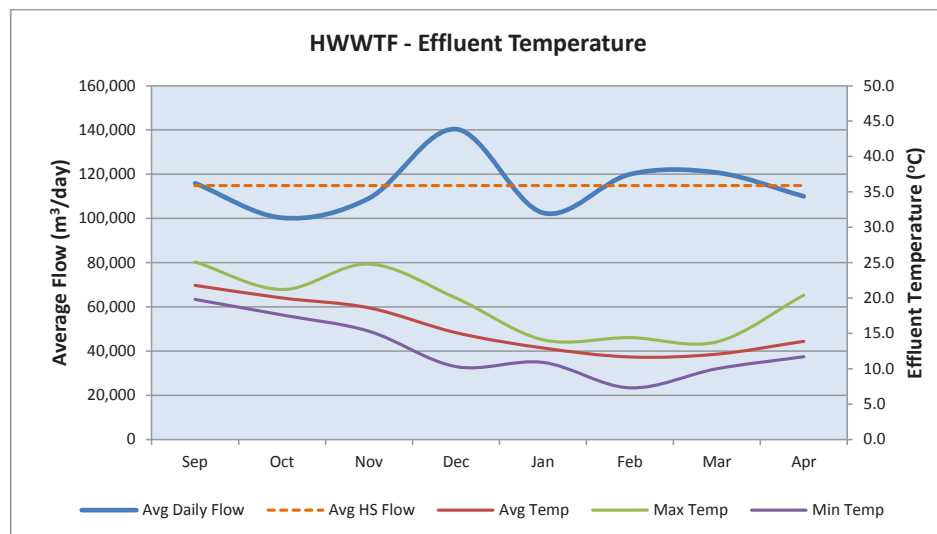


Halifax Wastewater Treatment Facility

Wastewater Effluent Heat Recovery – Basic Facts

Background

The Halifax Wastewater Treatment Facility (WWTF), located at 2180 Upper Water Street in downtown Halifax, is an advanced primary treatment facility which in 2011/12 collected, treated and discharged over 37,500,000 cubic meters (m³) of wastewater and stormwater effluent, or on average approximately 114,000 m³ per day during the heating season. During this same period, the treated effluent had an average temperature of approximately 15.8 °C, with a minimum temperature level of 7.3 °C. The flow and temperature variability of the effluent stream during the heating season is shown in the chart below.



Energy Available

The relatively warm effluent stream passing through the Halifax WWTF presents a unique renewable resource opportunity. Thermal energy can be removed from or added to this effluent stream and used elsewhere to provide heating or cooling, depending on the season.

Using heat exchangers and heat pumps, this low grade waste heat can be captured and used inside the plant, or within a local District Energy System (DES). While heat recovery is feasible from either raw sewage or treated effluent, however, treated effluent is generally preferable to raw wastewater. Raw wastewater requires screening to remove solids before passing through a heat exchanger, and even with most of the solids removed, the heat exchanger must be capable of handling solids, and the heat exchangers performance usually suffers as a result of fouling and plugging.

In order to gain an understanding of the amount of energy available, a detailed understanding of the effluent stream flows and temperatures must first be known. Thanks to the facility's computerized data collection systems, this detailed information is readily available.

A summary of the 2011/12 Heating Season (HS) effluent flows and temperatures at the Halifax WWTF are shown below:

Total Annual Flows	37,500,000 m ³ /yr
Average HS Flows	114,000 m ³ /day
Average HS Effluent Temperature	15.8 °C
Maximum HS Effluent Temperature	25.1 °C
Minimum HS Effluent Temperature	7.3 °C

The energy content of the effluent is easily calculated using the following formula:

$Q = m \times c \times \Delta T$, where:

- Q = Thermal Energy (kilo-Joules)
- M = Mass (kilograms) = Volume (m³) × Density (kilograms/m³)
- c = Specific Heat of Effluent (4.193 kilo-Joules/kilogram/°Kelvin)
- ΔT = Temperature Differential of Effluent (°Kelvin)

Practically speaking, the temperature differential we could hope to achieve will likely be relatively small due to the limitations of equipment, insulating materials, and other factors. The following example calculates the energy available for every 1 °K (1 °C) of temperature differential (i.e. cooling or heating) of the effluent stream achieved.

As an example, the amount of energy contained in the average daily effluent flow of 114,000 m³ at an effluent temperature differential of 1 °K (1 °C) is calculated as follows:

$$Q = (114,000 \text{ m}^3/\text{day} \times 999.8 \text{ kg/m}^3 \times 4.193 \text{ kJ/kg/}^\circ\text{K} \times 1 \text{ }^\circ\text{K}) \div 1,000 \text{ MJ/kJ}$$

$$= 478,000 \text{ MJ/day}$$

Converting this number to an equivalent amount of *Electrical* energy gives the following:

$$\begin{aligned} Q &= 478,000 \text{ MJ/day} \times 2.778 \times 10^{-4} \text{ MWh}_e/\text{MJ} \\ &= 132 \text{ MWh}_e/\text{day} \end{aligned}$$

Since *Power* is the rate at which *Energy* is used, the equivalent *Power* available in the effluent stream is calculated as follows:

$$\begin{aligned} P_e &= 132 \text{ MWh}_e/\text{day} \div 24 \text{ h/day} \\ &= 5.5 \text{ MW}_e \end{aligned}$$

In other words, for every 1 °C of temperature reduction of the average daily effluent flow, 132 MWh_e is available for extraction, less any operational inefficiencies of the heat transfer system. This amount of energy is equivalent to roughly 5.5 MW_e of power capacity. The above does not take into account system inefficiencies or the energy required to operate the system. The above simply serves to identify the fact that there is ***quite a lot*** of energy contained in the effluent stream.

It should also be noted that the energy removed or added and the corresponding equivalent power is ***proportional*** to the temperature differential achieved. In practical terms, if we were to decrease the temperature of the effluent stream by 5 °C, the thermal energy extracted would increase proportionally to 660 MWh_e per day, and the capacity to 27.5 MW_e. With the addition of heat pumps, this amount could potentially service approximately 40 MW_e of thermal energy demand.

To put this into perspective, based on 2007 data, the average Nova Scotian household used 32 MWh_e of energy ***per year*** (Source: *Statistics Canada, Households and the Environment Survey: Energy Use, 2007, Catalogue no. 11-526-S*), most of which was used for heating. During the heating season (Oct – Apr), and based on only a 1 °C effluent temperature change, the energy available from the Halifax facility's effluent stream is roughly equivalent to the annual energy use of over 850 Nova Scotian homes.

Of course, system complexities, system efficiencies, and the practical application of engineering principles and design come into play. Not all of the available heat energy will be able to be extracted, and some level of energy and power will be required to operate the system. However, even with these complexities, heat recovery from low grade heat sources such as wastewater effluent streams has become more common and feasible through the use of more

efficient heat exchangers, water source industrial heat pumps, and improved piping insulation systems.

Conclusion

Halifax Water believes the energy contained within the effluent flow streams of its wastewater treatment facilities represents a significant renewable resource. This resource can be captured and used to:

- Reduce the consumption of fossil fuels;
- Reduce greenhouse gas emissions;
- Reduce the operating costs of the WWTF;
- Provide thermal energy to a DES.

Halifax Water has completed studies to assess the energy recovery potential at all three Harbour Solutions Plants. These studies have allowed Halifax Water to understand how this energy can be used to provide heat to each facility and to a local DES where it makes sense. Since the energy required to satisfy plant heating requirements is a small fraction of the total heat energy available, most would be available for use in a DES. Further investigation into the practicalities and economics of any proposed DES would be required before proceeding further.

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