

KRAUS DISTRICT

MASTER PLAN & DESIGN GUIDELINES

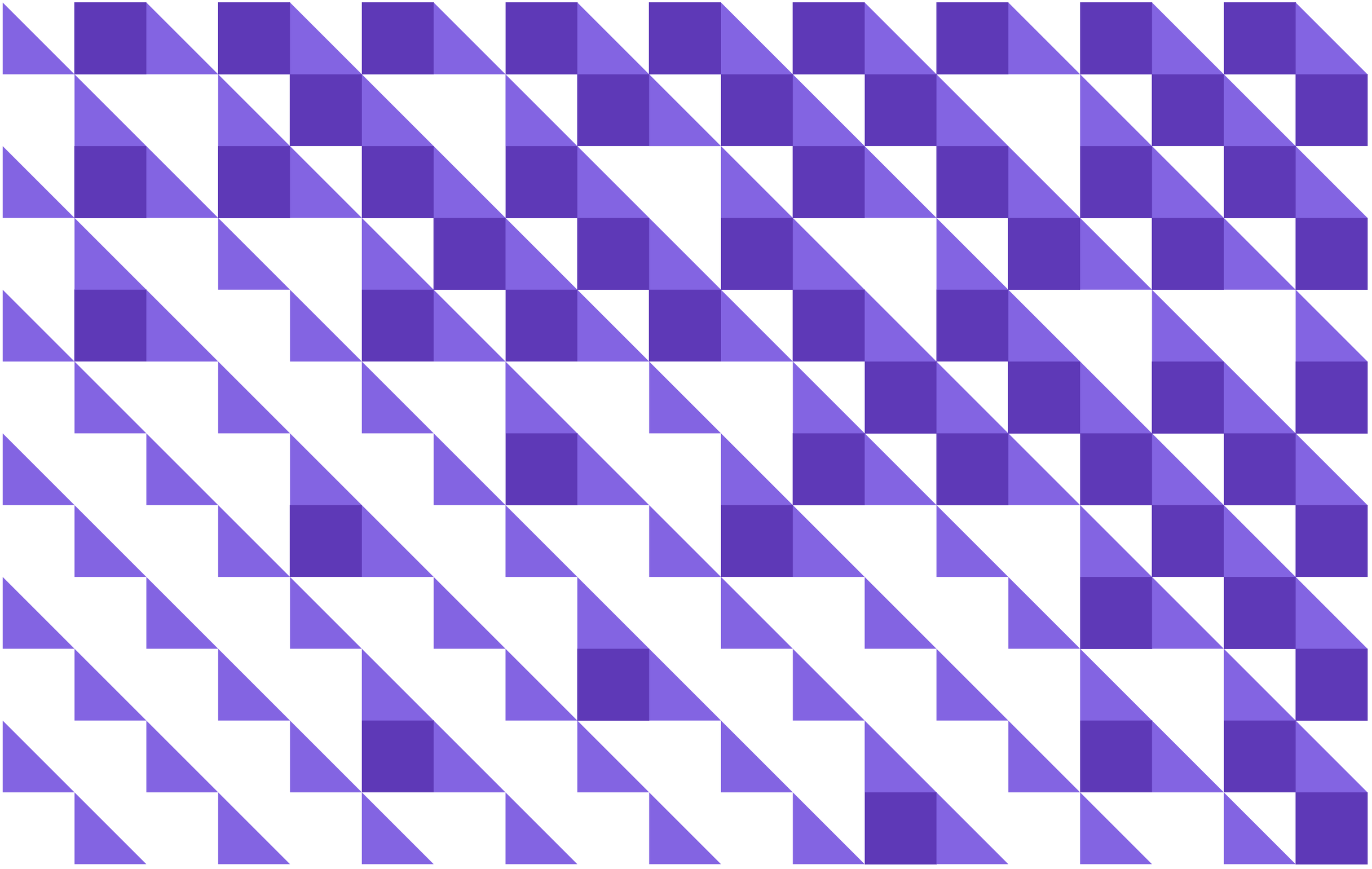
Northfield Properties LP
525-565 Conestogo Road West
City of Waterloo

Official Plan and Zoning By-law Amendment

June 2021

abo architects inc.

GSP group
SHAPING GREAT COMMUNITIES



CONTENTS

PART 1

1. Master Plan Context p. 2

1.1 Introduction p. 3

1.2 Overview of Site Characteristics p. 4

1.3 Community Context p. 8

1.4 Design Policy Overview p. 10

2. Design Vision p.14

2.1 Design Objectives p.16

2.2 Project Inspirations p.18

3. Master Plan and Design Guidelines p. 20

3.1 Structure Plan p. 22

3.2 Development Plan p. 30

3.3 Public Realm Master Plan p. 66

PART 2

4. Supplementary Plans and Supporting Studies p. 108

4.1 Underground Master Site Plan p. 109

4.2 Phasing Plan p. 110

4.3 Sustainable Design Strategy p. 114

4.4 Microclimate Studies p. 119

5. Conclusion p. 126

1. MASTER PLAN CONTEXT

1.1 Introduction

GSP Group Inc. is the land use planning and urban design consultant for Northfield Properties LP for the property located at 525 to 565 Conestogo Road West, formerly owned and used by Kraus Flooring under the Kraus Group of Companies. This property, referenced as the "Kraus District" in this report, is ideally situated between the Northfield ION Station and Conestogo ION Station areas that are intended to accommodate a mix of medium and high density residential, commercial and employment uses. The Kraus District represents an excellent opportunity to establish a mixed-use precinct in a transit-oriented urban form that diversifies the housing supply and complements with significant integrated components commercial and office uses, following the overarching direction of Provincial policy and the City of Waterloo Official Plan.

The Kraus District will be a master-planned mixed-use community that would contain residential, commercial, employment and community uses. The proposed redevelopment scheme includes eight future developments blocks connected by internal driveways, walkways and courtyards. The proposed development is comprised of mid-rise and high rise mixed-use buildings with parking accommodated underground and within building podiums. Office uses are provided at prominent locations within the proposed development with at-grade shops, restaurants and services facing public streets and internal courtyards. To facilitate pedestrian movement, a pedestrian promenade paralleling the Conestogo Expressway and a future pedestrian bridge over the Expressway will provide more direct connections to the Northfield ION Station west of the District.

Report Purpose
Applications for an Official Plan Amendment, Zoning By-law Amendment and Draft Plan of Subdivision are required to facilitate the proposed redevelopment. The Official Plan Amendment proposes to re-designate the District from "Business Employment" to a mix of employment, residential, commercial and community uses along with site specific policy provisions to reflect the design intent and objective of the proposed development.

The Zoning By-law Amendment proposes to rezone the property from the existing industrial zones to permit a mix of employment, residential, commercial and community uses with site specific zoning to reflect the details of the proposed development. The Draft Plan of Subdivision will establish eight future development blocks, allowing a phased approach to the District's development and construction and creating opportunities for the future sale and/or lease of portions of the property.

A Pre-Consultation Meeting was held on January 20, 2020 with the City of Waterloo, the Region of Waterloo, the Ministry of Transportation and the Grand River Conservation Authority. A Master Plan & Design Guidelines document, containing a Master Site (Block) Plan, Supplementary Plans and Design Guidelines, is a requirement for a complete application submission.

Report Contents
Following the general direction of the Pre-Application Submission Record for the master plan documents, this report includes four sections:

- Section 1: A description of the Kraus District's conditions and characteristics, its place in the community context and an overview of applicable City urban design direction and guidance;
- Section 2: A vision, set of design principles and project inspirations that guided the overall design of the Kraus District;
- Section 3: The proposed Master Site Plan, including the district structure, details of each of the development blocks, and a Public Realm Master Plan; and
- Section 4: A set of supplementary plans and studies including the Underground Master Site Plan, the Phasing Plan, the Servicing Plan, the Sustainable Design Strategy and Microclimate Studies.

1.2 Overview of Site Characteristics

The Kraus District, municipally known as 525 and 565 Conestogo Road, is situated within the northern end of Waterloo as part of a broader mixed industrial/employment area of the city. The District is prominently located within the surrounding community, immediately fronting Northfield Drive to the north and edging Conestogo Parkway to the west and bounded by Conestogo Road to the east leading into the surrounding industrial fabric. In total, the District is 10.7 hectares (26.4 acres) in area and longer in shape with approximately 224 meters of frontage on Northfield Drive and 560 meters of frontage on Conestogo Road. The following are the existing site characteristics that inform the District's design:

Topography
The District's topography generally falls from northeast to southwest, towards an existing watercourse along its southwestern boundary. The northern portion of the District sits between 2 and 5 meters lower than the Northfield Drive right-of-way. On the east side, the District sits at generally the same elevation as Conestogo Road.

Hydro Corridor
The District is bisected in a diagonal fashion by an existing Hydro One Inc. (HONI) utility corridor as well as by City of Waterloo and Waterloo North Hydro (WNH) easements, which contain overhead wires and site driveways and functions within the corridor. The width of this corridor from an easement perspective is approximately 46 meters wide.

Natural Areas and Vegetation
There is an existing watercourse in the District's southwestern portion that is a tributary drainage feature to Forwell Creek on the west side of the Conestogo Parkway. There are existing mature trees and vegetation associated with this feature. Further to this vegetation, there are existing mature trees as part of the former landscaped areas at primary building entrances and around the perimeter of the existing buildings.

Buildings
There are two existing buildings in the District as part of the former Kraus Flooring plant and office, in total with approximately 81,000 m^2 (approximately 872,000 ft^2) of floor space. Building 'A' at 565 Conestogo Road towards Northfield Drive is a multiple-level complex (one to four-storey portions) previously used for manufacturing, warehousing, distribution and administrative offices along with surrounding surface vehicular and truck parking facilities and shipping/receiving facilities. Building 'B' at 525 Conestogo Boulevard, to the south of the hydro corridor, is a smaller one-storey building previously used for warehousing and distribution along with shipping/receiving facilities and a surface vehicular parking lot.

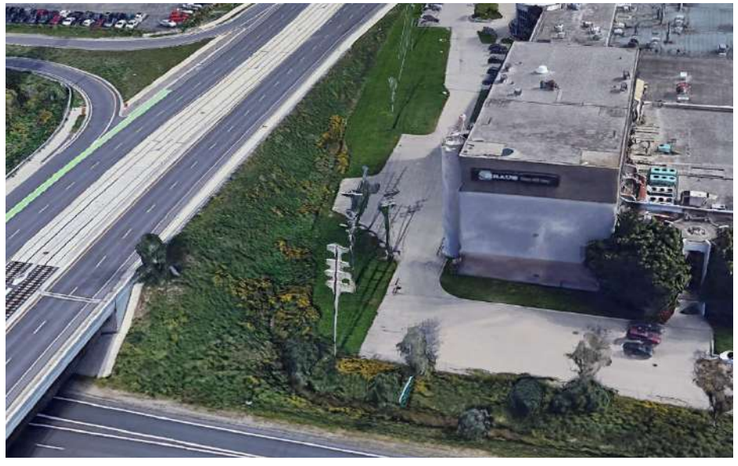
Access
Building A contains several driveway access points to Conestogo Road with no direct driveways to Northfield Drive. Building B has one driveway access to the building and two driveway access points to the existing surface parking facility located to the south of the building.

Servicing
The District has multiple existing servicing connections to abutting public streets. The District connects to existing local watermains on Northfield Drive and Conestogo Road, a sanitary sewer on Conestogo Road, a storm sewer on Conestogo Road (and there is a larger sewer within the Hydro corridor), and gas mains within Northfield Drive and Conestogo Road.



Site Context, North Waterloo

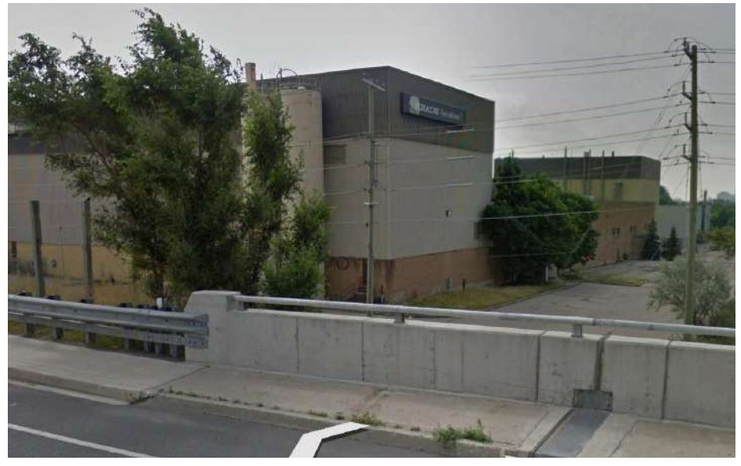
Existing Site Conditions



Grade difference between Northfield Drive and the Site



Existing building from Conestogo Parkway looking north



Existing building from the Northfield Drive overpass looking south



Existing building at the corner of Northfield Drive and Conestogo Road looking west

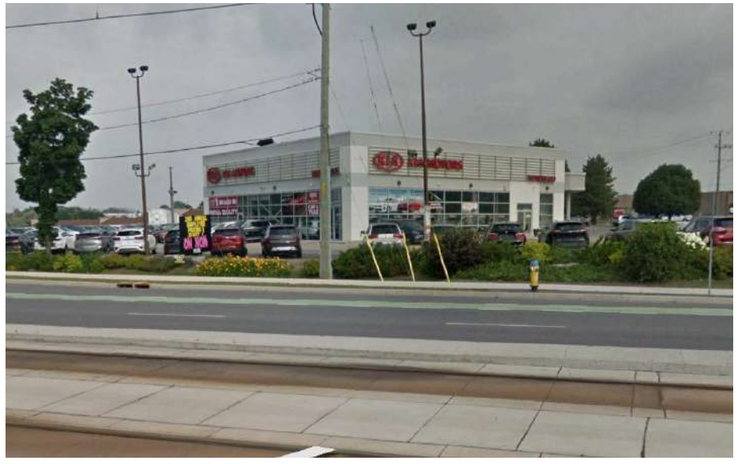


Existing building along the Conestogo Road frontage looking southwest

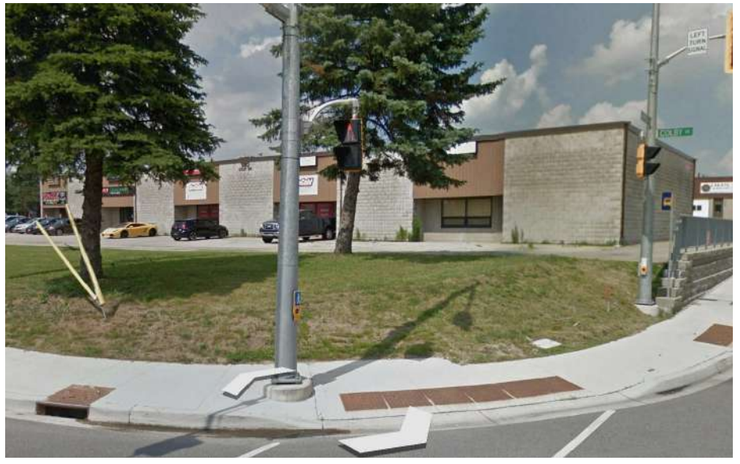


Existing building and hydro corridor at the site looking west

Surrounding Uses



Car dealership north of the site along Northfield Drive



Multi-tenant commercial building at the northeast corner of Northfield Drive and Conestogo Road, diagonal from the site



Auto parts commercial building at the southeast corner of Northfield Drive and Conestogo Road, across the site



Intersection of Conestogo Road and Durward Place, east of the site



Representative Industrial/warehousing building across the site along Conestogo Road



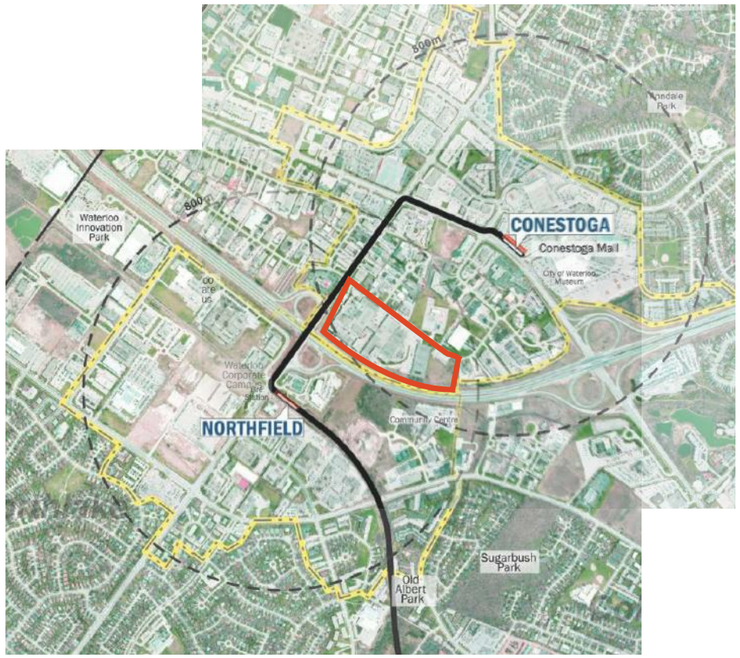
Hydro corridor looking east from Conestogo Road, across the site

1.3 Community Context

The District is centrally located within north Waterloo at the intersection of two principal movement corridors. The Conestogo Parkway (Highway 85) is a major thoroughfare running generally north-south through Waterloo for the distribution of goods, regional commuters and visitors for Waterloo Region. Northfield Drive is the single east-west transportation corridor within north Waterloo, making it an essential link between surrounding residential communities and employment and commercial uses. Further to the east, King Street and Weber Street function as north-south corridors through the broader community.

North Waterloo is generally comprised of large areas of residential neighbourhoods and industrial precincts. A large industrial/employment area, which the Kraus District forms part of currently, straddles both sides of the Conestogo Parkway and extends between Weber Street and King Street/Northfield Drive. Two large residential communities sit on either side of the industrial precinct, the Lincoln/Eastbridge neighbourhoods to the east and the Lakeshore/Lakeshore North neighbourhoods to the west.

North Waterloo forms the northern end of the Region's light rail ION system. The District is located approximately 300 meters away from the Northfield Station and approximately 650 meters from the Conestogo Station. Per Station Area Plans, these two areas are intended to intensify and redevelop over time, the Northfield Station continuing with a more mixed, employment and residential integration, and the Conestogo Station transitioning to a more mixed-use character containing higher density residential uses. Northfield Drive plays an essential role promoting connectivity through inter-city public transit ridership, including both ION as well as higher frequency and local bus service. Within the subject area at the confluence of two LRT stations and a Conestogo Parkway interchange, the Kraus District provides opportunities to service existing employment areas and the new wave of (tech) industries requiring a work-live environment with residential and commercial uses readily available





Community Context, North Waterloo

1.4 Influencing Design Policy and Guidelines

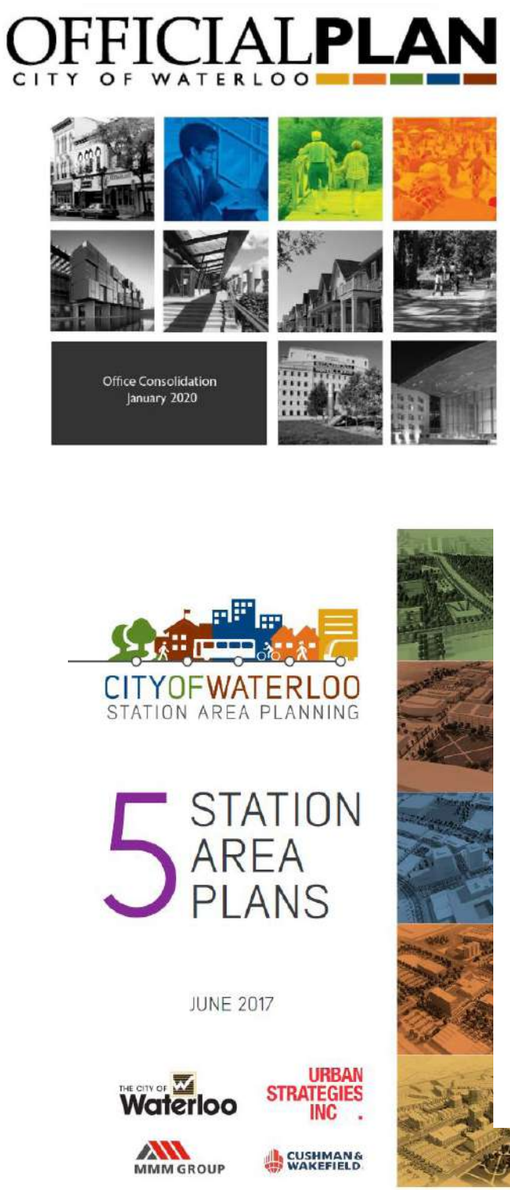
Design of the Kraus District is informed by overlapping layers of City of Waterloo design policy and design guidelines. The below summarizes the general intent of this overarching design direction applicable to the District; it is meant as an overview of the influencing considerations that assisted in the formulation of the master plan and supporting guidelines for the Kraus District, rather than a comparative assessment or evaluation of the proposed development.

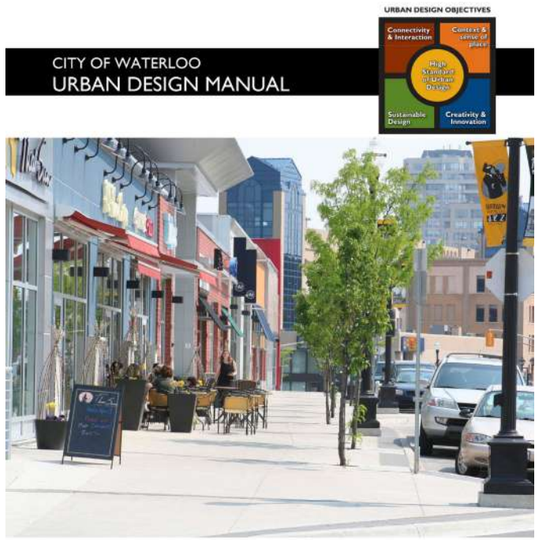
Waterloo Official Plan

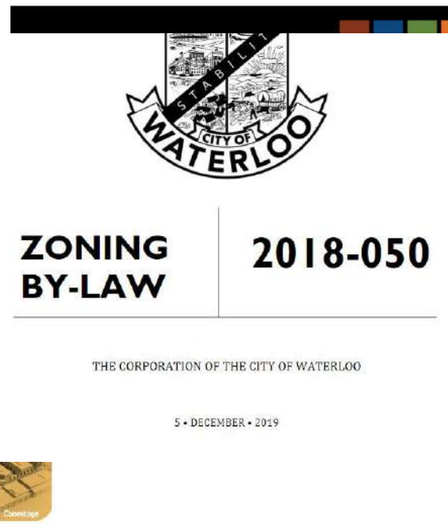
Section 3.11 of the City of Waterloo Official Plan pertains to Urban Design matters within Waterloo, generally promoting high quality design that ensures attractive, safe and compatible development. Section 3.11.1 establishes general design policies for all development throughout Waterloo. Section 3.11.2 establishes more specific urban design policy for sites within "Nodes" and "Corridors" (the District is within a Minor Corridor as identified in Schedule B of the Official Plan), which complement and further the general design policies. Section 3.11.4 establishes more specific urban design policy for sites within "Station Areas" (although the District is not technically within the a Station Area per Schedule J of the Official Plan, this section provides relevant design direction nonetheless to a site proximate to two ION Stations), also which are meant to the complement the above.

The key themes of these general and more specific urban design policies are:

- Intensification: address the integration, compatibility, built form and massing, and relationship of new development to the surrounding neighbourhood character.
- Character: reinforce and maintain the architectural, visual and thematic integrity by creating sensitive designs through the coordination of design elements.
- Views and Vistas: respect, protect and enhance important views and vistas.
- Streetscapes: establish attractive and coordinated streetscape characters with emphasis on green and complete streets, pedestrian friendly design, coordinated







landscape and building design features to animate the street.

- Existing Site Features: retain prominent site and adjacent features and vegetation through sensitive or innovative design strategies.
- Landmarks: place special emphasis on architectural innovation, creativity and quality for landmark buildings or spaces.
- Safety and Security: promote safe, comfortable and accessible environments for all users using CPTED principles.
- Site Circulation: incorporate efficient, safe and integrated circulation systems with priority to pedestrian, non-vehicular and safe vehicular movements.
- Transit-Oriented Design: promote transit use, pedestrian and cyclist accessibility, active and interesting streetscapes, human comfort and integrated site amenities.
- Universal Design: promote barrier-free access and principles of universal design.
- Parking: reduce the visual and environmental impacts of surface parking with locations away from public place together with perimeter and internal planted areas.
- Site Servicing Areas: provide convenient and safe truck access and turning movements with such areas screened from public view.
- Compatible Development: provide complementary forms and design through building massing, facade design and landscape coordination, and minimize adverse impacts for comfort.
- Human-Scale Development: reinforce human scale dimensions and proportions through design.
- Building Orientation: Orient building and prominent building entrances towards streets and walkways, close to the street to contribute to its vibrancy and attractiveness.
- Built Massing: Establish height and massing that respects the traditional street line and historical built form to achieve a compatible form of development and a sympathetic transition to any surrounding stable neighbourhoods.
- Ground Floor: provide active ground floor uses and incorporate ample transparent glazing on ground floors in active and convertible frontage areas to create visibility to and from the public realm and promote street life.
- Architectural Expression: contribute towards an attractive and coordinated streetscape character and a sense of place with architectural innovation and expression through architectural features, building materials, colour and other design elements.
- Skyline: design high-rise buildings with an architecturally expressive and distinctive roofline that results in a recognizable and coordinated skyline.
- Materials and Features: use high quality building materials that are consistent and compatible with the surrounding context, and create visual interest through projections, articulations, carried rooflines and entrance features.
- Landscape Design: incorporate a balanced distribution of hard and soft landscaping that contributes toward a coordinated site design and streetscape character, creates a sense of place as well as an aesthetically pleasing comfortable pedestrian environment.
- Site Amenities: include a range of on-site amenities to provide for more healthy active outdoor and urban spaces for social gathering, relaxation and enjoyment.
- Sustainable Design: promote sustainable design practices as part of the buildings and landscapes.

Waterloo Urban Design Manual

The Waterloo Urban Design Manual in part implements the above Urban Design policies in the Official Plan through design guidelines on a range of topics. Part 2 of the Manual includes general guidelines for city design including building and site level design guidance. Part 3 of the Manual contains Supplemental Design Guidelines that provide detailed design guidelines for specific development types, such as mid-rise and high-rise buildings. Part 4 of the Manual contains more specific design standards on a variety of topics that are addressed through Site Plan Review. These guidelines inform the more specific design guidance provided by the Kraus District's master plan in this report.

Waterloo Station Area Plans

Waterloo's Station Area Plans guide new development and investments within Waterloo's five ION Station Areas. The Kraus District sits within the 800-metre threshold of both the Northfield and Conestogo Station Areas. These plans establish a vision for each of the areas around the ION stations and provide the implementing policy and design direction to create vibrant urban places. Guidance in the Station Area Plans consist of both broader corridor-wide directions and specific station area guidance. The District is within the boundaries of the Conestogo Station Area Plan but is not within the focus area immediately surrounding the ION Station; nonetheless, the Plan still provides the contextual aspirations for the area surrounding the Kraus District.

Corridor-Wide Key Directions

The creation of transit-supportive places at each of the station areas will take time. In the short term, improvements will take the form of mobility enhancements that will help to improve access to and from the ION stations. Over the longer term, new development should help to establish more transit supportive station areas by putting in place a pattern of new streets, open spaces, buildings and uses aimed at encouraging greater levels of activity around the station and supporting transit ridership. The following key directions and guidelines should be used to guide development and investment around the station areas. They are supported by more station-specific guidelines and strategies outlined in each of the five Station Area Plans.

1. Create more active and animated places through higher densities and a greater mix of uses.
2. Complement higher densities with new gathering spaces and open areas.
3. Design buildings to support pedestrian comfort and increase street level activity.
4. Establish a Pedestrian Transfer Zone at key transfer points.
5. Seamlessly integrate local and regional bus routes with the LRT.
6. Improve the pedestrian experience at and around station areas.
7. Establish a finer grained street and block network.
8. Establish a network of cycling routes leading to and from each station.
9. Employ Transportation Demand Management strategies to reduce the need for parking and support a shift to other modes of transport.
10. Design and organize parking where it will not detract from the public realm.
11. Green the station areas to support sustainable development and placemaking.
12. Rebalance streets in favour of pedestrians and cyclists.

Conestogo Station

a) Vision Statement:

Conestogo Station will become a vibrant retail destination with a growing mix of uses, including residential, that will attract a greater number of visitors and support activity throughout the day and evening. As the terminus of the ION LRT line, it will serve as a major transit hub with connections to local and regional bus routes. The area will also function as an important employment node. Local businesses will benefit from improved transit accessibility and enhanced street connections, which in turn will help the area immediately around the station evolve into a higher-value employment node over time.

b) Big Moves:

1. Support the emergence of mixed-use activity node at the station.
2. Transform King Street as a walkable and transit-supportive gateway into the City
3. Support the station area as an important intermodal hub.
4. Unlock the reurbanization potential of the "Conestogo Triangle" by introducing a

finer grained street network.

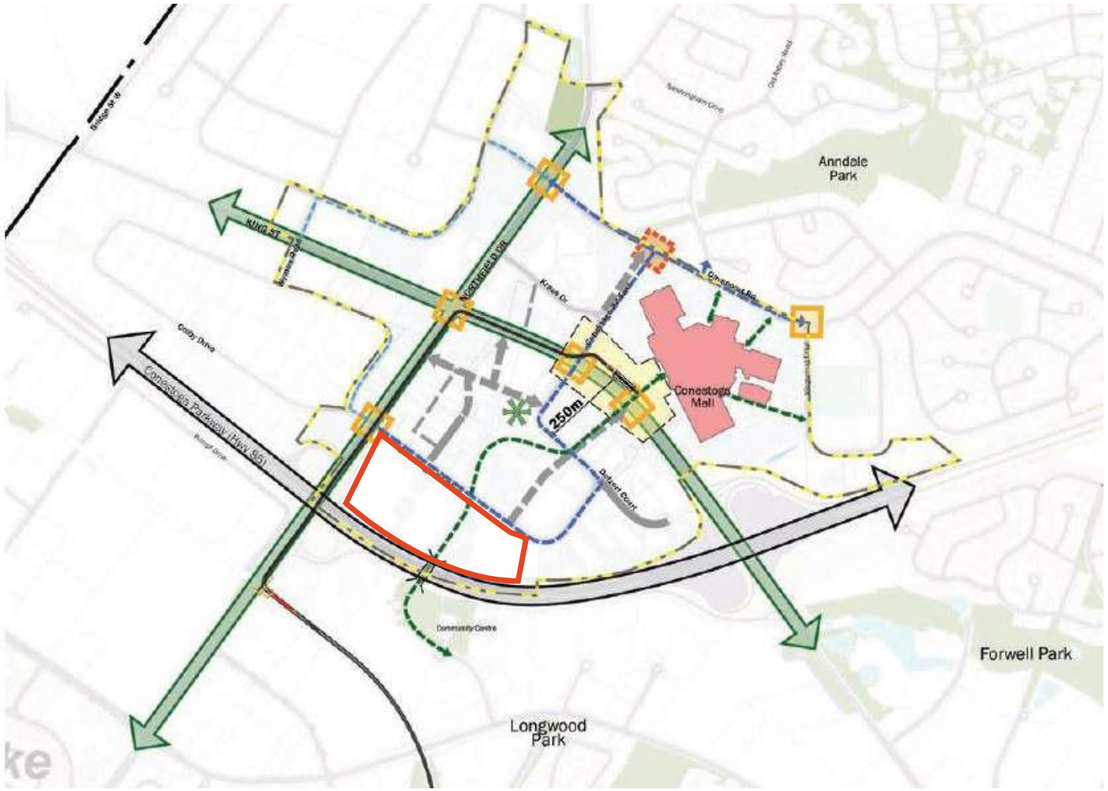
5. Support higher densities with new open spaces, trails and improved green spaces.
6. Link surrounding neighbourhoods to the station and employment areas.

c) Built Form and Land Use Key Directions:

1. Support the continued intensification of Conestogo Mall to create a higher-density and more transit-oriented place.
2. Plan for a greater mix of uses immediately around the station, including residential uses within 250 meters of the station.
3. Encourage buildings that actively address the street with uses at grade along King Street
4. Transform Conestogo Road as a key link through the area with street-related uses and more transit-oriented development.
5. Encourage employment growth within the station area

d) Public Realm Key Directions:

1. Establish a signature open space within the Conestogo Triangle while encouraging other smaller-scale public spaces throughout the area.
2. Establish an Anndale Park to Sugarbush Park green connection via a redefined Conestogo Road and hydro corridor.
3. Create a gateway experience along King Street through public realm improvements and wayfinding.
4. Advance a more robust urban tree canopy to enhance the setting for workers and businesses.



The mobility strategy for the Conestogo Station Area, showing a new pedestrian connection through the Kraus District across Conestogo Parkway

2. DESIGN VISION

The Kraus District will become a mixed use activity node that contributes to the vitality of North Waterloo, a transit oriented community that provides a rich urban environment to live and work in the Creative Capital of Canada.



2.1 Design Objectives

The following design objectives have been applied to achieve the development vision for the Kraus District. These objectives adapt the general intent of the Official Plan, Station Area Plans, and Urban Design Manual to the current development context of the District. The objectives form the basis for the Site Master Plan and supporting design guidelines, informing each component of the District. The Design Vision for the Kraus District strives to:

1 Create a true mixed-use and transit-supportive community near two ION rapid transit stations that incorporates a mix of housing choices with flexible, innovative employment uses.

2 Prioritize pedestrian movement by providing a network of attractive public spaces, streetscapes and parks that allow for diverse recreational opportunities.

3 Connect the District to the Northfield Station Area through a network of new streets that provide efficient and balanced circulation routes for vehicular and active transportation.

4 Reinforce human scale by positioning buildings close to street edges while incorporating active ground floor uses that can spill onto the public realm.

5 Ensure compatibility with the surrounding urban fabric by placing taller buildings towards the Northfield Drive frontage, transitioning to shorter building forms towards the south of the District.



Renderings of the Kraus District (ABA, 2020)



Renderings of the Kraus District (ABA, 2020)

6 Apply varied massing and a high level of articulation on all buildings to increase visual interest and positively contribute to Waterloo's skyline, paying particular attention to the design of tall buildings.

7 At full build-out, incorporate structured parking as the predominant parking supply throughout the District, with on-street parking spaces to accommodate short term needs and loading areas that are appropriately screened or integrated to building facades. Where surface parking is proposed, adopt a Low Impact Development (LID) approach to streetscape design, including stormwater retention features, increased site permeability, reduced use of impervious surfaces, enhanced bio

8 diverse landscape buffers between building and streets

Design buildings with a contemporary architectural character that creates a visually cohesive urban experience while allowing for creativity and uniqueness throughout

9 the District.

Encourage sustainable development choices and initiatives that build upon the future development vision for the Conestogo and Northfield Station Areas, further to the merits of transit-support, urban intensification, and provision of a mix of uses as part of the redevelopment of a former industrial site into a vibrant new

10 neighbourhood.

Complement the District's public realm with a landscape design that softens and defines circulation routes, open spaces and buildings with a balance of hardscape and softscape features that provide all-season functionality and visual interest.

2.2 Design Inspirations

Parkside Village

The design combines 5,300 new residential units, retail shops, hotel and conference services, public parks and open spaces and a new public street network into one of the largest developments in the region. A mix of over 25 new structures will include low-rise townhouses, mid-rise lofts and tall, sleek point towers. The location and massing of built form is designed to address the challenges of integrating an extensive mix of new uses into the existing context and providing an appropriate transition to adjacent uses.





Parkside Village
Location: Mississauga
Number of Units: 5,300
Status: 2003 - ongoing

Agincourt Redevelopment

The Agincourt Mall redevelopment will be a vibrant, sustainable urban community with a total of 10 buildings across seven blocks, each with their own distinct feel and purpose. Along with retail, office and public space, residential units will be spread across a variety of building types, including high rises with six to eight-storey podiums, midrise complex, and a cluster of townhomes. The design incorporates great streets for everyone with connection to the larger surrounding community, the GO Train and future subway/ LRT/SmartTrack.







Agincourt Redevelopment
Location: Scarborough
Number of Units: 4,372
Status: Pre-Construction

3. MASTER PLAN AND DESIGN GUIDANCE

The proposed redevelopment of Kraus District will be a major, comprehensive catalyst for the transformation and evolution of the ION Station Areas, both Conestogo and Northfield. Guided by the preceding general Design Objectives, the Master Plan for the District illustrates the overall layout of the redevelopment's streets, spaces and buildings. The Master Plan brings together a cohesive vision for the redevelopment of the Kraus District with 14 new buildings an interwoven system of outdoor open spaces on a 10.7 hectare development site that ultimately accommodates 6,500 new residents and workers taking place on a phased basis over longer 10-15 year horizon.

The broader Master Plan is organized with three interrelated layers of plans:

- The Structure Plan (Section 3.1) that generally outlines the core structure elements that organize the District's development, including the pattern of streets and block, circulation, open space, and general built form;
- The Development Plan (Section 3.2) that more specifically outlines and guides the design of different building typologies within the District and organization of the development blocks; and
- The Public Realm Plan (Section 3.3) that more specifically outlines and guides the design of the internal streets, outdoor spaces and features that comprise the remainder of the District's fabric.

The guidance offered by the above plans are meant to provide the direction for the overall vision, character, form and function of the Kraus District. This will be implemented through the detailed design stage of Site Plan Approval. The plans and guidance are written to provide a master direction for the District while still being flexible and nimble to adjust to changes and refinements that are naturally expected through the detailed design stage of such a comprehensive development project. All plans, guidance and imagery should be read with that understanding.



3.1 The Structure Plan

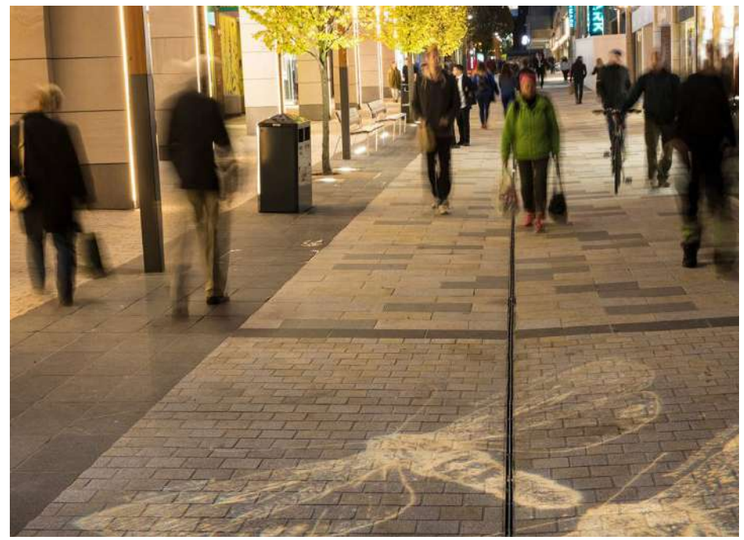
3.1.1 Streets and Blocks



Four new internal streets establish the main circulation pattern for vehicular traffic in breaking down the large site with an enhanced permeability of movement through the District. These new private roadways are accessed from the Conestogo Road frontage, given grade limitations associated with the Northfield Drive frontage. They are laid out in a grid pattern to provide efficient and balanced circulation for vehicular, service and emergency access. Although private in ownership, they are sized and will be designed to mimic the function and character of public streets.

Streets A, B and C run east-west leading into the District from Conestogo Road, Street B aligning with Durward Place creating a new four-way intersection at this location. All three connect to Street D running north-south through the District as the heart of the mixed-use centre of the District (as part of the “Central Spine”). The central promenade of Street D extends to the north and south through landscaped linear corridors. Street E branches off Street D and provides access to the northwest development blocks. Street F is an individual street from Conestogo Road providing access to the stand-alone area south of the hydro corridor, as a circulation loop providing access to this block. All new streets are envisioned as having two-way traffic and continuous sidewalks throughout. Streets B, C, D and F are designed to accommodate limited on-street parking for temporary use.

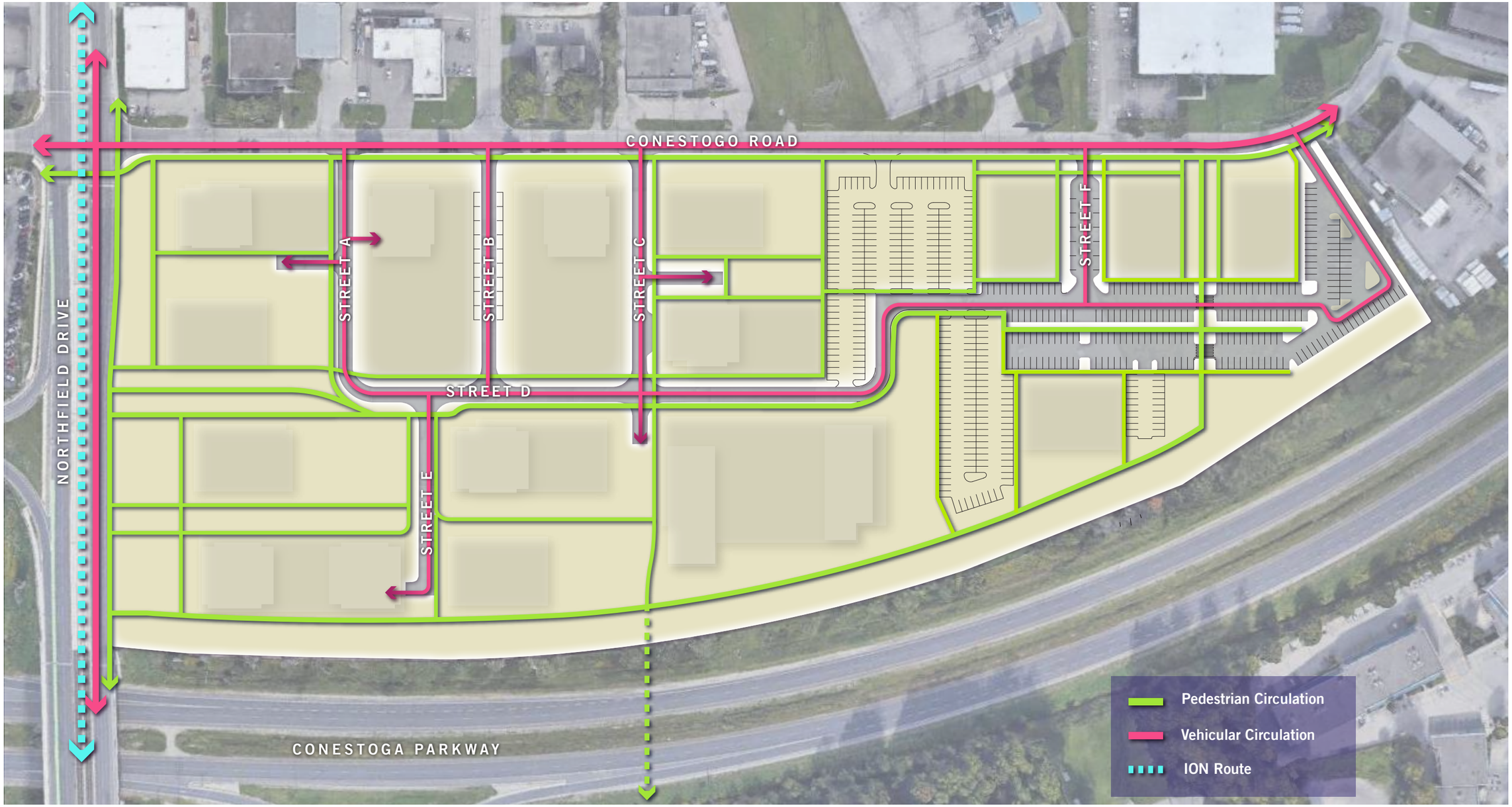
The structure of these new private streets break the large site into more manageable development blocks. The District is organized with eight development blocks (Blocks 1 to 8), plus the retained hydro corridor block (Block 9), in a manner that ensures adequate street access to each block. These blocks range generally from 0.7 to 1.3 hectares, recognizing that Block 8 is a larger stand-alone block at 2.6 hectares, providing flexibility for different building typologies







3.1.2 District Circulation



A key direction of the Conestogo Station Area plan is to “create a finer grained and interconnected street grid pattern with smaller blocks to improve connectivity”. The new internal streets together with the abutting public streets of Northfield Drive and Conestogo Road establish the vehicular circulation pattern accessing and moving through the District, as well as sidewalks provide for pedestrian circulation into the District from Conestogo Road. Pedestrian circulation is furthered through the District within the open space network that crisscrosses the District and providing a multi-directional permeable circulation network supporting a compact, transit oriented built form.

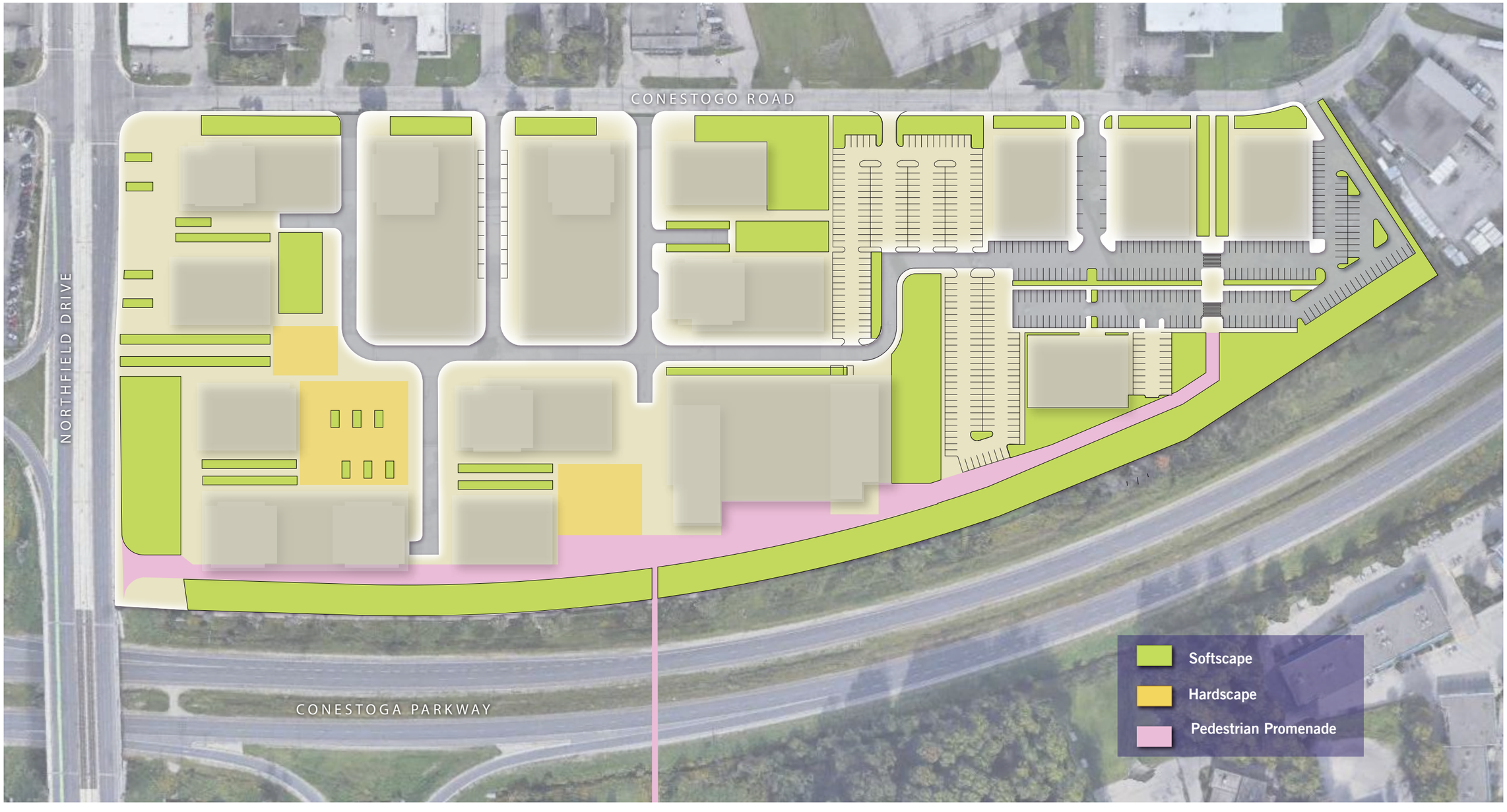
Three major pedestrian routes structure this circulation pattern. The pedestrian-oriented Promenade runs from Northfield Drive along the Parkway edge and rounding back to Conestogo Road; providing pedestrians and cyclists with full access to the interior of the District without any interference from vehicular traffic. Landscaped spaces extend Street D at both ends with pedestrian routes connecting Northfield Drive and the hydro corridor, through the core of the District. These major corridors are complemented by a series of other shorter pedestrian connections through smaller open spaces and linkages distributed throughout the District.

A new pedestrian bridge spanning the Conestogo Parkway is a core component of the pedestrian circulation system and a game-changer for the District’s development. Leading to the District’s heart, this new pedestrian bridge more directly connects new residents and workers to the Northfield ION Station without have to move up to and across Northfield Drive.





3.1.3 Open Space Structure



Diverse open spaces of different scales allow pedestrians to experience and move throughout the District. These publicly accessible spaces knit together the public and private realms, creating opportunities for a variety of activities to take place, including a diversity of active and passive recreation opportunities for urban life. Enhanced streetscapes that prioritize the pedestrian experience are key along Northfield Drive and Conestogo Road as part of the District's structure. An urban landscaped edge will transform the interface with the principal Northfield Drive corridor, picking up the significant grade changes with a combination of hardscaped and softscaped spaces. Along Conestogo Road, the streetscape will transition from the current industrial character to a more urban, mixed-use function through streetscape plantings and building form along the street.

Three core open spaces within the District establish the structure of the open space system. The first is the "Promenade" along the District's western edge lining the Parkway will be an urban linear plaza in character, hardscaped principally with planting accents and features and lined with ground floor commercial uses and residential uses to activate the space. The second is the "Central Spine" centered on the pedestrian-oriented streetscape of Street D and that extends to Northfield Drive and the south as landscaped linear corridors catering to pedestrian-only flows. The third is the "Hydro Corridor" bisecting the District that will be a re-imagined green space with surface parking tying the areas to the north and south within the District

Complementing these core spaces, a series of smaller open spaces provide a series of different experiences throughout the District, filling in its urban fabric between buildings, streets and pedestrian circulation routes. They exist both at grade surrounding buildings and above-grade on building rooftops.

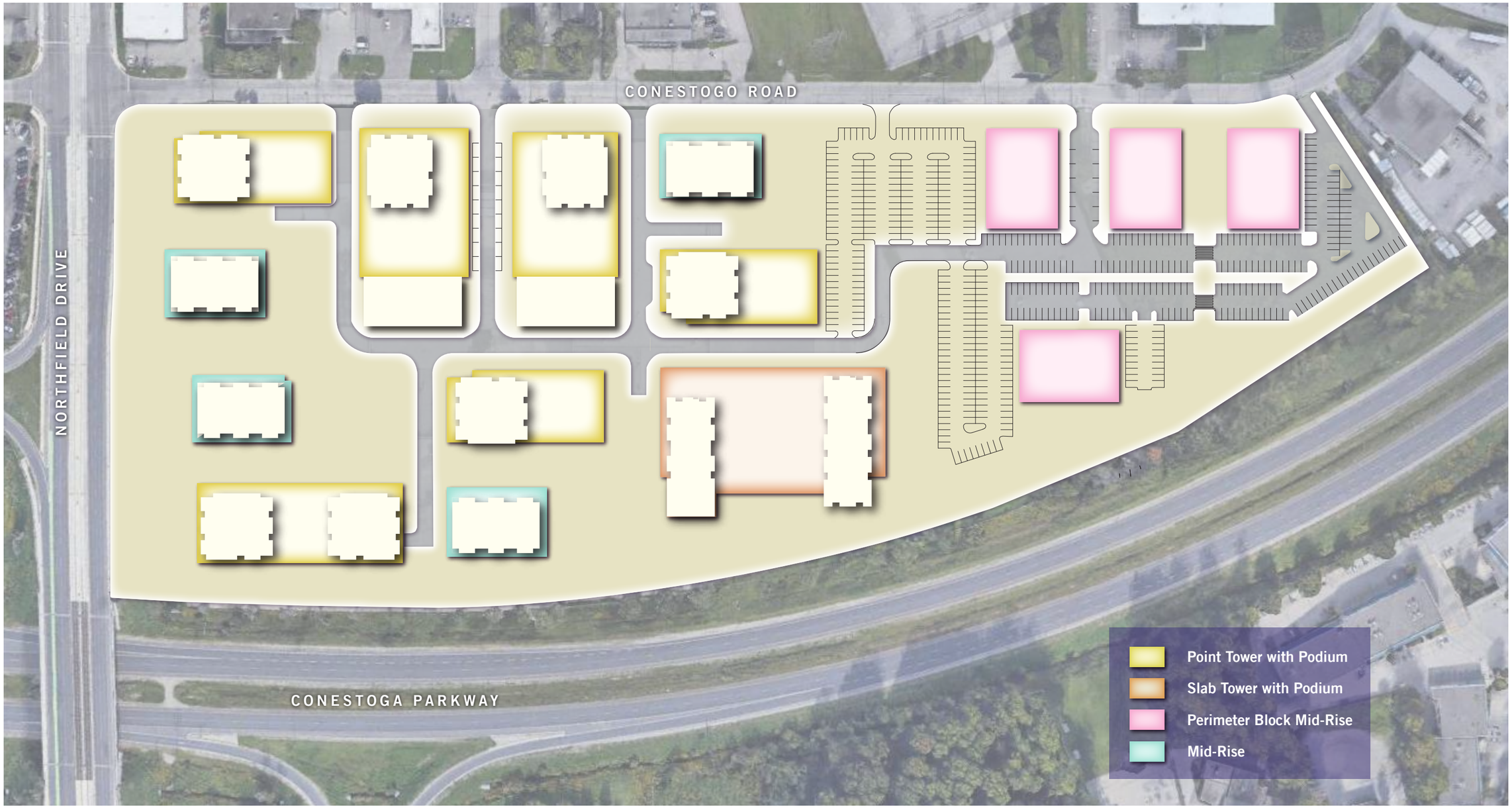
At grade interventions include a series of "courtyards" that are framed by surrounding buildings and connected to pedestrian desire lines. Their design captures an urban sense of enclosure and offers balanced approaches of flexible hardscaped space with trees and plantings to soften the spaces. Linear north-south corridors at grade between buildings lead into these spaces as tree-lined pedestrian routes connecting between Northfield Drive and the District's interior.

Above grade amenities include rooftop terraces atop lower-rise building podiums connecting the individual block fabric. The rooftop spaces will offer passive recreation, gathering and socialization spaces for building residents or workers. Their design will expectedly include combination of programmable space and supporting plantings and softscape.





3.1.4 Built Form



The District's building form structure features a blended high-rise and mid-rise development form that interjects a variety of different building forms and types.

The pedestrian experience is prioritized by providing a compact built form, allowing for pedestrian movement around each of the proposed buildings.

Building placement equally edges the District's perimeter of abutting public streets and the Parkway and frames the new internal streets, open spaces and pedestrian circulation corridors. At full build-out, parking almost entirely within underground or above-grade parking garages frees up the surface for pedestrian-oriented building placement, orientation and scales for all the residential blocks to the north. Surface parking is provided for Block 8. The resulting built form pattern provides consistent, pedestrian-scaled street walls and articulated base of buildings for the edge and internal conditions.

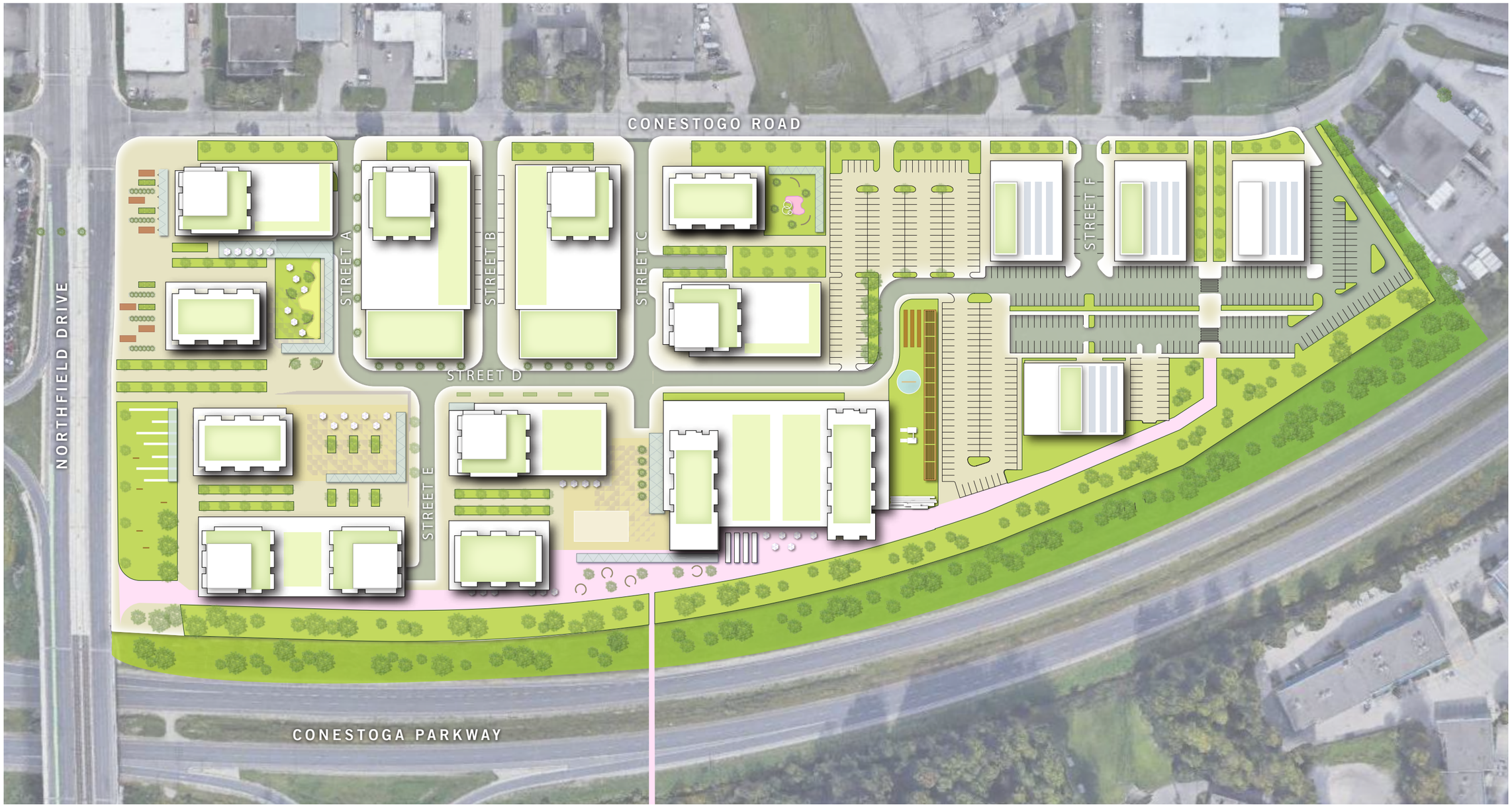


Building heights generally transition from the tallest buildings at the Northfield Drive edge dropping through the District moving south. The tallest building at the corner of Northfield Drive and the Conestogo Parkway offers a signature element, both in terms of building height and building architecture. Interspersed mid-rise buildings throughout the taller high-rises are meant to offer variety of form and as well as reducing mass to enhance sunlight and skyview exposure in at-grade open spaces.

Building arrangements are also varied to avoid a static or repetitive massing of form across the District. This includes variations in tower forms and mid-rise forms. Four general built form typologies are established throughout the District, explored in further detail in the following sections as part of the more detailed development plans.



3.2 The Development Plan



The Development Plan illustrates the conceptual long-term build-out of the Kraus District. It is a detailed demonstration plan illustrating the arrangement and composition of new buildings within the fabric of new internal streets and open spaces. The Development Plan provides two components: Section 3.2.1 outlines different buildings that are typical for the District, together with supporting design guidance referencing the City of Waterloo Urban Design Manual or offering specific guidance for the different building typologies; and Section 3.2.2 provides more detailed description of each development block and the design approach for each.

The Development Plan is comprised of 15 buildings across the eight development blocks within the District. In total, the Development Plan contains in the order of 2,534 residential units, 20,204 square meters (217,481 square feet) of office space, 1,988 square meters (21,399 square feet) of commercial space, and 3,765 parking spaces.

The Development Plan will be implemented and constructed in multiple phases. This sequencing is outlined in Section 4.2. Most parking is provided underground and in parking structures within the residential buildings, with surface parking provided on the south side of the hydro corridor. Development phasing for each block could allow for surface parking to be provided as required in parts of the lots intended for future development.



Rendered view looking south from Northfield Drive (ABA, 2020)



Rendered view looking east along the Conestogo Parkway frontage (ABA, 2020)



Rendered view looking southwest along the Northfield Drive and Conestogo Road frontages (ABA, 2020)

3.2.1 Building and Block Typologies

Four building typologies characterize the different development forms proposed for the Kraus District:

1. Point Tower with Podium
2. Slab Tower with Podium
3. Mid-rise
4. Mixed Use Office Building

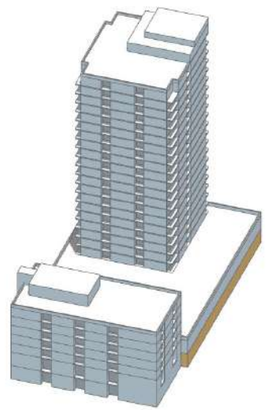
The four building typologies result in various block configurations for different blocks within the District, which are further outlined in Section 3.2.3. Blocks 1, 2, 3 and 7 consist of point tower(s) with podium and a standalone mid-rise building. Blocks 4 and 5 consist of a point tower with podium. Block 6 consists of two slab towers with a shared podium. Block 8 consists of four mixed use office buildings.



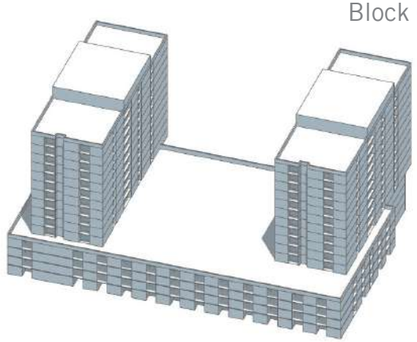
Block 1



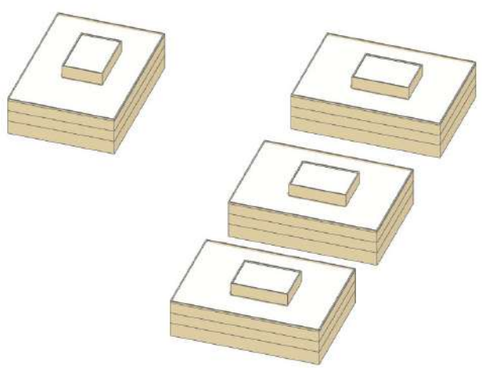
Blocks 2, 3, 7
(tower height varies)



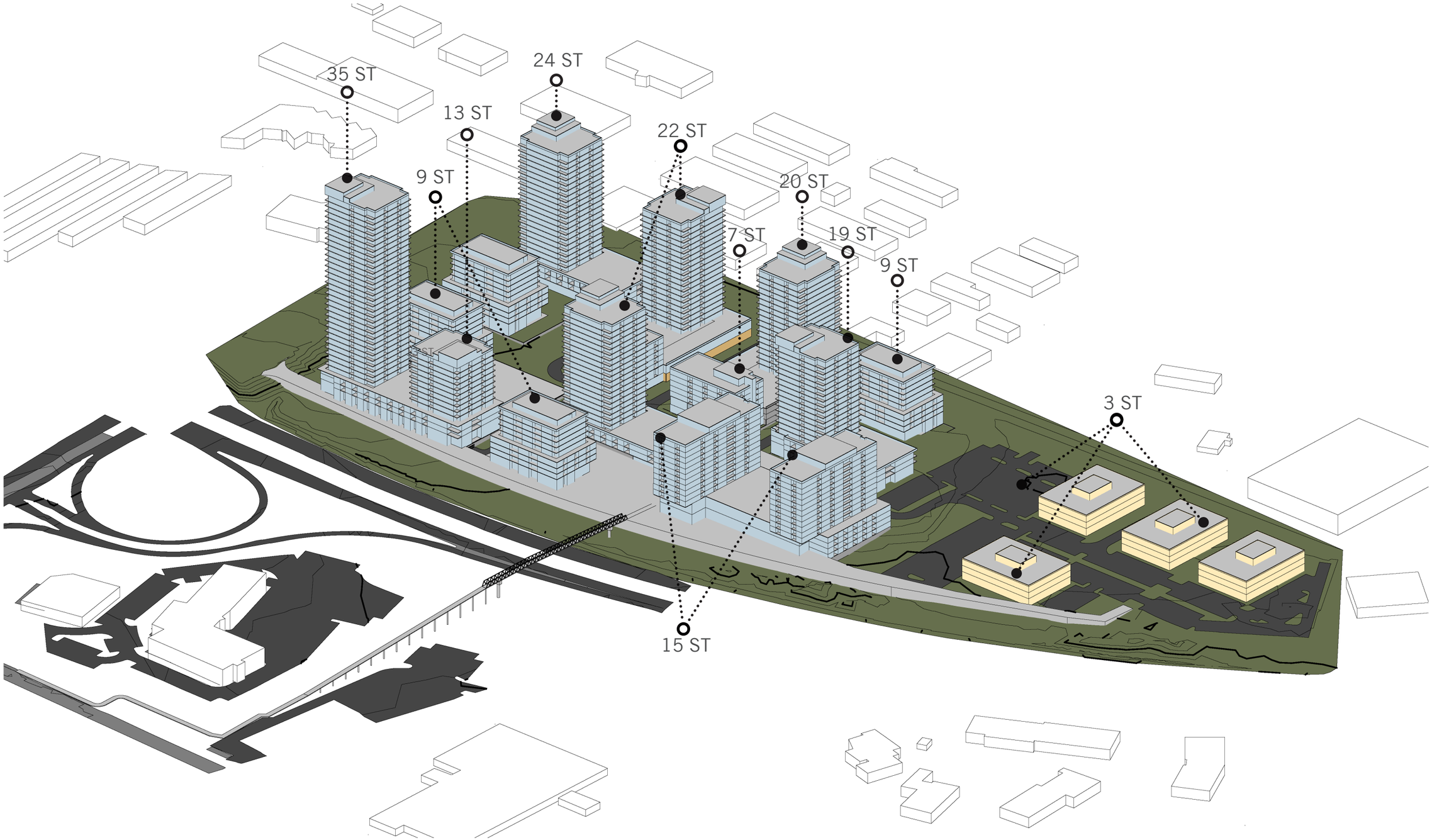
Blocks 4, 5
(tower height varies)



Block 6



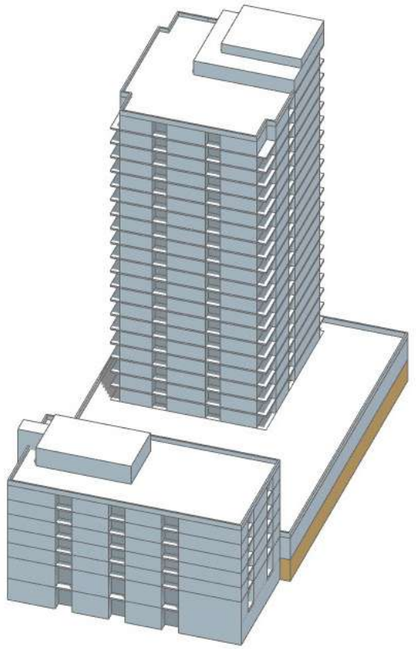
Block 8

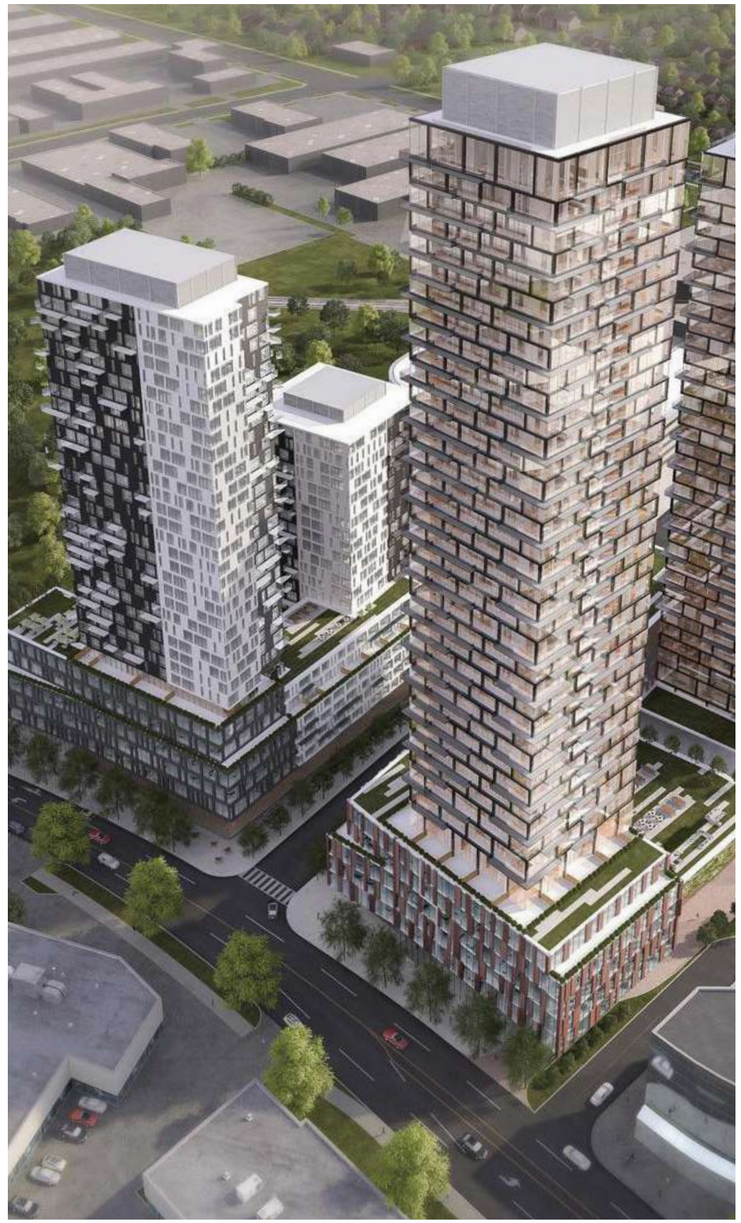


Axonometric view showing proposed building heights (ABA, 2020)

Point Tower with Podium

This building typology consists of a point tower above a podium base. The term “point tower” refers to more slender towers that have a floor plate of equal or similar length and width. The podium component is low-rise in height and generally broad in coverage, with the point tower sitting on a small portion above, contributing to a cohesive, compact and human-scaled urban experience at the ground. The seven point towers in the Kraus District are shown ranging from 13 to 35 storeys on the Development Plan, strategically positioned to accentuate and transition through the District. The towers are proposed for residential use, while the podiums can accommodate retail, office and additional residential units.









Typology Guidance

Podium Positioning

Positioning of building podiums for this typology will contribute to intimate building relationships with public streets, the new internal streets and the multitude of open spaces throughout the District.

- Conestogo Road: a consistent street edge along Conestogo Road with a similar setback to the public street right-of-way (5 to 6 meters) with a full use of street frontages of different blocks is a key part of an urbanized streetscape along this access street for the District.
- Northfield Drive: similarly, an urbanized street edge along Northfield Drive is desired as well, although the angled property line and significant grade changes at the street edge affect building positioning. This built edge can still be consistent in placement but will be greater in extent (8 to 10 meters) from the Northfield right-of-way, the intervening space as significant landscaped areas.
- Internal streets: internal to the District, the new public streets will benefit from an intimate urban edge with buildings for the most part situated 2 to 4 meters to the curb edges. Portions of new streets lined with ground floor commercial uses (such as Street D) warrant large pedestrian spaces on those sides, such as 5 to 7 meters in width, to accommodate pedestrian flows as well as the potential for modest commercial spill-out space into the street zone.
- Open Spaces: a tight relationship between building podiums and abutting open spaces are important to allow for seamless connections between building edges and these spaces, assisting with providing an animated public realm. In this sense, the point tower typology will work with the other typologies to frame and enclose the internalized open spaces between buildings and along the Promenade.

Podium Height

The low-rise podium of this typology provides the direct interface with the pedestrian. A podium height of 3 to 4 storeys for this typology is shown to establish a scale that enclosing abutting streets and pedestrian spaces. Mid-rise podium heights, such as 5 or 6 storeys, are also appropriate for most buildings in this typology where abutting spaces have greater depth and the pedestrian scale can be maintained; the full block form of Blocks 4 and 5 are best suited to the lower podium height of 3 to 4 storeys.

Ground Floor Treatment

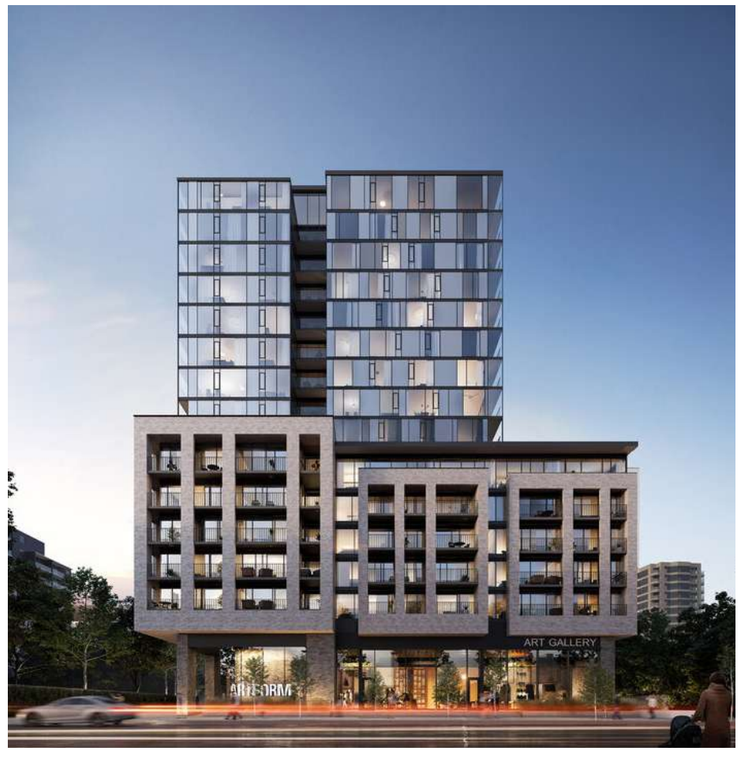
The Kraus District point tower podiums are generally long, occupying the full extent of the urban block, framing streets and spaces with a continuous street wall ranging between 70 and 95 meters in length. Lining these street frontages with ground floors containing active pedestrian spaces will be critical for ensuring an animated edge to public streets, internal streets and open spaces. Ground floor commercial units, residential lobbies and residential amenity spaces are meant to occupy the majority of the ground floor space. Commercial units with a steady rhythm of entrances should line building edges facing public streets, new internal streets or open spaces wherever possible. Building corners are suitable locations for residential lobbies where they face onto common open spaces and internal streets. This typology can also accommodate ground floor residential units with individual entrances at grade facing onto public and internal streets, which would also contribute to activating and animating street edges.

Appropriately articulating these building frontages will be particularly important in supporting a vibrant pedestrian-oriented environment facing bounding open spaces. Vertical and horizontal architectural elements and detailing that provide visual interest and functionality such as fenestration detailing, balconies, canopies and railings are key. This includes considerations for recessions or projections of the building envelope with a regular rhythm of divisions along the street as well as architectural touches related to changes in materials and colours, balcony design, and supporting architectural features. Higher proportions of transparent windows and doors on the ground floor are important, although a balanced proportion of solid and glass fits the context and brings energy conservation benefits. Use of glazing at the ground floor and above two storeys should have visual markers to avoid bird collisions. Canopies over main building entrances, or alternatively recessed entrances are also recommended.

Building Entrances

The location of building entrances will vary depending on the building's context and orientation. Residential entrances are preferably accessed from the abutting landscaped open spaces; or accessed from prominent locations from the internal and/or bounding public streets where there are no abutting spaces (such as Blocks 4 and 5). Retail entrance locations will vary between those accessed from bounding public and internal streets to those that are accessed from abutting open spaces internal to the District. Canopied entrances or recessed entrances are encouraged for weather protection purposes.









Above-Grade Parking Garage

Parking is primarily accommodated within multi-level underground parking garages underlying most of the District, therefore design responses required at the surface are limited. Two proposed buildings however have above-grade parking garages integrated within the building podium (Blocks 4 and 5). The design intent for these integrated garages will be to maximize the extent of uses and spaces wrapping the podium's edges (both at the ground level and upper storeys), such as commercial units, residential lobbies and activity areas, as well as at grade residential units. There are instances, however, where portions of the building's garage at grade might be exposed. These exposed portions should visually read as part of the building architectural language through the use of complementary architectural treatments, such as similar materials and openings, high quality screening, or a combination of the above.

Tower Stepback at Podium

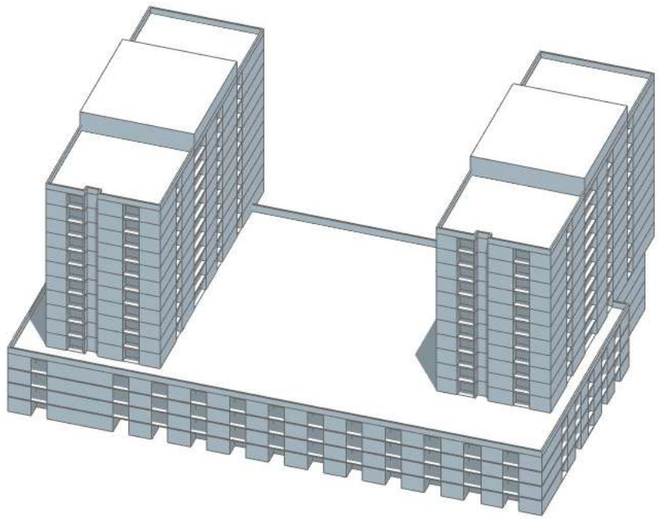
Tower setbacks ("stepbacks") from the base podium should be consistently applied to clearly distinguish the different tower elements - base, middle and top sections - while the tower podium will create a continuous streetwall at grade. The tower portion should be set back at least 3 meters from the podium edge when facing bounding public streets and internal roadways. Setbacks for tower edges facing open spaces on the District can be reduced, where appropriate, given the width of these spaces.

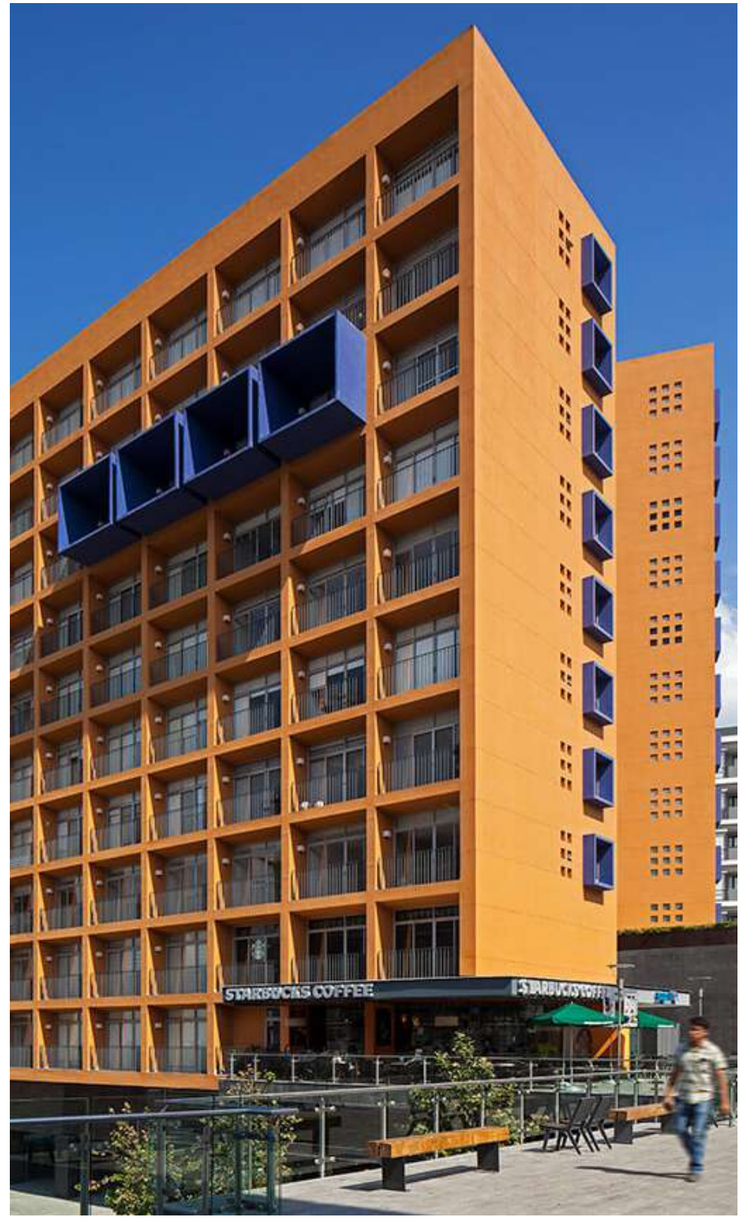
Tower Footprint

This typology implies a slenderer tower footprint. The point towers represented on the Development Plan are generally 925 square meters, with 30 to 35 meter sides in a square configuration. These dimensions recognize the Waterloo's preferred zoning approach for a maximum tower footprint of 1,000 square meters and maximum dimension of 40 meters, and propose a more slender tower form. This does not preclude exploring opportunities for even more slender footprints for unique "signature" building forms within this typology.

Slab Tower with Podium

This building typology consists of a slab tower above a podium base. The term “slab tower” refers to towers that typically have a rectangular floor plate with narrower widths and two to three times the length, and typically lower in height. Like the point towers, the podium component is low-rise in height covering most of the block with the towers on a portion above. The towers are proposed for residential use, while the podiums for at-grade amenity area and additional residential units. Used more sparingly as compared to the point tower form, the two slab towers in the District are shown as 15 storeys in height on the Development Plan.









Typology Guidance

Podium Positioning

Positioning of building podiums for this typology is also intended to contribute to strengthening building relationships with the proposed Pedestrian Promenade, Re-Imagined Hydro Corridor and internal open spaces. A tight relationship between building podiums and abutting open spaces is important to allow for seamless connections between building edges and these spaces, providing an animated public realm. In this sense, the slab tower typology will complement other proposed building typologies in framing internalized open spaces between buildings and along the Promenade and Hydro Corridor.

Podium Height

Like the point tower typology, the low-rise podium of this typology provides the direct interface with the pedestrian. A podium height of 3 to 4 storeys for this typology is shown to establish a scale that enclosing abutting streets and pedestrian spaces. This is an appropriate pedestrian-scaled base recognizing the size of the podium footprint.

Ground Floor Treatment

The ground floor considerations for the point tower typology is also relevant and applicable for the slab tower typology, given a similar scale and length of the podium base.

Building Entrances

This typology will have multiple common and individual entrances. Residential tower entrances are situated at the building corners framing the linear landscaped open space. Individual residential unit entrances for ground floor units lining the Promenade and Hydro Corridor will provide a ground-oriented residential edge. Canopied entrances or recessed entrances are encouraged for weather protection purposes.

Above-Grade Parking Garage

This typology includes an integrated parking garage at grade and underground levels. The Development Plan shows the entirety of the perimeter of this parking garage lined with active uses, whether ground floor residential units, residential lobbies or amenity area. Should a portion of the parking garage be exposed, the guidance included for point towers will apply for this typology as well.

Tower Footprint

This typology implies a longer footprint for the tower portion. The slab towers on the Development Plan are generally 1,200 square meters with a general proportion of 3:1 length to width. This configuration is somewhat greater than that reflect in Waterloo's zoning approach for towers, however, the height of only 15 storeys and substantial tower separation minimizes any overlook, privacy or shadowing concerns between towers.

Tower Stepback at Podium

Facing the open spaces, the tower portion should be set back at least 3 meters from the podium edge. These are minimum setbacks, as the towers are offset to a larger degree along the Hydro Corridor, given the angled podium footprint. Along the Promenade, the tower form is cantilevered beyond the podium edge, creating a more dynamic interface with the recreational and commercial uses at grade.



Tower Separation

Facing distance between towers is significantly greater for the slab tower typology, accounting for the longer tower mass. The slab towers on the Development Plan are shown with a tower separation of least 50 meters (for towers located on the same podium) and at least 35 meters to the nearest adjacent building point towers. These distances provide substantial relief from any potential impacts of the of a longer tower mass.





Architectural Differentiation

As outlined in Section 3.2.2, the District will have a consistent, unifying architectural style and aesthetic. The parallel towers in this typology should be designed to complement the architectural style of the podium base; more subtle variations between the buildings are also recommended, such as varied arrangement of materials, colour differentiations, different combinations of solid massing and glazing, orientation of building architectural features, as well as distinct roofline profiles and features.

Rooftop Treatment

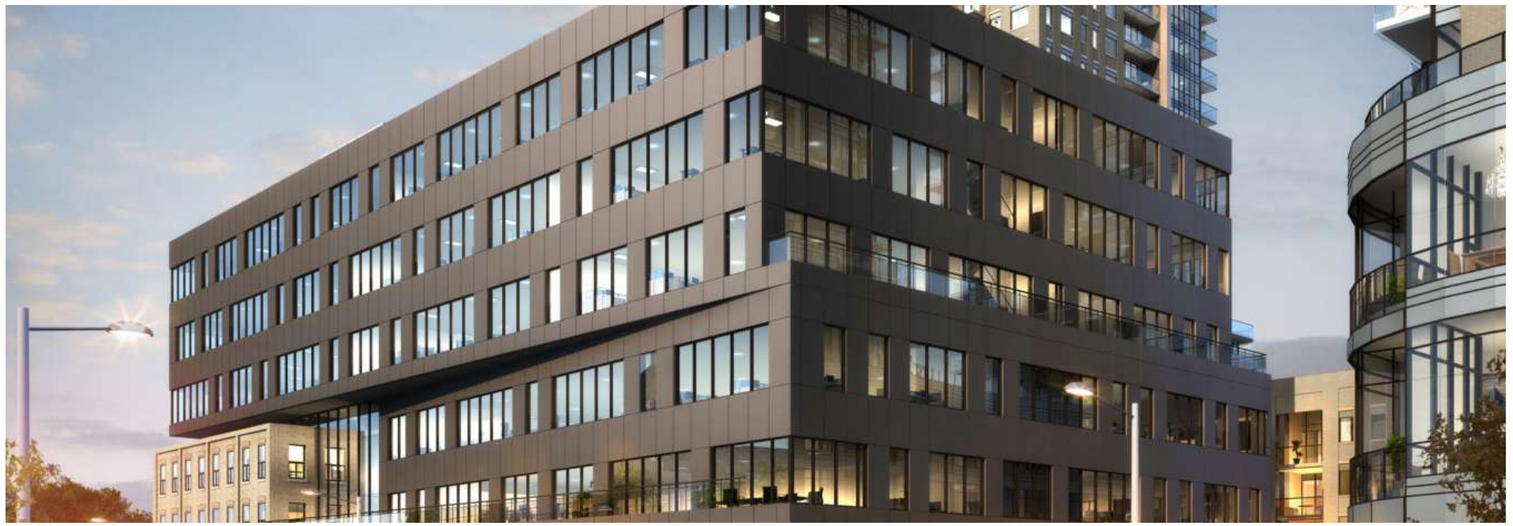
Refined finishes to the tops of buildings will be important in creating a distinguished multi-tower development of the District's scale. Per above, a variety of rooflines profiles and treatments is desirable, through combination of different details, orientation or materiality and colour. Enclosed mechanical penthouses on towers within this typology will enclose rooftop equipment. Minimizing views to these penthouses can be accomplished either by positioning these back from roof edges or architecturally integrating them with the immediate storeys below. Coordinated opportunities for green roof or rooftop terrace, outlined elsewhere in the Master Plan, can further assist with screening.

Mid-Rise

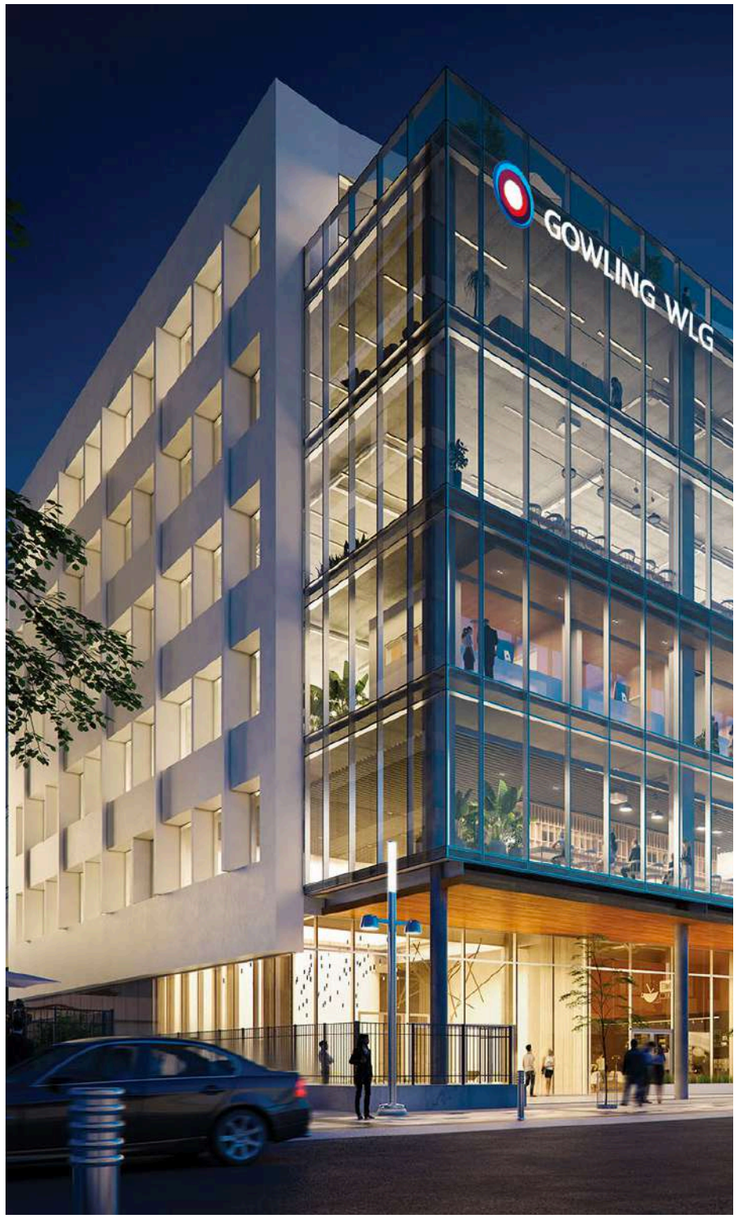
This building typology consists of more conventional mid-rise buildings, which are typically squares or short rectangles in configuration. Generally, mid-rise buildings are between 4 and 12 storeys in height, as per the City of Waterloo Urban Design Manual. The proposed four mid-rise buildings in the Kraus District are shown as 9 storeys in height on the Development Plan, although they could be higher or lower within the recommended height range.











Typology Guidance

Building Positioning

Positioning of buildings in this typology will contribute to pedestrian-oriented, intimate relationships with Conestogo Road, Northfield Drive, adjacent internal open spaces as well as the Promenade, as outlined earlier in the Design Guidance section for the point tower typology.

Ground Floor Treatment

This typology is prominently located along streetscapes and surrounded by internal open spaces, therefore appropriate articulation and animation of the ground floor is important to support a pedestrian-oriented environment. Higher proportions of transparent windows and doors on the ground floor are important, although a balanced proportion of solid and glass fits the context and brings energy conservation benefits. Glass on the ground floor and above two storeys should have visual markers to prevent bird collisions.

Building Entrances

Buildings along Northfield Drive have residential entrances facing Northfield Drive and facing inwards to linear landscaped open spaces. The residential building along the Promenade offers direct access to this linear open space. Canopied or recessed entrances are encouraged for weather protection purposes.

Upper Storey Stepbacks

The mid-rise building typology has a more consistent vertical form, rather than distinct base and upper storeys established through step backs. This typology does not have pre-determined, consistent stepbacks around all sides of the buildings but rather is articulated with distinct architectural language, such as varied patterns of projecting bays, accentuated by select building materials.

Architectural Differentiation

As outlined in subsequent Section 3.2.2, this typology will be part of the consistent architectural style and aesthetic that unifies the District. Differentiation between the treatment of the different buildings belonging to this typology is not as critical as is the case for the more prominent District towers. The adjacent mid-rise buildings fronting Northfield Drive in particular would benefit from more subtle variations between buildings, as appropriate, through different use of materials, colour variations, orientation of architectural features as well as roofline profiles.

Rooftop Treatment

Minimizing views to enclosed mechanical penthouses at this level can be accomplished either by positioning these back from the roof edges or architecturally integrating them with the immediate storeys below. Coordinated opportunities for photovoltaic panels, green roofs or rooftop terraces, as outlined elsewhere in the Master Plan, can further assist with screening strategies.



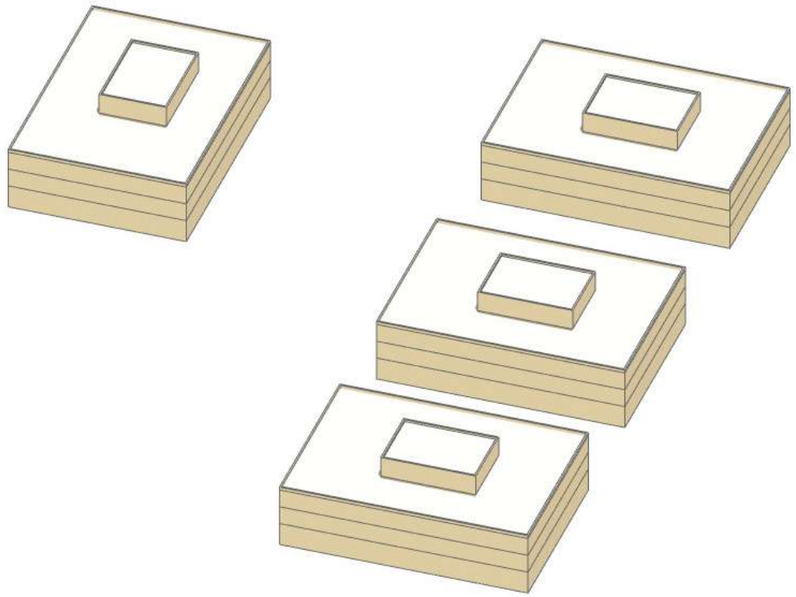


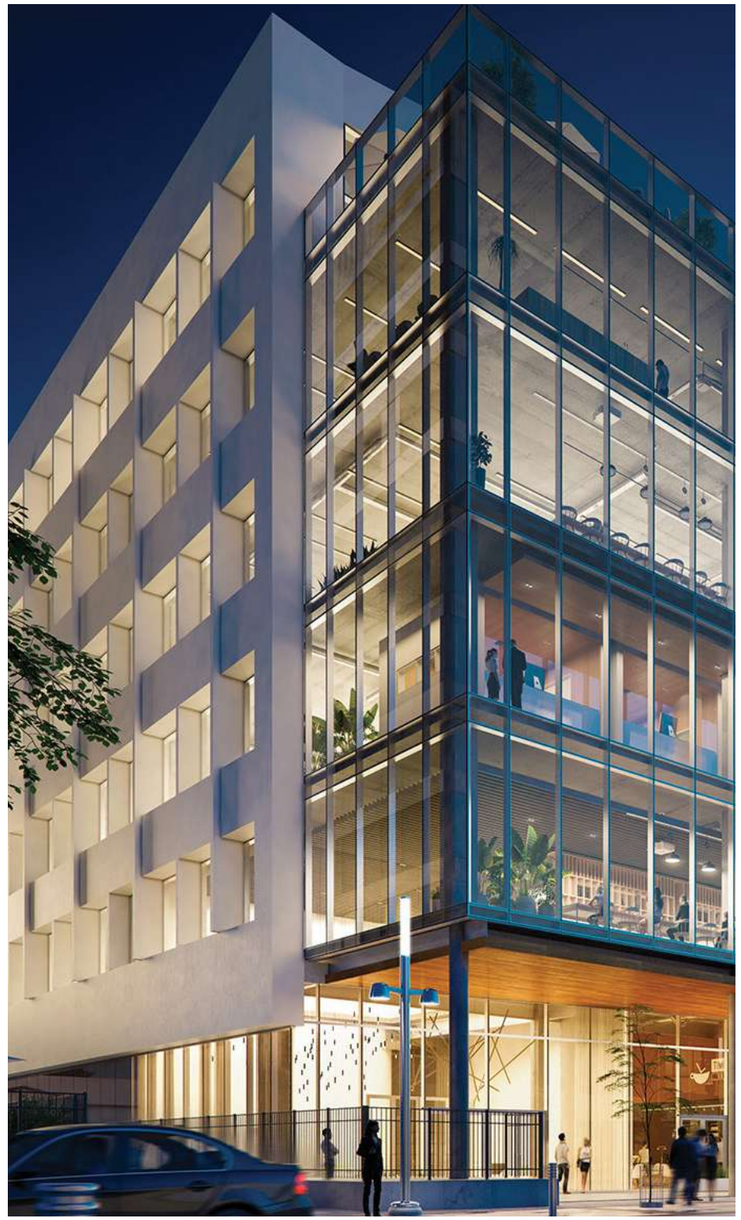


Rendered view looking east to Conestogo Road (ABA, 2020)

Mixed Use Office Buildings

Situated in the southern portion of the District , this building typology consists of four mixed use office buildings: three buildings fronting the Conestogo Road (east side) and the fourth building located on the west side, facing the internal driveway. The four proposed mixed use office buildings are 3 storeys in height in the Development Plan.







Typology Guidance





Building Positioning

This typology is arranged lining the east and west sides of Block 8 with at-grade parking, while simultaneously framing the abutting streetscapes and open spaces. Continuation of the setback pattern for the building typologies located to the north of the Hydro Corridor, along Conestogo Road, is important as part of a unified urbanized streetscape. Building edges line the pedestrian corridor along the Promenade, carrying on the pattern implemented north of the Hydro Corridor through the placement of other building typologies.

Architectural Differentiation

Outlined in subsequent Section 3.2.2, this typology is used for office use and it will be part of the consistent architectural style and aesthetic that unifies the District. Each building elevation have varied treatment that complements the overall building design while responding to the conditions of the abutting interface. More subtle architectural variations between the buildings are appropriate to break up any undesirable repetition while maintaining uniformity through this more stand-alone block of the District.

Ground Floor Treatment

Building entrances to these mixed use office building are along Conestogo Road and along the internal driveway. Office uses face the street to ensure active building areas front onto the street, as well as to provide easy wayfinding on the site. Appropriately articulating these building frontages with significant windows, prominent entrances, façade articulation and high quality will be important to provide visual interest and to support a pedestrian-oriented environment facing adjoining open spaces. This includes considerations for recessions or projections of the building envelope with a regular rhythm of divisions along the street as well as architectural articulations related to changes in materials and colours, and supporting architectural features. Higher proportions of transparent windows and doors on the ground floor are important, although a balanced approach to solid and transparent materiality will fit with the context and bring energy conservation benefits. Glazing used at the ground floor and above two storeys should have visual markers to prevent potential bird collisions. Canopies over main building.

At-grade Parking

Parking is located at the side or back of the building screened from the public realm. The design intent for these surface parking space will be to create surface parking lots that are not only efficient, but also safe, attractive and environmentally responsible. ‘Greening’ the surface parking lot involves landscaped street edges, dedicated pedestrian route, bio-retention areas and permeable surfaces.



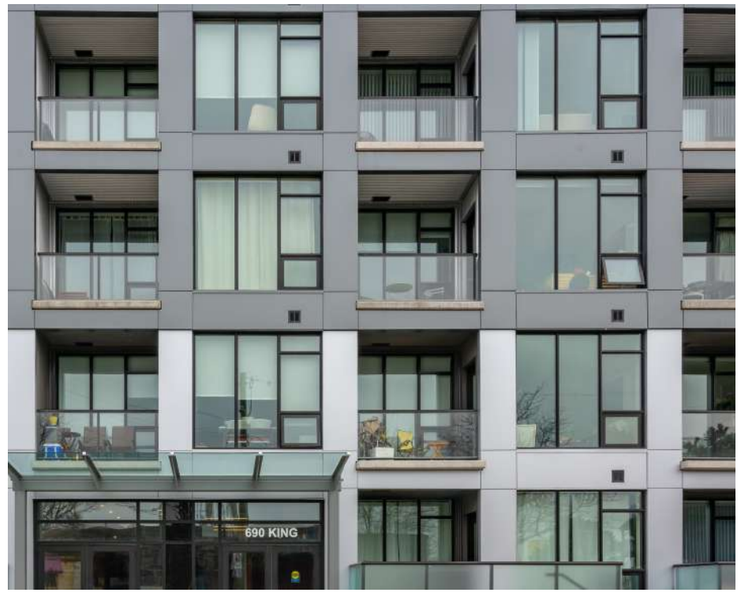




Rendered view looking west along the Conestogo Road frontage (ABA, 2020)

3.2.2 Architectural Character and Style

The Kraus District unites a thoughtful distribution of mixed-use blocks, each incorporating floor plate sizes, orientation, and layouts suitably flexible for living, working, and recreating. Within each block, each building type has its own distinct architectural style. The office buildings are intended as modern open plans which are suitable for a variety of structural systems such as steel or mass timber. The residential uses also reflect a modern vernacular but with a gesture towards more domestic norms such as red brick applications. Retail uses and entrances at grade are defined with a high degree of transparency through full storey-high glazing within rhythmic piers. Colour, material, and texture are used to differentiate each use, while also ensuring a cohesive and vibrant neighborhood feel throughout.



Within each building type, the massing is further defined through repetitive or randomized patterns. The verticality of the residential towers is emphasized through a stacked application of punched windows and balconies, while the mid-rise and slab residential counterparts feature offset modules for a more playful, checkered pattern. The use of pattern is also applied within the curtain wall of the office buildings via a playful use of white spandrel panels intended to highlight the structure within.

Each building mass is transitional away and up from the streets and courtyards which they frame, ensuring these public spaces have ample natural light and a pedestrian-scaled sense of enclosure. The wind screens and trellises throughout the district also serve as a cohesive architectural element that ensures pedestrian comfort while also defining each outdoor space in an inviting and porous way.





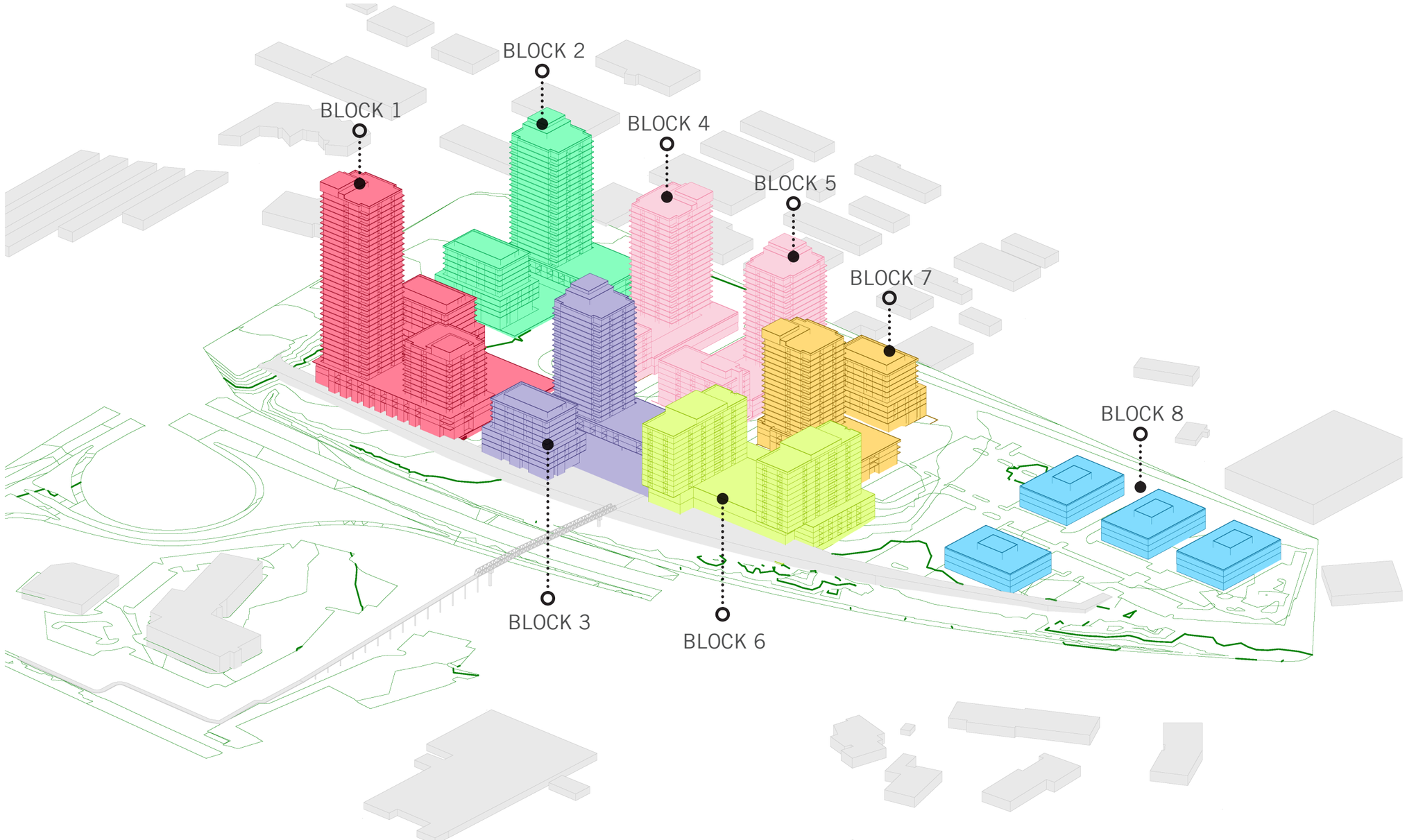








3.2.3 Development Block Plans

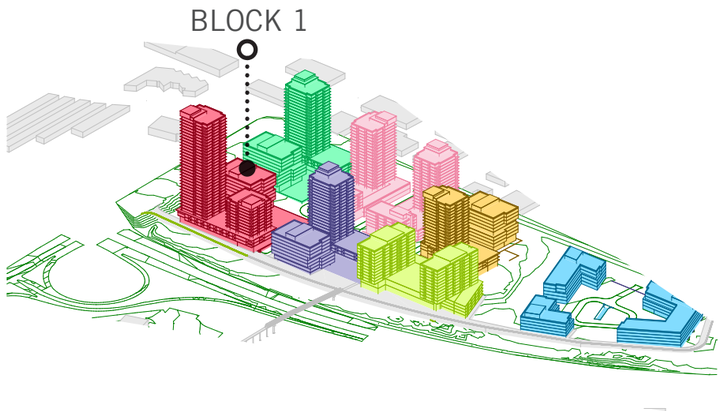


Block 1

Block 1 is situated at the District's northwest corner framing the Northfield Drive crossing of the Conestogo Parkway. This block will be comprised of three residential buildings: Tower 1A shown at 35 storeys and Tower 1B shown at 13 storeys sharing a low-rise podium containing at-grade amenity area and; a mid-rise residential building, Building 1C shown at 9 storeys. Tower 1A acts as the tallest focal point of the Kraus District, positioned at the northwest corner of the site at Northfield Drive and the Conestogo Parkway, with the potential of representing the "signature" building within the District. The Block 1 public realm includes the access from Northfield Drive to the proposed Promenade as well as the linear landscaped corridor and courtyards between and surrounding the two buildings. Parking for Block 1 is provided in two levels of underground parking below the buildings.

Statistics Summary

Gross Floor Area	66,793.60 m2
Tower 1A + 1B	48,323 m2
Building 1C	9,862 m2
Residential Units	567 units
Parking	460 spaces



Bock 1 - Building Massing



District Key Plan & Axonometric



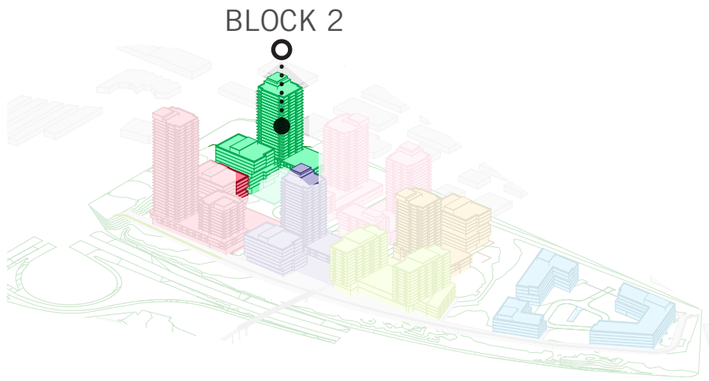
Rendered view looking south east from Conestogo Parkway (ABA, 2021)

Block 2

Block 2 is located at the District's intersection of Northfield Drive and Conestogo Road. This block will be comprised of a high-rise residential building (Tower 2A shown at 24 storeys) and a mid-rise residential building (Building 2B shown at 9 storeys) with ground floor amenity area. Similar to Tower 1A, Tower 2B also acts a prominent focal point of the District, positioned at the intersection of Northfield Drive and Conestogo Road. The Block 2 public realm serves as a gateway to the interior of the District. Parking for Block 2 is provided in two levels of underground parking below the buildings.

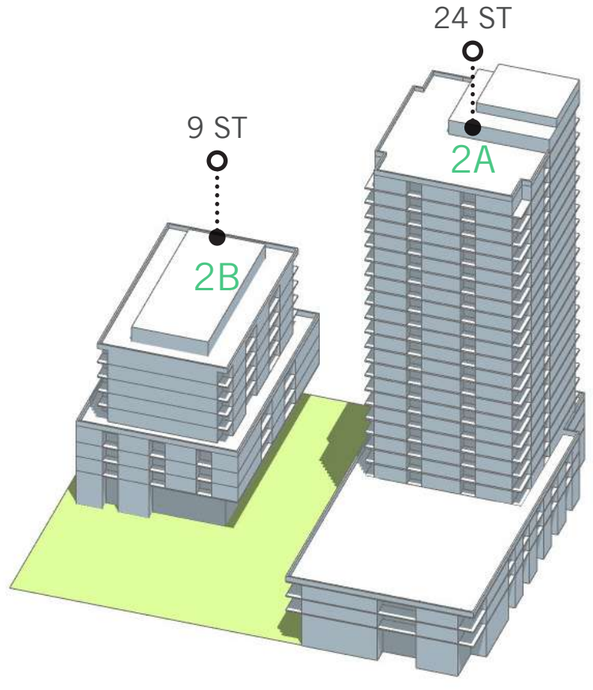
Statistics Summary

Gross Floor Area	41,560.5 m2
Building 2A	26,361 m2
Building 2B	9,862 m2
Residential Units	350 units
Parking	281 spaces





District Key Plan & Axonometric



Block 2 - Building Massing



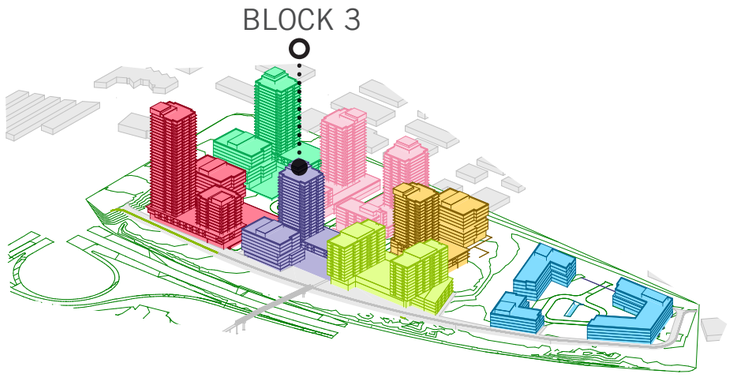
Rendered view from Northfield Drive and Conestogo Road (ABA, 2021)

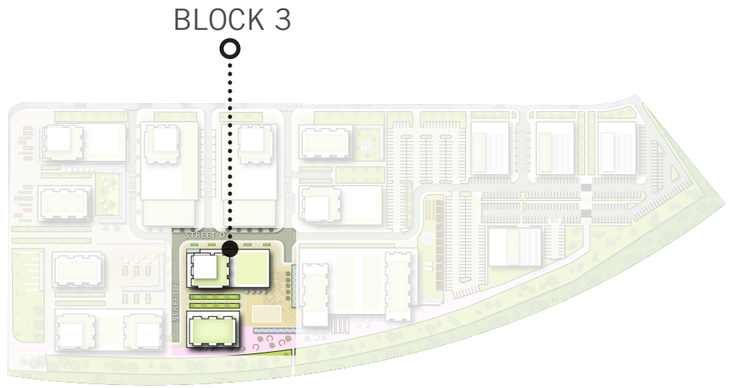
Block 3

Block 3 is situated south of Block 1, interior to the District. It has frontage along Streets D and E and will be comprised of one residential point tower (Tower 3A shown at 22 storeys) and a mid-rise residential building (Building 3B shown as 9 storeys) with commercial units along the pedestrian promenade. The public realm of Block 3 acts as the gateway from the proposed pedestrian connection across Conestogo Parkway into the Kraus District and may incorporate passive and active recreation opportunities. Parking is provided in one level of underground parking.

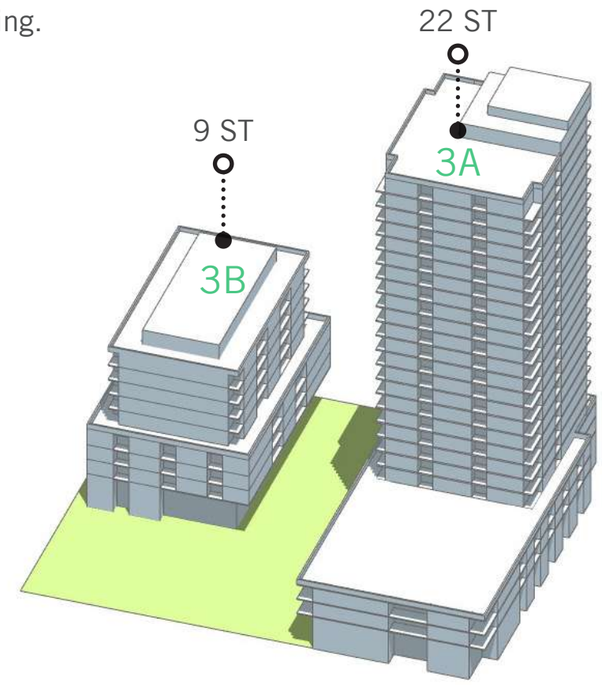
Statistics Summary

Gross Floor Area	42,569 m2
Building 3A	24,507 m2
Building 3B	9,862 m2
Residential Units	355 units
Parking	229 spaces





District Key Plan & Axonometric



Block 3 - Building Massing



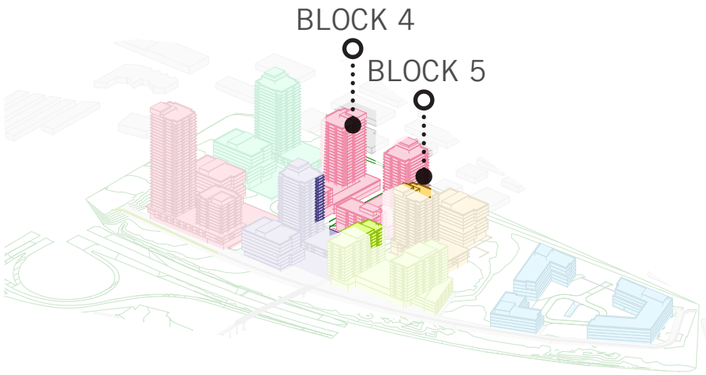
Rendered view looking north east from Conestogo Parkway (ABA, 2021)

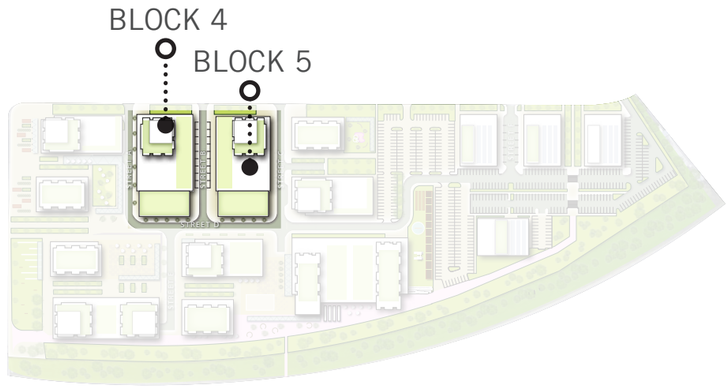
Blocks 4 and 5

Blocks 4 and 5 are situated south of Block 2, and have frontage along Conestogo Road and Streets A, B, C and D. Each of these “twin” blocks will be comprised of a residential point tower and a mid-rise residential slab above a shared podium with ground floor commercial units (Slabs 4A and 5A shown at 7 storeys, Tower 4B shown as 22 storeys and Tower 5B shown as 20 storeys). The public realm of Blocks 4 and 5 consists mostly of enhanced streetscape features along Conestogo Road and the internal streets. Parking for Blocks 4 and 5 is provided in one underground level and three podium parking levels.

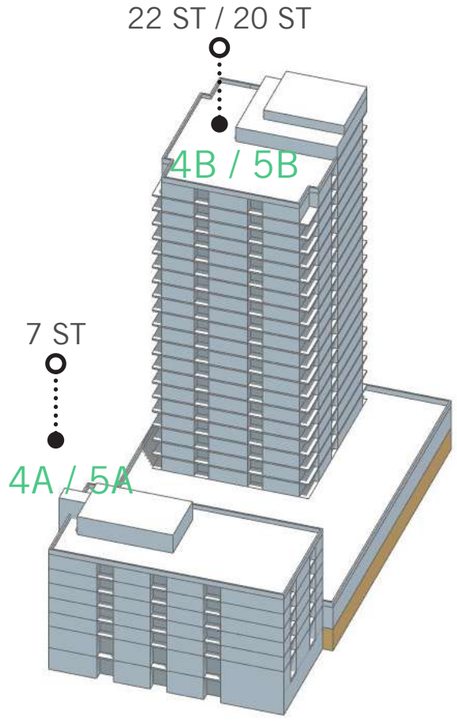
Statistics Summary

Gross Floor Area	32,174 m2 + 29,759 m2
Retail Floor Area	994 m2 + 994 m2
Residential Floor Area	26,765.6 m2 + 24,911.6 m2
Residential Units	292+270 units
Parking	490 spaces





District Key Plan & Axonometric



Blocks 4 and 5 - Building Massing



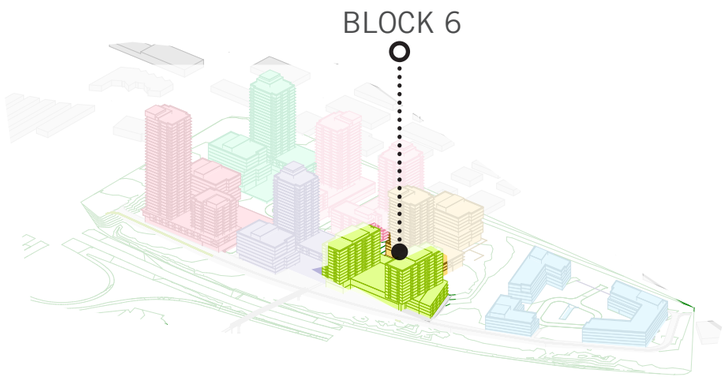
Rendered view looking west along Conestogo Road (ABA, 2021)

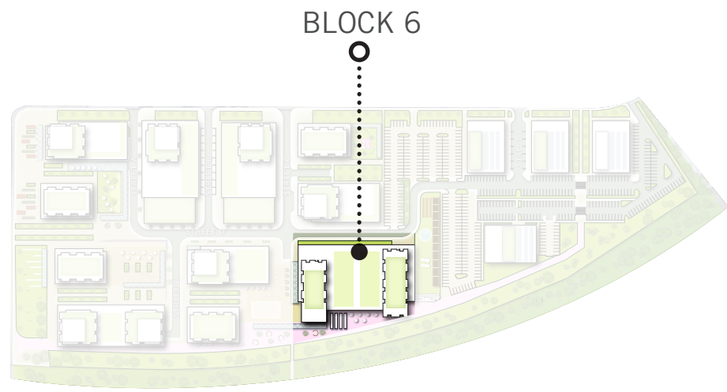
Block 6

Block 6 is situated south of Block 3, interior to the District and it is accessed from Street C. This block will consist of two residential slab towers (shown at 15 storeys in height) sharing a low-rise podium containing cat-grade amenity area. The towers are positioned offset from each other to reduce overlook and improve views to and from this block. The public realm of Block 6 includes a portion of the proposed Promenade and pedestrian connection over Conestogo Parkway as well as a linear landscaped corridor. Block 6 also interfaces with the proposed renovated Hydro Corridor open space. Parking for Block 6 is provided in one level of underground parking and four levels of the podium.

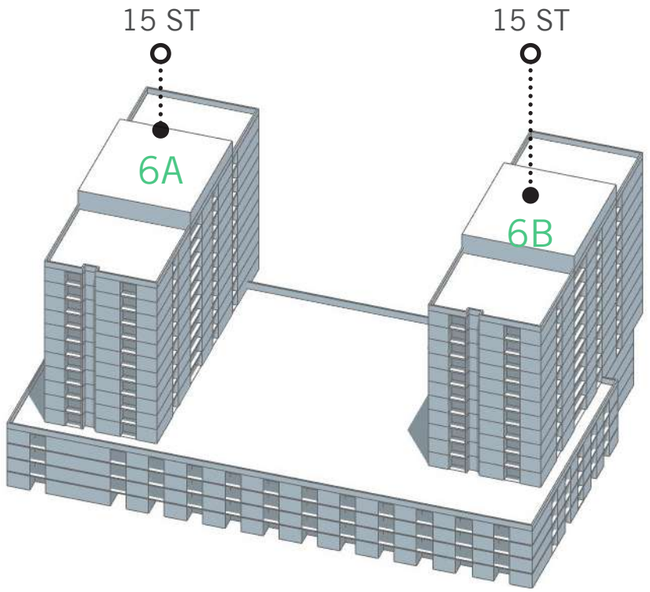
Statistics Summary

Gross Floor Area	52,130.2 m2
Residential Floor Area	36,847.2 m2
Residential Units	384 units
Parking	404 spaces





District Key Plan & Axonometric



Block 6 - Building Massing



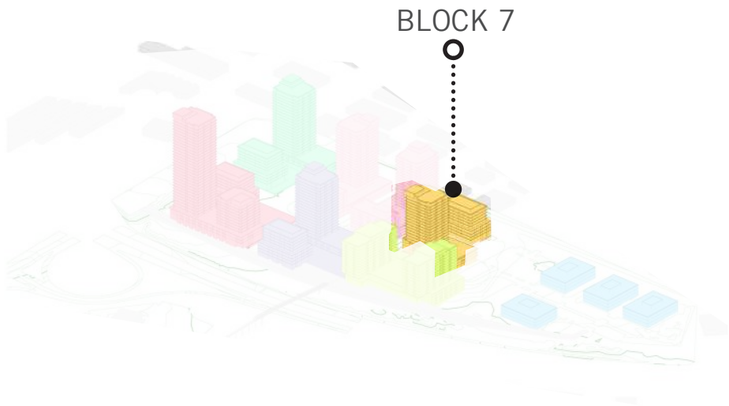
Rendered view looking south from proposed pedestrian bridge. (ABA, 2020)

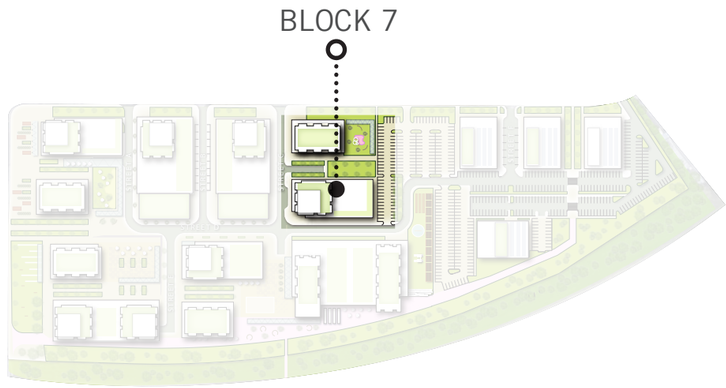
Block 7

Block 7 is situated south of Block 5, and has frontages along Conestogo Road and Street C. This block will be comprised of two residential buildings: Tower 7A shown at 19 storeys with low-rise podium and a mid-rise residential building (Building 7B shown at 9 storeys) along Conestogo Road. Building 7 public realm includes streetscape enhancements to Conestogo Road and a pedestrian corridor and landscaped area. Block 7 interfaces with the proposed Hydro Corridor open space. Parking for Block 7 is provided in two levels of underground parking.

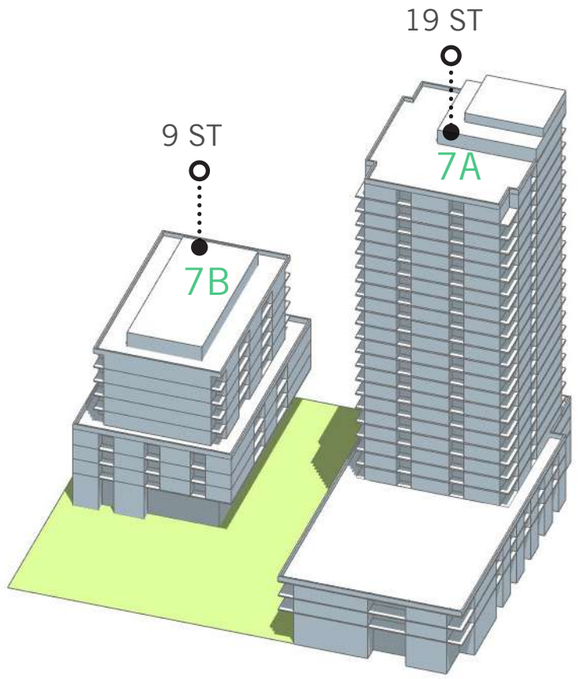
Statistics Summary

Gross Floor Area	31,588 m2
Building 7A	2 1,726 m2
Building 7B	9,862 m2
Residential Units	316 units
Parking	255 spaces





District Key Plan & Axonometric



Block 7 - Building Massing



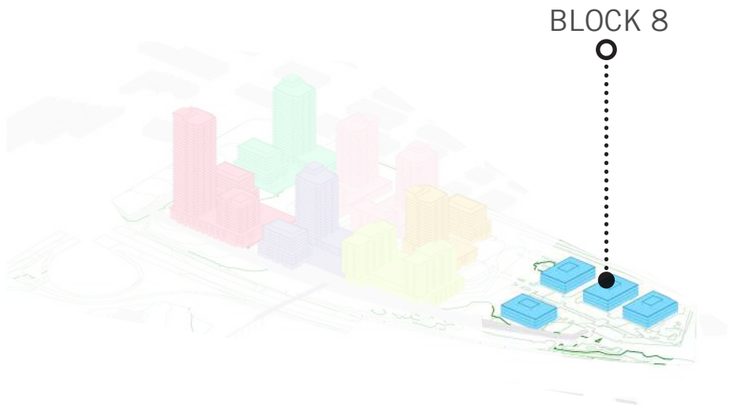
Rendered view looking north through the Hydro Corridor (ABA, 2021)

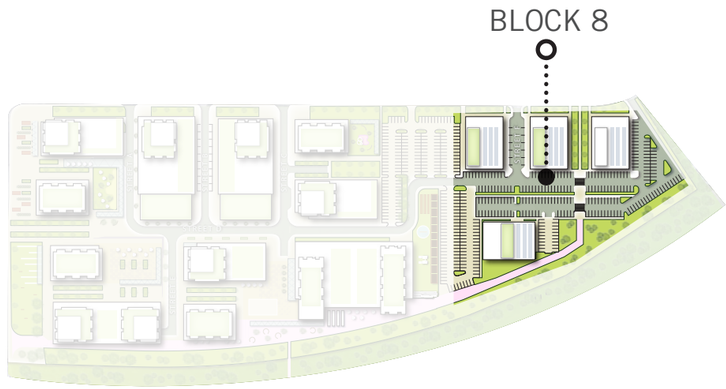
Block 8

Block 8 is situated at the southern edge of the District, with frontages along Conestogo Road and Street F. This block will consist of four mixed use buildings (all shown at 3 storeys). The three buildings frames the street edge at Conestogo and the fourth building is located interior to the Block. This block interfaces with the proposed Hydro Corridor open space and the southernmost portion of the Promenade. Parking for Block 8 is accommodated at-grade via surface parking.

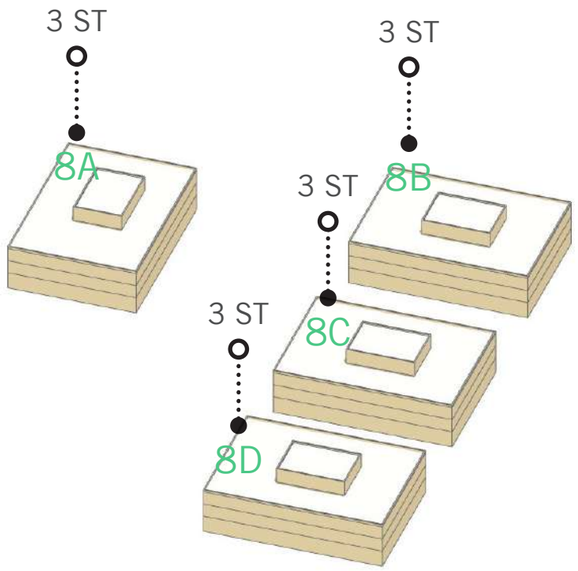
Statistics Summary

Gross Floor Area	18,216 m2
Building 8A	4 ,554 m2
Building 8B	4 ,554 m2
Building 8C	4 ,554 m2
Parking	511 spaces





District Key Plan & Axonometric

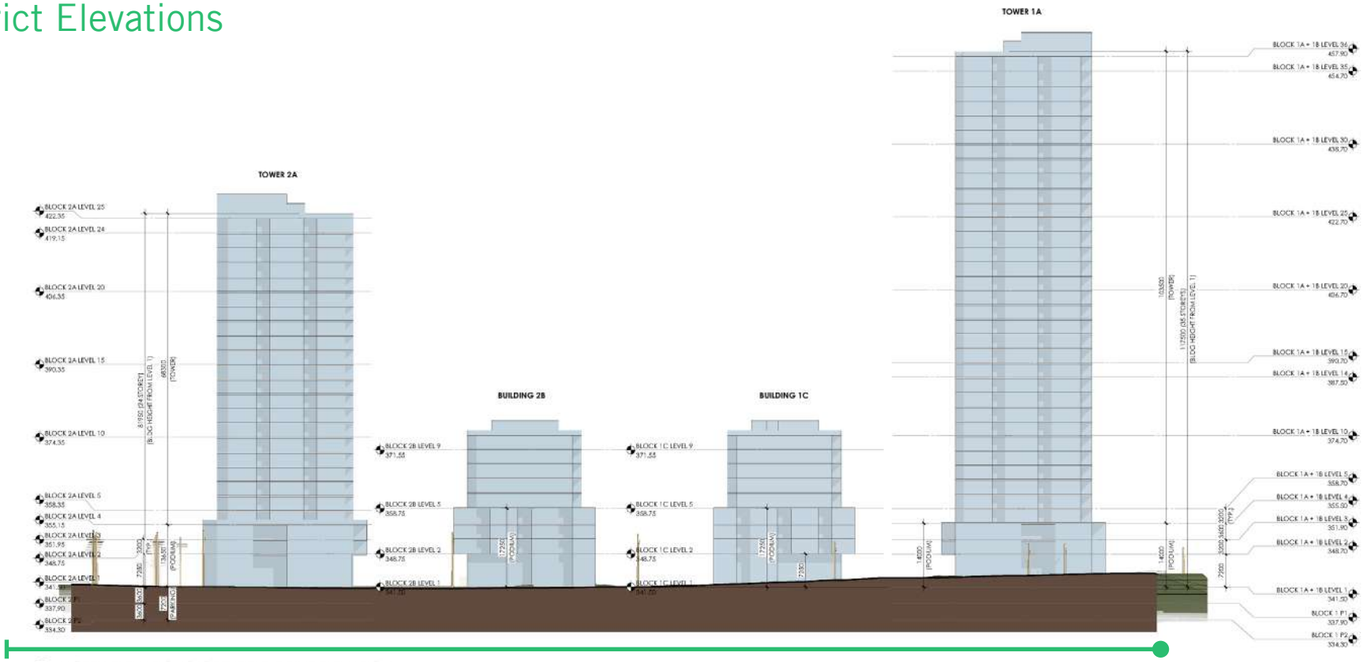


Block 8 - Building Massing

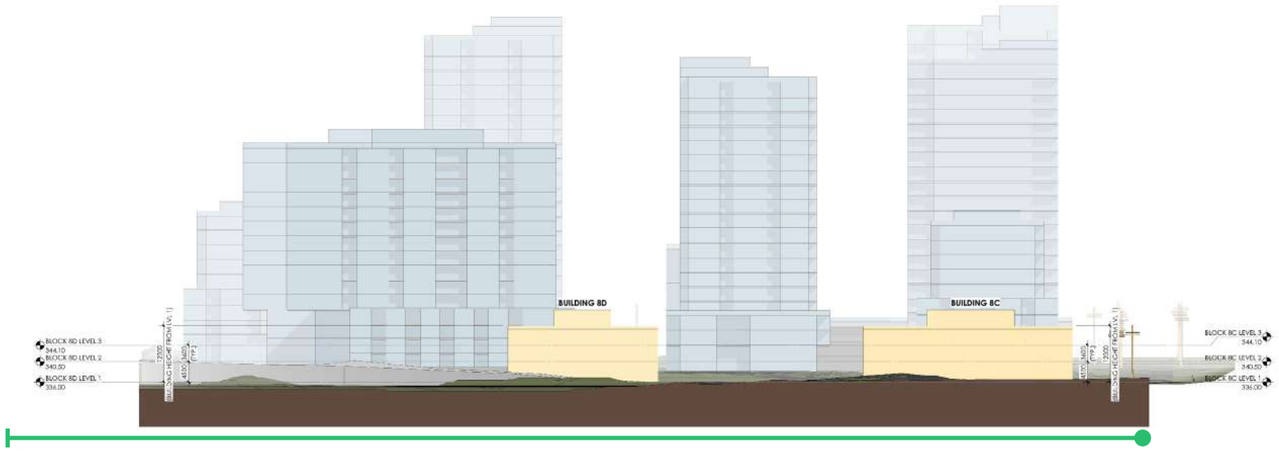


Rendered view looking north from southern property boundary (ABA, 2021)

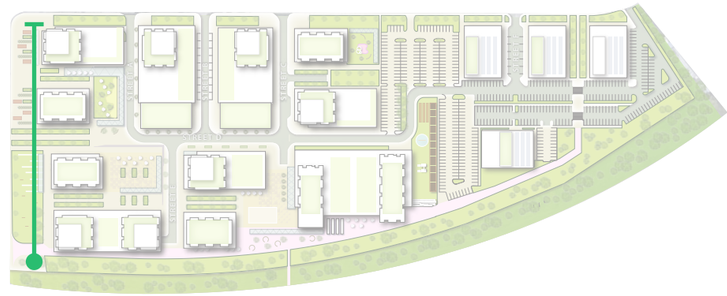
District Elevations

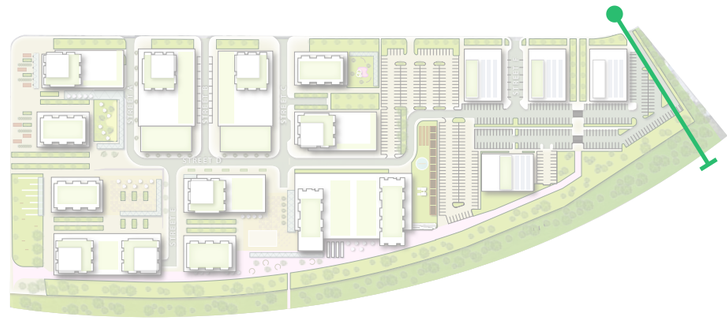


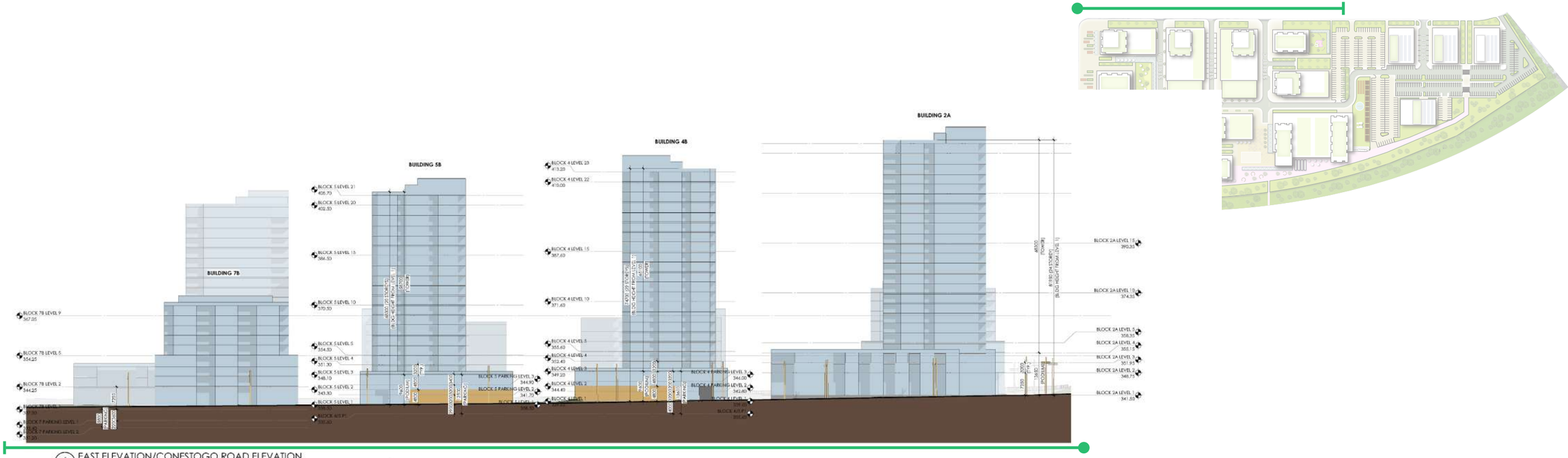
1 NORTH ELEVATION/NORTHFIELD DRIVE ELEVATION
1 : 500

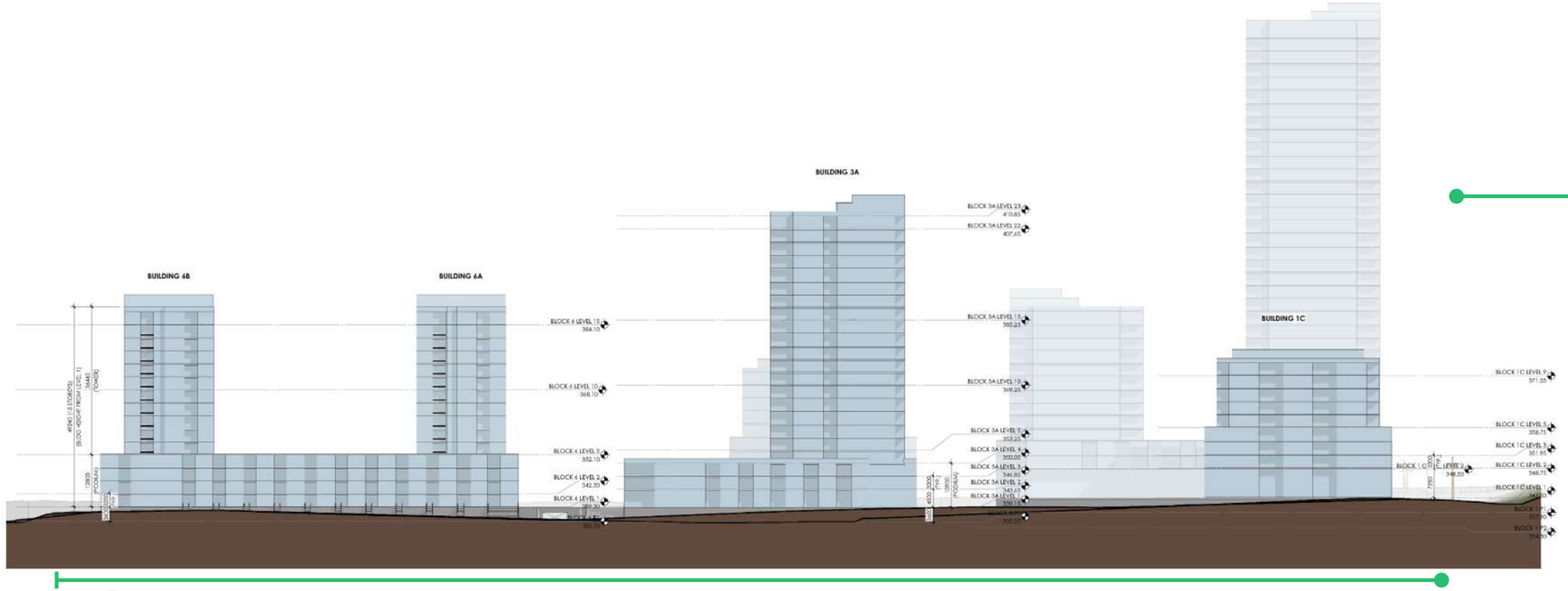


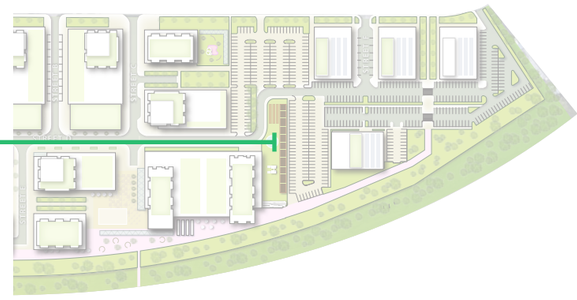
2 SOUTH ELEVATION/HYDRO CORRIDOR ELEVATION
1 : 500

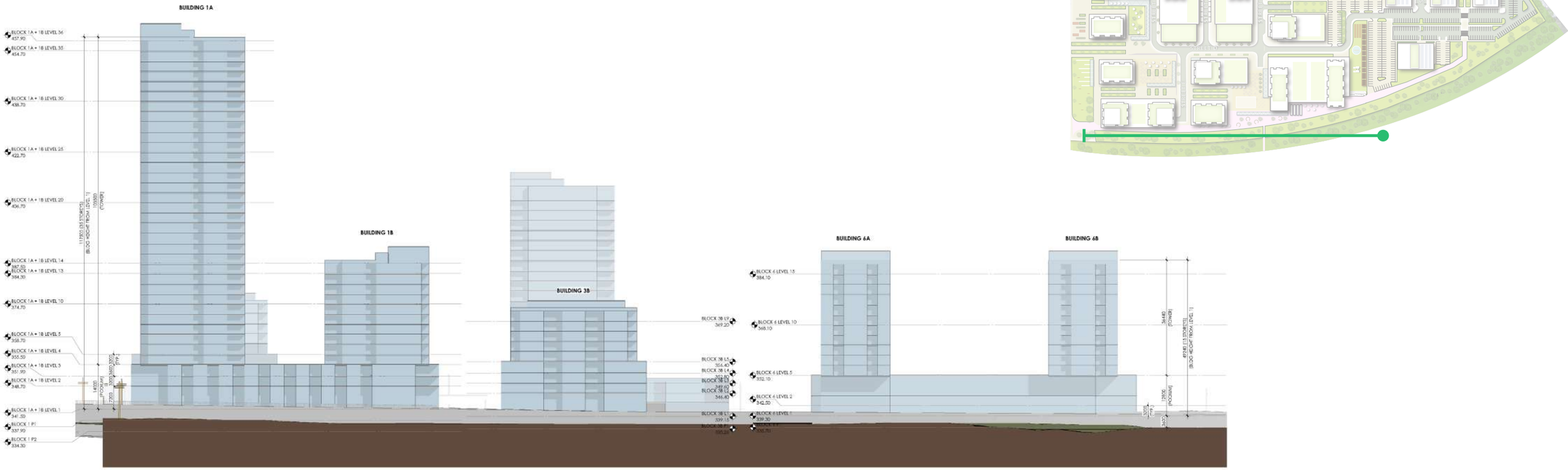




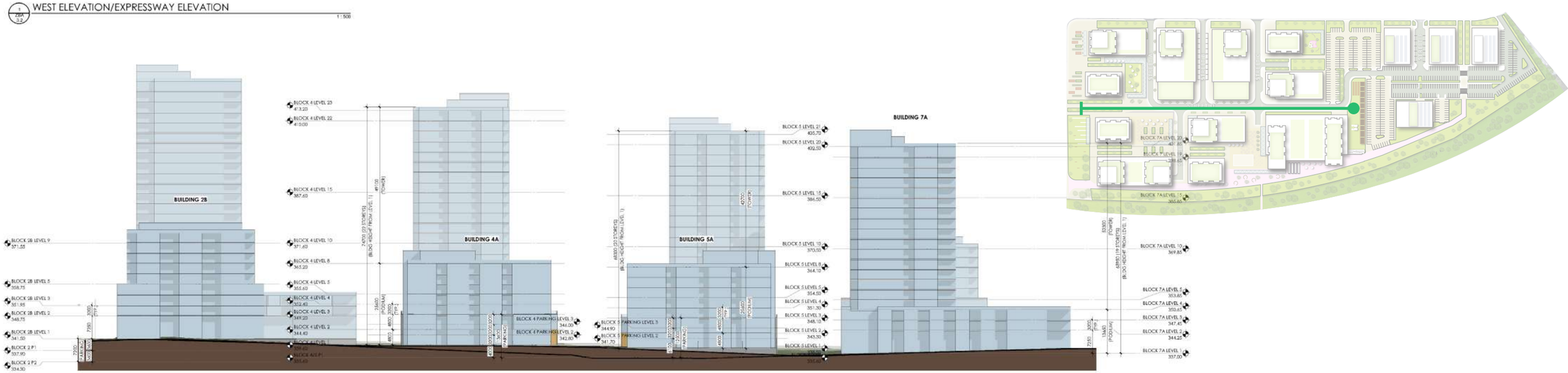

BUILDING 7B
BUILDING 5B
BUILDING 4B
BUILDING 2A
BLOCK 7B LEVEL 9
367.05
BLOCK 7B LEVEL 5
354.25
BLOCK 7B LEVEL 2
344.25
BLOCK 7 PARKING LEVEL 1
BLOCK 7 PARKING LEVEL 2
BLOCK 5 LEVEL 21
408.70
BLOCK 5 LEVEL 20
402.50
BLOCK 5 LEVEL 15
384.50
BLOCK 5 LEVEL 10
370.50
BLOCK 5 LEVEL 5
354.30
BLOCK 5 LEVEL 4
351.30
BLOCK 5 LEVEL 3
348.10
BLOCK 5 LEVEL 2
343.30
BLOCK 5 LEVEL 1
338.30
BLOCK 5 LEVEL P1
335.80
BLOCK 4 LEVEL 23
413.20
BLOCK 4 LEVEL 22
410.00
BLOCK 4 LEVEL 15
387.60
BLOCK 4 LEVEL 10
371.60
BLOCK 4 LEVEL 5
355.60
BLOCK 4 LEVEL 4
352.40
BLOCK 4 LEVEL 3
349.20
BLOCK 4 LEVEL 2
344.40
BLOCK 4 LEVEL 1
341.75
BLOCK 4 PARKING LEVEL 3
344.00
BLOCK 4 PARKING LEVEL 2
342.80
BLOCK 4 LEVEL P1
339.40
BLOCK 2A LEVEL 15
390.30
BLOCK 2A LEVEL 10
374.35
BLOCK 2A LEVEL 5
358.35
BLOCK 2A LEVEL 4
355.15
BLOCK 2A LEVEL 3
351.95
BLOCK 2A LEVEL 2
348.75
BLOCK 2A LEVEL 1
341.50
EAST ELEVATION/CONESTOGO ROAD ELEVATION
1 : 500


BUILDING 6B
BUILDING 6A
BUILDING 3A
BUILDING 1C
BLOCK 6 LEVEL 15
384.10
BLOCK 6 LEVEL 10
368.10
BLOCK 6 LEVEL 5
352.10
BLOCK 6 LEVEL 2
342.50
BLOCK 6 LEVEL 1
339.30
BLOCK 3A LEVEL 23
410.85
BLOCK 3A LEVEL 22
407.65
BLOCK 3A LEVEL 15
388.25
BLOCK 3A LEVEL 10
369.25
BLOCK 3A LEVEL 5
353.25
BLOCK 3A LEVEL 4
350.05
BLOCK 3A LEVEL 3
346.80
BLOCK 3A LEVEL 2
343.45
BLOCK 1C LEVEL 9
371.55
BLOCK 1C LEVEL 5
358.75
BLOCK 1C LEVEL 3
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BLOCK 1C LEVEL 2
348.75
BLOCK 1C LEVEL 1
345.55
EAST ELEVATION/STREET D ELEVATION
1 : 500

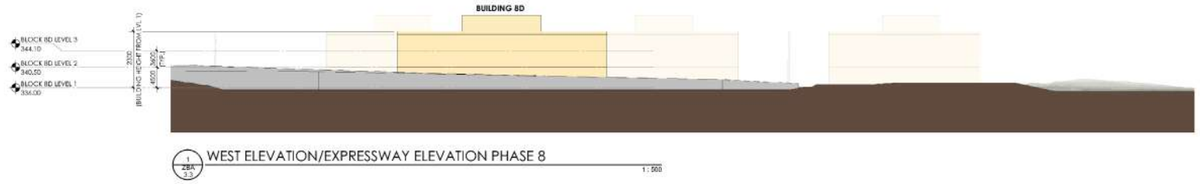




1 WEST ELEVATION/EXPRESSWAY ELEVATION
28X 3-2 1 : 500

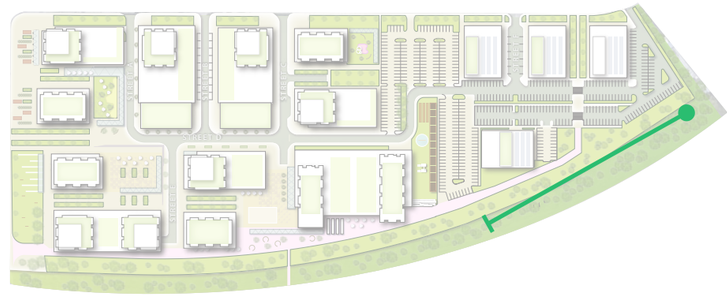


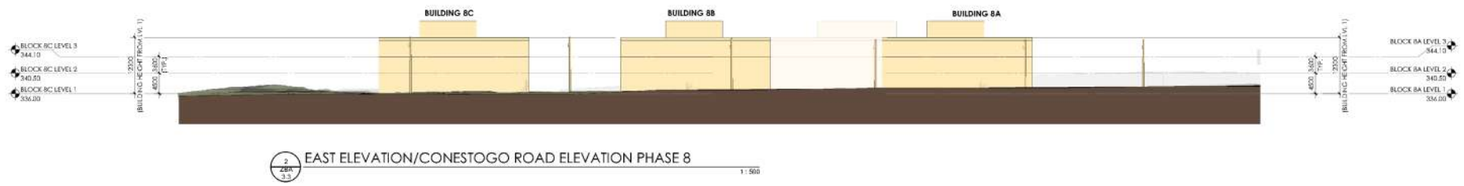
2 WEST ELEVATION/STREET D ELEVATION
28X 3-2 1 : 500



1 / ZBA 3.2 WEST ELEVATION/EXPRESSWAY ELEVATION PHASE 8

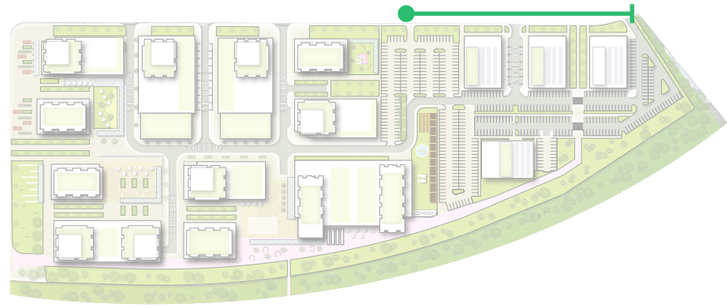
1 : 500





2 / ZBA 3.3 EAST ELEVATION/CONESTOGO ROAD ELEVATION PHASE 8

1 : 500



3.3 Public Realm Master Plan

A high quality public realm is an important component of transit oriented design. Streetscapes are proposed to be active through the inclusion of ground floor commercial uses or street-accessible residential units. In addition, courtyards are proposed in all blocks to provide space for active and passive recreation for residents and visitors. The open space network is proposed to be connected through a series of walking paths through the blocks.















Rendered view looking south from Northfield Drive
(ABA, 2020)

3.3.1 Gateways

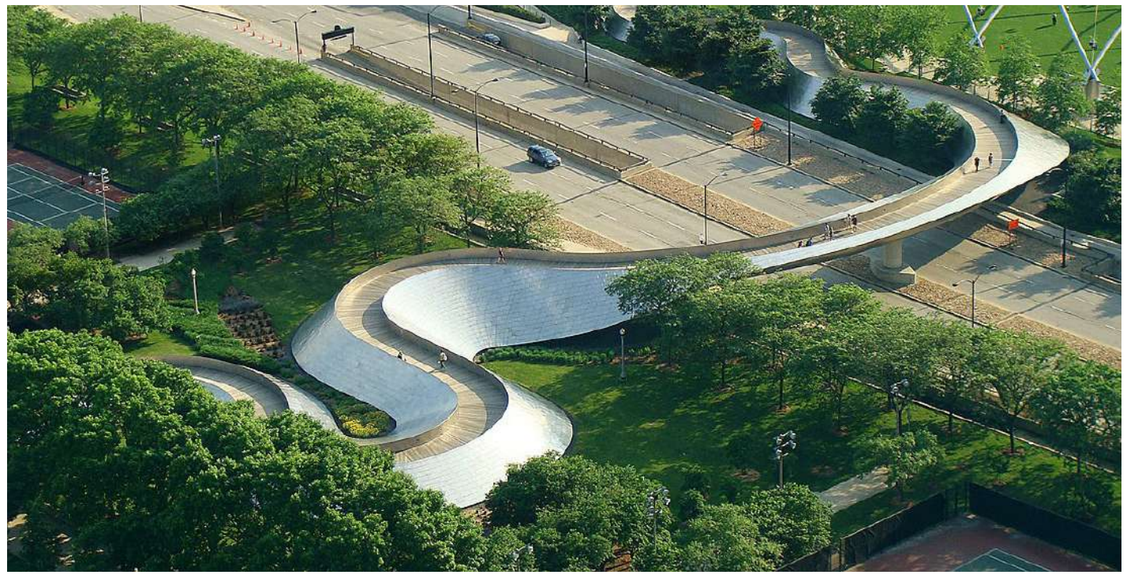
Gateways provide visitors with a formal point of arrival, by framing the various entrances into the neighbourhood and offering a preliminary sense of the character of the area. The Kraus District is accessed from several points from the surrounding community. Each entrance functions as a unique access into the District for pedestrians, cyclists and vehicles. The character of each of these gateways varies through the provision of signage, built form and landscape that frame sight lines and approach into the neighbourhood.

Opportunities to establish a hierarchy of gateway treatments and consistent approach on how gateway elements are applied to the main entrances of the neighbourhood will assist the Kraus District in creating and emphasizing a sense of arrival. General Gateway Guidelines include:

- Repetition of materials and signage
- Wayfinding elements provided to orient pedestrians upon arrival
- Seating opportunities
- Delineation of pedestrian and vehicular uses (where combined gateways)
- Scale of gateways appropriate for function and volume of use

There are three primary points of entry to the Kraus District:

- North-East Gateway
- East Gateway
- West Gateway





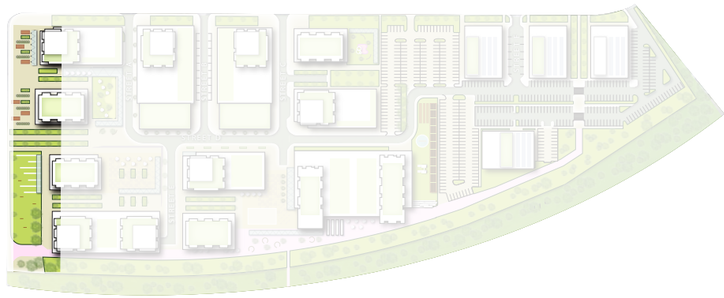
North-East Gateway

Revitalized Streetscape – Access from Northfield Drive – Landscape Plaza on Northfield

Access to the Kraus District from Northfield Drive W will be primarily from the NE corner of the site, from the intersection of Northfield Drive W and Conestogo Road. The Northfield Dr W elevation gradually slopes down from west to east, after overpassing the Conestogo Pkwy. There is a significant grade change at the NW corner of the site of approximately 6m, that renders direct access from the NW more challenging.

The North-East Gateway will be the primary point of access for those arriving on foot or on bike from the Northfield LRT Station – approximately 400 m (5 min) walk along Northfield Drive. The North-East Gateway will also be the primary point of arrival to the Kraus District for any of the adjacent businesses across Northfield Drive West along Colby Drive, as well as for anyone arriving on site from King Street North.

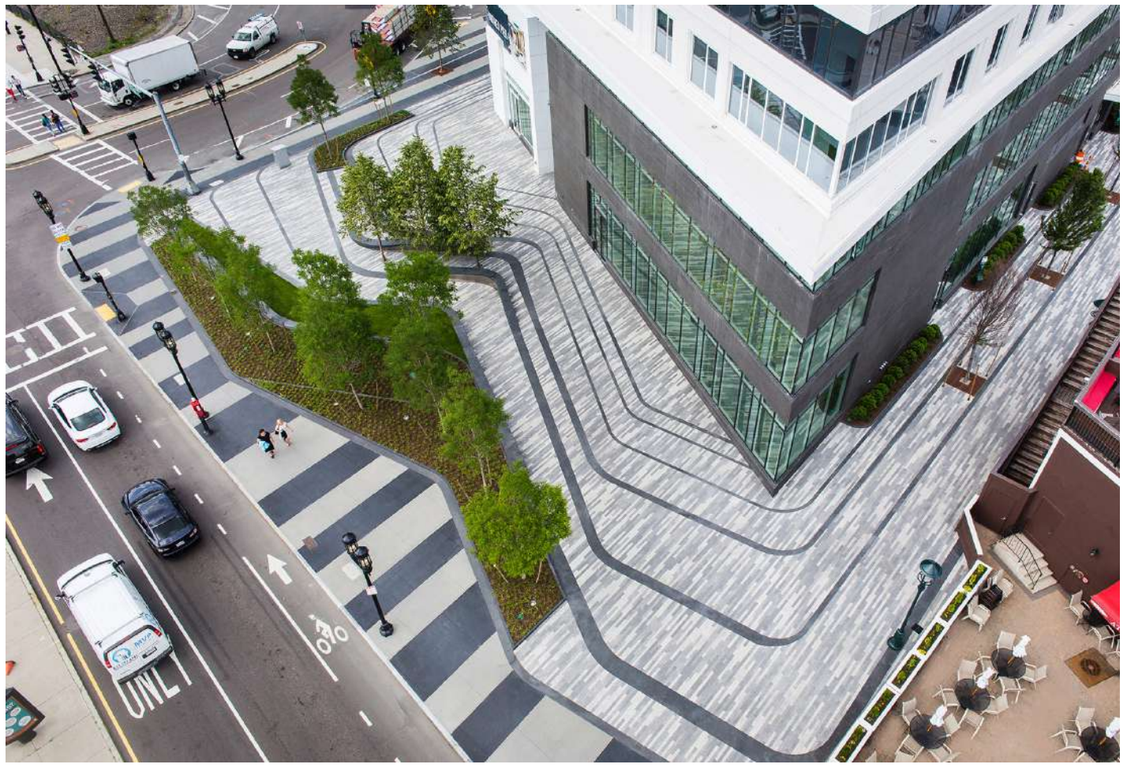
The signalized intersection at Northfield Drive West & Colby Drive / Conestogo Road, also render this area as one of the primary points for vehicular, pedestrian, and cycling access.





Rendered view looking south from Northfield Drive
(ABA, 2020)





Design Guidance

- Primary commercial and office buildings framing the North-East Gateway have the potential to become recognizable markers for the District with clear signage, transparent and active storefronts, offering high visibility and transparency of the building's programme at grade.
- Active interior programming at grade will further be supported by the generous open space programming along Northfield Drive W – i.e. - Landscape Plaza on Northfield and Revitalized Streetscape.
- Opportunity to include Public Art elements at this location as visible markers for the entrance to the Kraus District and the Northfield Landscape Plaza.



Rendered view looking south east from Northfield Drive (ABA, 2020)

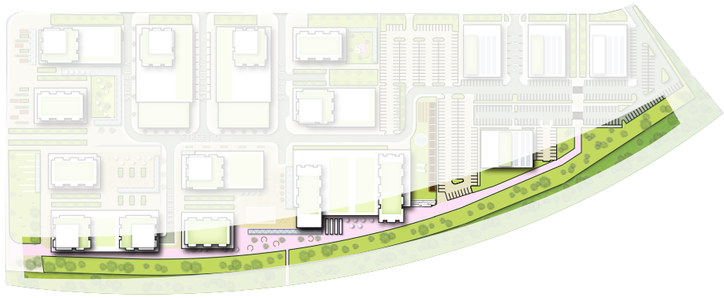
West Gateway

Bridge Connection to Northfield Station and Trail System (Pedestrian + Cycling Use) and Raised Promenade

The West Gateway offers access from the west via the newly proposed pedestrian bridge. A pedestrian connection from the Northfield LRT Station, traverses the area north of the existing ION LRT Operation Maintenance Facility, and then links to a proposed bridge connection over the Conestogo Parkway, landing adjacent to Block 3 of the Kraus District, onto the proposed elevated Promenade.

At a larger scale, this gateway would also be the point of access for pedestrians or cyclists coming from the south, along the Laurel Trail, connecting to Wes Graham Way and Parkside Drive.

The bridge itself has the potential to be a landmark structure, extending the presence of the Kraus District beyond the District's physical boundaries. The landing connection to the proposed Pedestrian Promenade is a key Gateway into the District. Located at a higher elevation than the District's street level, this entryway offers an overall bird's eye view of the entire District and surrounding area upon arrival.





Rendered view looking east along pedestrian promenade (ABA, 2020)



Rendered view along pedestrian promenade (ABA, 2020)

Design Guidance

- Integrate signage, wayfinding, key landscaping features, as well as vertical gateway markers at the foot of the proposed pedestrian bridge that enhances' the District's visual identity.
- Enhance active programming at grade for the proposed Block 3 office and retail buildings that frame the edges of the Raised Promenade plaza at this location.
- Create opportunities for connectivity and ease of passage, as well as opportunities for people to stop and engage with the plaza through furnishings, plantings, enhanced micro climate areas.
- Incorporate signage / District branding elements (colours, materials), public art components on the bridge structure to further enhance and signal the presence of the District from below, along Conestogo Parkway.

Additionally, the Ministry of Transportation has advised the pedestrian-bridge connection should be:

- Designed in such a way as to not restrict future expansion of Highway 85;
- Placed at the location where will not block the view of overhead signs; and
- Designed, constructed and maintained under an encroachment agreement with the City of Waterloo or Region of Waterloo.



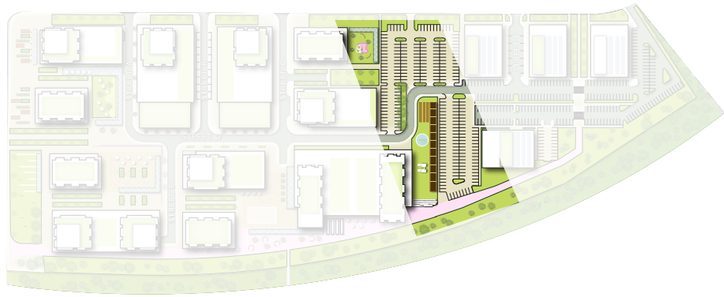
East Gateway

Re-imagined Hydro Corridor: Community + Recreation Uses and Connection to Conestogo Road and beyond to King Street North

The East Gateway offers direct access from King Street North, the Conestogo LRT Station and Conestogo Mall, as well as the industrial / business district east of the site, across Conestogo Road.

The Corridor will link the Kraus District to the future re-urbanized “Conestogo Triangle” east of the site, that will offer a mix of employment, commercial and residential uses, and improved street networks, enhancing access and connectivity to the area, as identified in the City of Waterloo Station Area Planning.

The Kraus District Master Plan proposes re-imagining the existing Hydro Corridor running from King Street North to Conestogo Parkway (and beyond, to Weber Street N), into a linear park and open space providing a series of amenities such as urban farming, community gardens, dog parks, outdoor recreation activities, as well as multi use trails. The approximately 45m wide landscape buffer fronting Conestogo Road becomes a highly visible and inviting point of entry into the Kraus District for pedestrians and cyclists.





Rendered view of re-imagined Hydro Corridor (ABA, 2021)



Design Guidance

Enhance the character of the Hydro Corridor entry area through enhanced landscaping features:

- Provide shade and visual interest to the area while also applying Hydro Corridor restrictions on plant species within the Hydro Corridor easement to protect transmission lines.
- Consider introducing resilient native species from the Forwell Creek area, as well as drought resistant planting.
- Include wayfinding features to direct pedestrian and cycling users through the Kraus District.
- Create visual connections to building entrances and programming related to the corridor for adjacent Blocks 7 and 6 (to the north of the corridor) and Block 8 buildings (to the south of the Corridor).





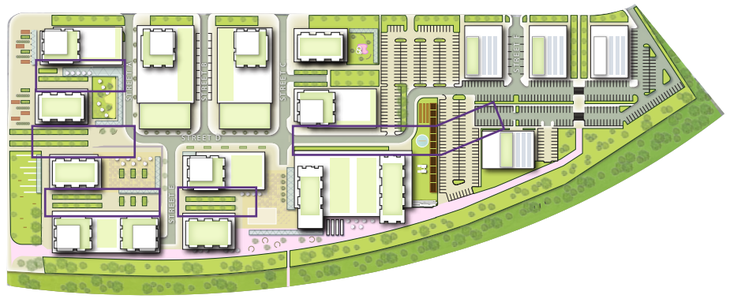
3.3.2 Circulation Corridors

The network of roadways servicing the Kraus District provides access for motorists, transit, and service vehicles across the site. The two primary access corridors - Northfield Drive and Conestogo Road, have been historically oriented towards vehicular use. However, recent active transportation measures such as dedicated bikeways along Northfield Drive and future plans for an extended bike network along Conestogo Road, between Northfield Drive and King Street North – indicate an effort to increasingly prioritize pedestrian movement, connectivity and safety in the area.

The recommendations within this section will focus on the opportunities for enhancements of the character and composition of these existing primary circulation corridors as well as focus on active transportation strategies and a complete streets approach throughout the entire site. These recommendations will support the overall initiative to create a pedestrian centered circulation which contributes to an attractive, interesting, and safe open space network for the entire neighbourhood.

Streetscape Character (as per the City of Waterloo Urban Design Manual) is “largely defined by the elements located in the public right-of way, as well as, the architectural design of building facades and front yard landscaping treatment in the public realm” (3.1.1 Streetscape Guidelines (public realm) – p.54)

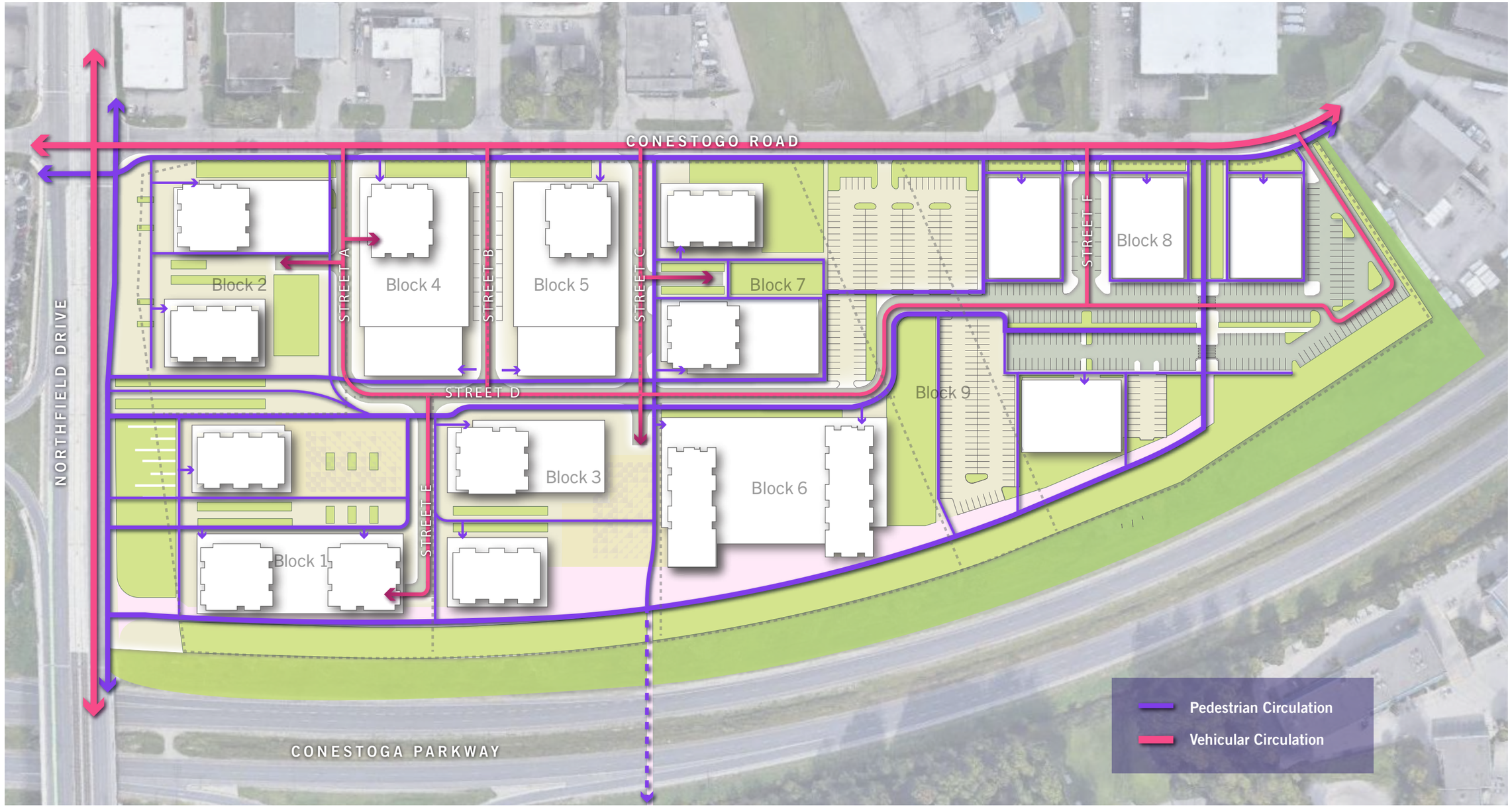
Throughout the District, a Low Impact Development (LID) approach to streetscape design should be adopted, including use of stormwater retention features (swales, rain gardens, etc) wherever possible, increased site permeability through reduced use of impervious hardscape surfaces, as well as by promoting enhanced bio diverse landscape buffers between building and streets that allow water to infiltrate, store and detain runoff locally.





Rendered view of the Central Spine road
(ABA, 2020)

Detailed Circulation



Northfield Drive

The Kraus District has high visibility along Northfield Dr W (Regional Road No.50), one of the primary EW arteries within the City of Waterloo, with over 200m of street frontage. To the west, Northfield Dr W links the Kraus District to the Lakeshore North / Conservation and Lakeshore neighbourhoods, as well as with the Laurel Creek Conservation Area, a 294 hectare park just 3.2km west of the site. To the east, it connects the District to King Street North, Conestogo Mall, as well as the Northland and Lincoln neighbourhoods.

Northfield Dr W accommodates LRT tracks circulating in both directions, to and from Northfield ION station and the Conestogo ION station, the northern terminus of the LRT corridor. In addition to the central LRT tracks, the ROW also includes 2 lanes of vehicular traffic, on street painted bike lanes and sidewalks, on both sides of the street. On and off ramps to the Conestogo Pkwy below branch off Northfield Dr W at this location as well, adding complexity to navigating the area as a pedestrian or cyclist.

The Kraus District property line along Northfield Dr W runs oblique to the street, creating a generous angular portion of open space along this edge. Further more, there is a 5.0m streetline set back at this location, with building frontages step backs ranging from approximately 25 to 35m from the edge of the municipal sidewalk along Northfield Dr W. The Kraus District Master Plan proposes a series of hardscape and softscape improvements along this area, creating a ‘Landscape Plaza on Northfield’, a welcoming forecourt to the entire development. The landscape improvements along Northfield Dr W also mediate the approximately 6m gradual grade change from street level, as the Northfield Dr W elevation gradually slopes down from west to east, after overpassing the Conestogo Pkwy.

Commercial, office and residential entrances further animate these open spaces, activating the entire Northfield Dr W frontage.

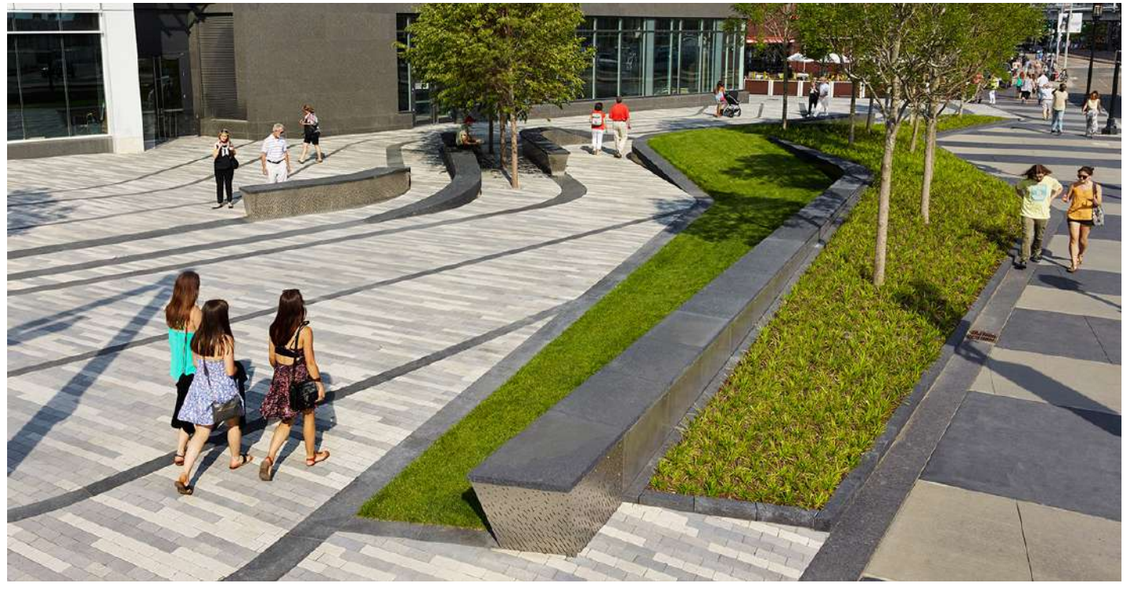




Rendered view looking south from Northfield Drive (ABA, 2020)

Design Guidance

- Incorporate sustainable design features to landscaped areas to reduce stormwater runoffs; reduce heat island effects and provide enhanced microclimate conditions such as protection from wind, noise, road pollutants, etc.
- Encourage use of special landscaping and paving materials, along with pedestrian-scale lighting and seating to create a comfortable pedestrian, human scale environment along the street frontage.
- Consider allowing for sufficient soil depth provisions above the finished parking garage's roof line below the plazas, in order to be able to accommodate tree plantings, vegetation.
- Encourage use of awnings, canopies, overhangs, colonnades within building form to improve human comfort and microclimatic conditions along the street.
- Consider enhanced boulevard planting along Northfield Drive and improved sidewalk and bike lane connections, in order to promote pedestrian safety and a safer walking environment to and from the adjacent Northfield and Conestogo ION stations.



Conestogo Road

Conestogo Road is currently entirely vehicular in character with no pedestrian access routes available (such as sidewalks), and minimal street tree canopy competing with overhead utility lines. Enhanced streetscape improvements along the Conestogo Road frontage including plantings, landscape treatments, and new sidewalks can substantially soften the existing industrial character of the street.

Conestogo Road will also link the Kraus District to the future re-urbanized “Conestogo Triangle” east of the site, that will offer a mix of employment, commercial and residential uses, and improved street networks, enhancing access and connectivity to the area, as identified in the City of Waterloo Station Area Planning.

The proposed Kraus District Master Plan envisions a series of commercial and residential buildings along the Conestogo Road over 550 m street frontage. A minimum 5m streetline setback is applied along the street frontage creating opportunities for improved streetscape elements to be implemented along this corridor. The significant above and below grade hydro infrastructure along this corridor will need to be accommodated as part of any proposed streetscape improvement plans.





Rendered view looking west
(ABA, 2020)

Design Guidance

- Enhance character of the street through pedestrian enhancements, such as generous sidewalks, tree plantings where gaps occur in the existing canopy coverage, as well as pedestrian scaled lighting elements.
- Integrate bike lanes on both sides of the roadway to allow for active transportation access to the District and adjacent businesses and industries.
- Offer protection from unpleasant sensory experiences, such as wind, rain, snow, etc, through extended building elements – canopies, articulated facades, etc., whenever possible.
- For streets with grade related residential units provide landscape setbacks (3m minimum from front property line) and small grade changes to mark transition from the public sidewalk to the private residential units; filter and screen views into private dwellings with landscaping buffers, while ensuring a degree of transparency and views to the street are maintained to offer natural surveillance.



North-South Corridors

Central Spine – Pedestrian Promenade – Street D - Northfield Drive to Block 9

The Kraus District Central Spine is a pedestrian priority street lined primarily with commercial activity that runs for approximately 300m through the center of the District, linking the north end of the site at Northfield Dr W to the Hydro Corridor and beyond, to the Block 8 section of the development.

Vehicular access is only available in the central portion of the Spine, linking into the ‘Central Loop’ that offers pedestrian and vehicular access to and from Conestogo Road.

The 20m ROW central thoroughfare is lined primarily with commercial storefronts, cafés, and office spaces at the northern and central sections of the Spine, as well as with at grade residential units as it approaches the re-imagined Hydro Corridor section of the District. The Central Spine is envisioned as a high-quality pedestrian-scaled environment to shop, dine, relax and play. It also links together a series of internal open spaces / plazas throughout the District.



Rendered view looking south along Central Spine
(ABA, 2020)



Rendered view along Central Spine
(ABA, 2020)

Design Guidance

- Incorporate features that distinguish the Central Spine as a primary pedestrian priority route, such as wider sidewalks, enhanced landscape treatment, decorative street furniture and pedestrian scale elements.
- Incorporate street trees within the generous central ‘landscape areas’ along the Central Spine to provide tree canopy coverage and improved microclimate and human comfort. Maximize opportunity to create tree-lined double canopy boulevards - Select low maintenance native tree plantings with emphasis on salt tolerant and drought tolerant properties. (3.1.1 Streetscape Guidelines (public realm) – p.54)
- Encourage double row tree planting where possible, and coordinate tree spacing in public and private realm to promote green streets.
- Capitalize on site topography (gradually sloping from north to south) and include passive storm water management & natural infiltration systems within the proposed NS street corridor network – swales, permeable surfaces, softscape).
- Animate street with active ground floor frontages – a mixture of large and small commercial units (approximately 6-10 doors per 100 m).
- Offer protection from unpleasant sensory experiences, such as wind, rain, snow, etc, through extended building elements – canopies, articulated facades, recessed entrances, etc.
- Create opportunities to sit, stand and stay along commercial frontages – such as street furniture, benches, supports for standing.
- Accessibility provisions at all crosswalk locations and curb ramps should be provided as per current AODA standards.
- Consider incorporating ‘Shared Streets’ aspects to the design of the Central Spine, by removing features such as curbs, lane markings, introducing enhanced finishes (paving).
- Adopt a Low Impact Development (LID) approach to streetscape design, including stormwater retention features, increased site permeability, reduced use of impervious surfaces, enhanced bio diverse landscape buffers between building and streets.

East-West Corridors

Streets A, B, C, E and F

Primary vehicular and service access to the Kraus District is provided through a central network of EW 20m wide ROW corridors, Streets A, B and C, linking the District to Conestogo Rd.

These EW corridors include typically 7.0m wide two way traffic lanes, lay-by parking, pedestrian boulevards, as well as pickup and drop off areas adjacent to residential entrances.

Programmatically, they are bordered by residential, commercial and office uses, as well as at grade parking structures integrated within the building massing.

Access to building parking garages, loading and services areas from secondary EW roads are optimized to minimize conflicts with pedestrian accessibility, with combined parking garage entrance for different towers and podiums within the block. Opportunities to integrate parking garage entrances within the building massing are strongly recommended wherever possible.



Rendered view of Central Spine driveway and plaza
(ABA, 2020)



Rendered view of Central Spine driveway
(ABA, 2020)

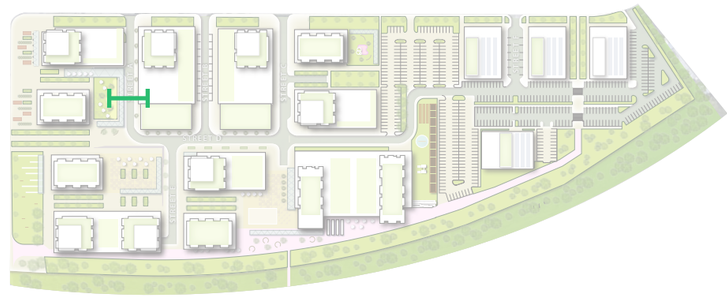
Design Guidance

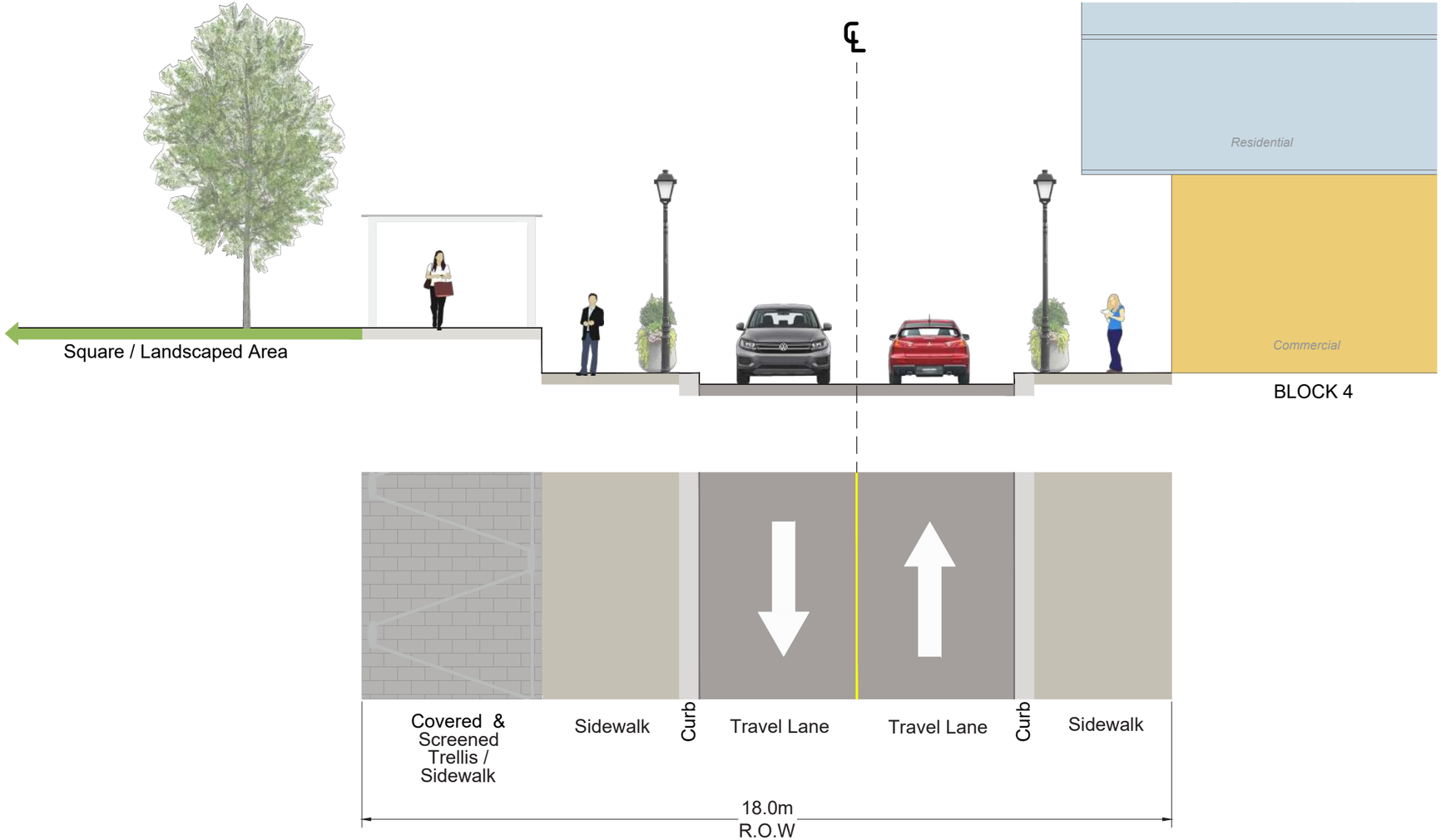
- Whenever possible, ‘back of house’ servicing, loading, utilities, underground access should be located within the building mass, rather than within the public realm. Free-standing vehicular ramps should be avoided.
- Minimize inactive facades and blank walls with no active street frontage – such as at grade parking functions that are not wrapped in programming. Whenever possible, increase visual interest through different parking screening options such as living walls, façade articulation.
- For streets with grade related residential units (such as Street B), provide landscape setbacks (3m minimum from front property line) and small grade changes to mark transition from the public sidewalk to the private residential units; filter and screen views into private dwellings with landscaping buffers, while ensuring a degree of transparency and views to the street are maintained to offer natural surveillance.
- Adopt a Low Impact Development (LID) approach to streetscape design, including stormwater retention features, increased site permeability, reduced use of impervious surfaces, enhanced bio diverse landscape buffers between building and streets.

References:

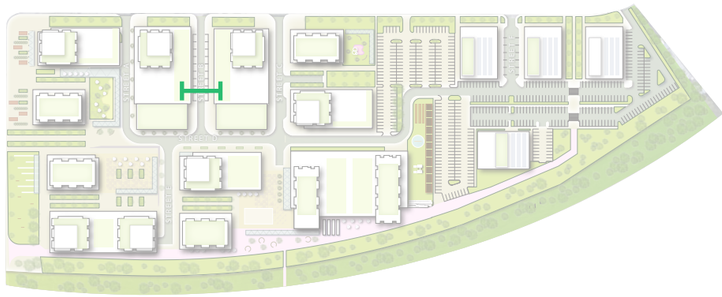
- Region of Waterloo Active Transportation Master Plan (2014)
- City of Waterloo Transportation Master Plan (2011)
- City of Waterloo Urban Design Guidelines

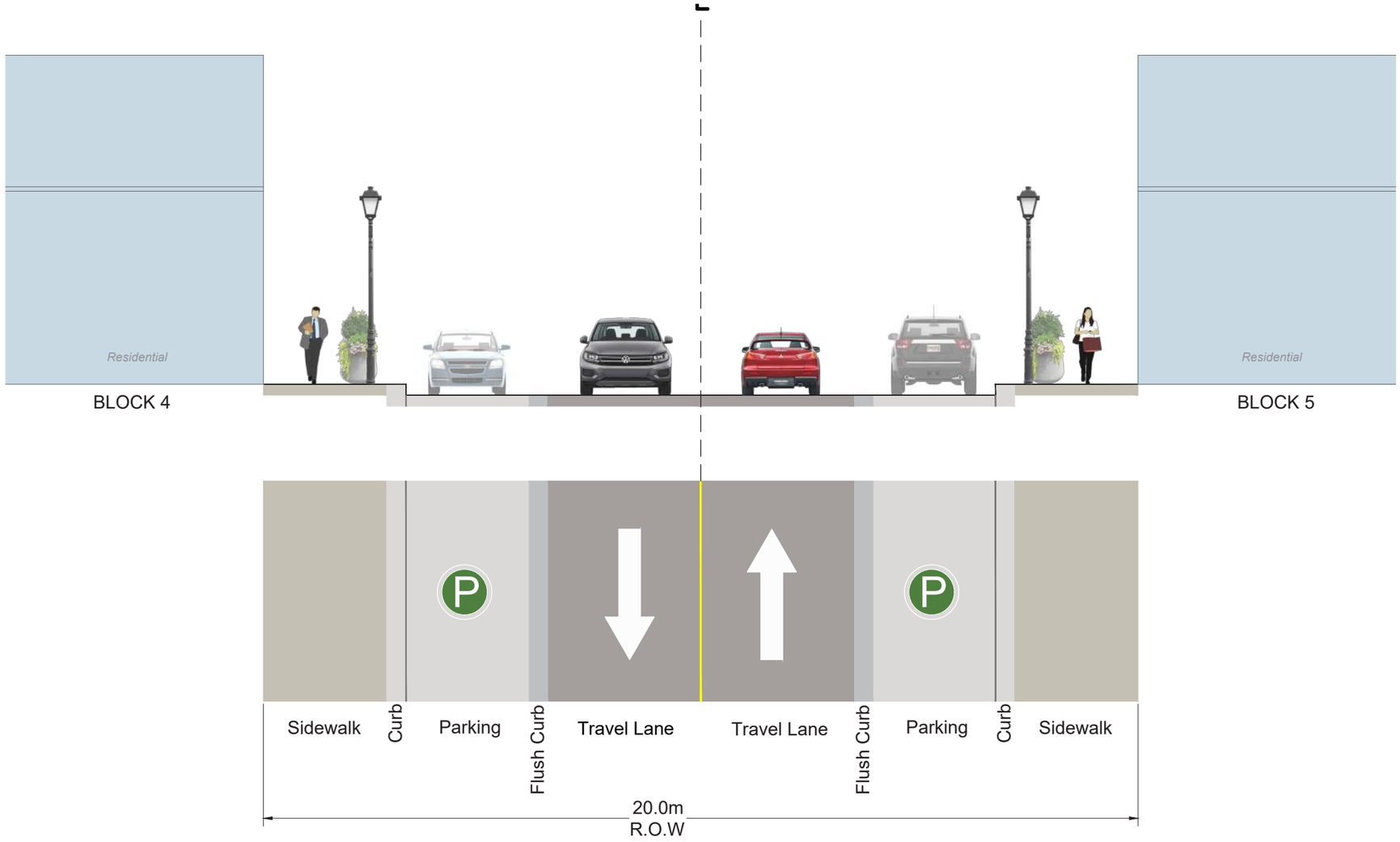
Street A Cross Section



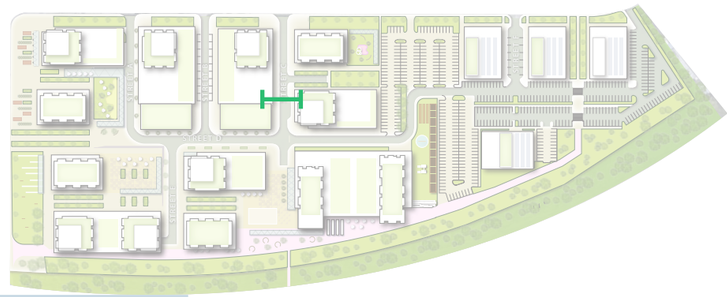


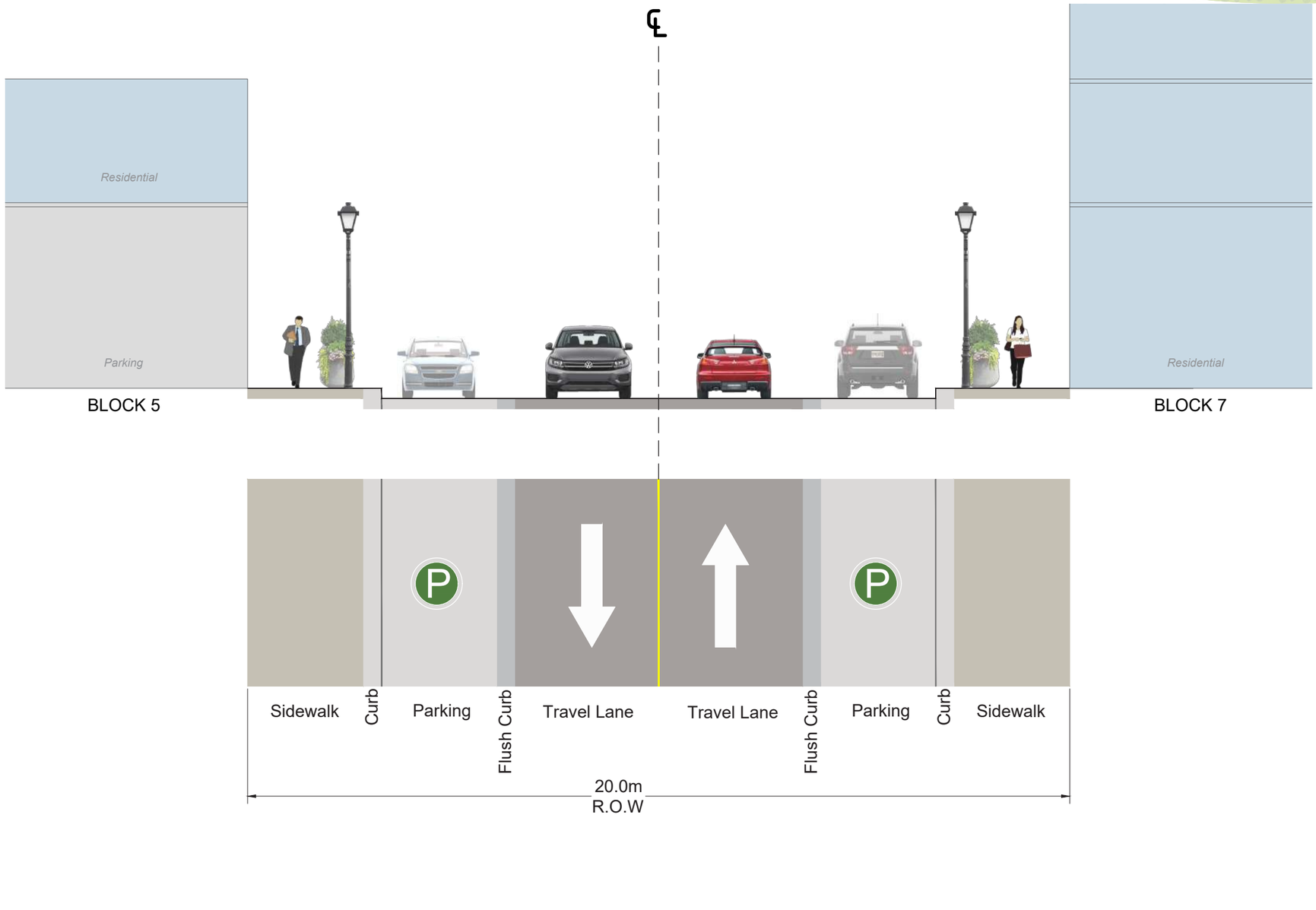
Street B Cross Section



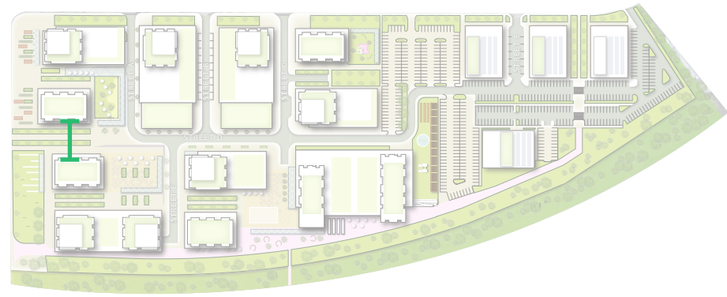


Street C Cross Section

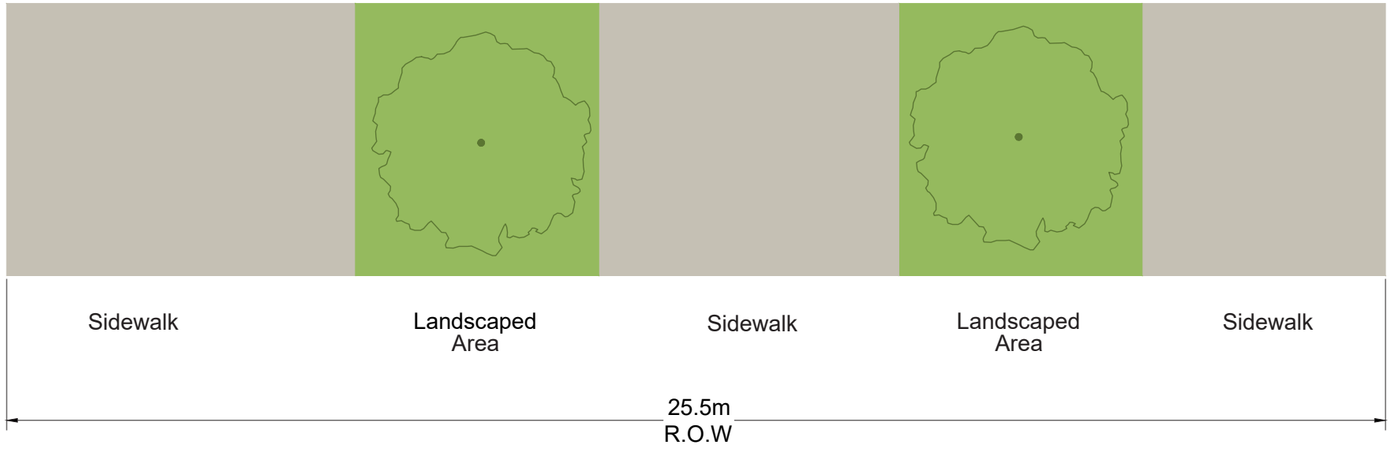




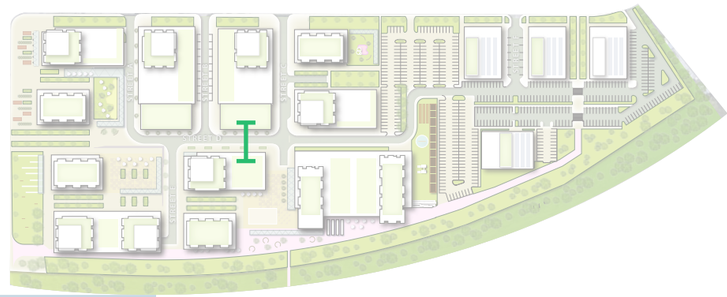
Pedestrian Corridor Cross Section

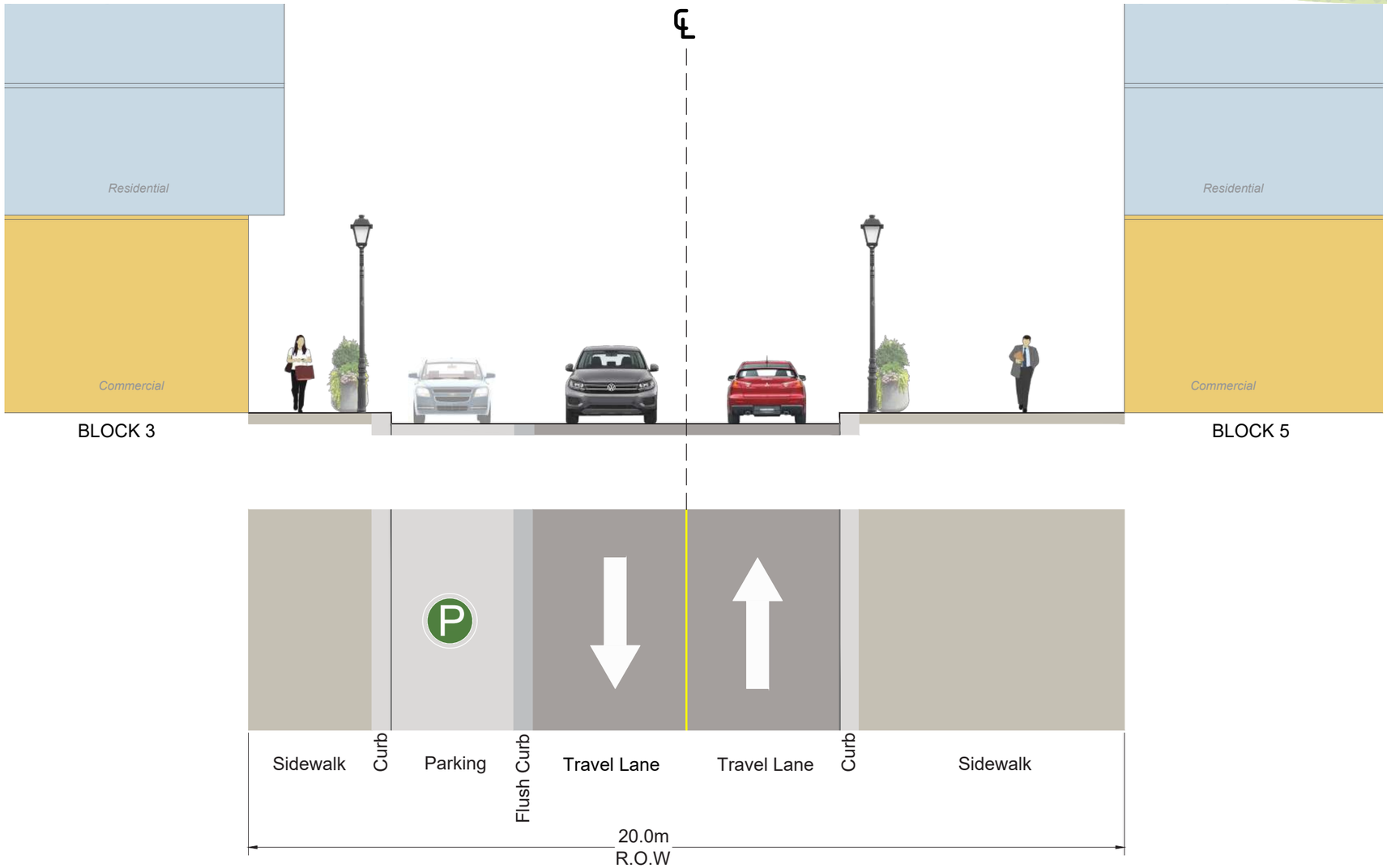




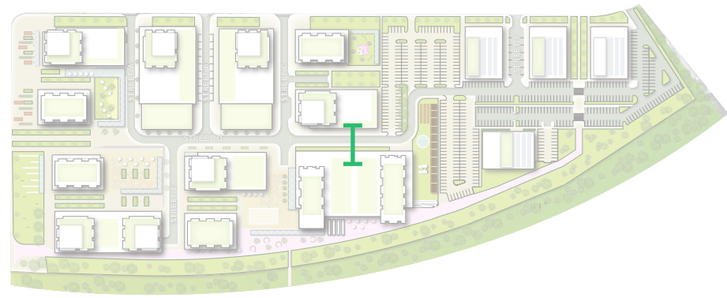


Street D Cross Section

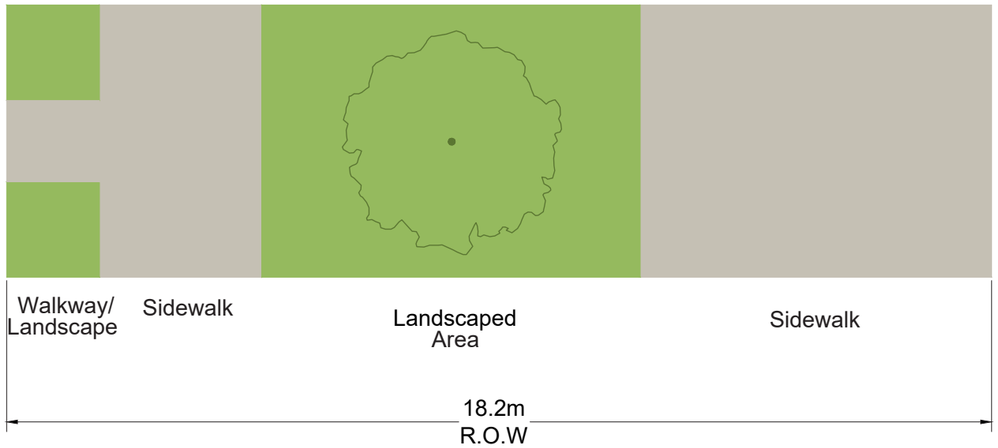




Pedestrian Corridor Cross Section

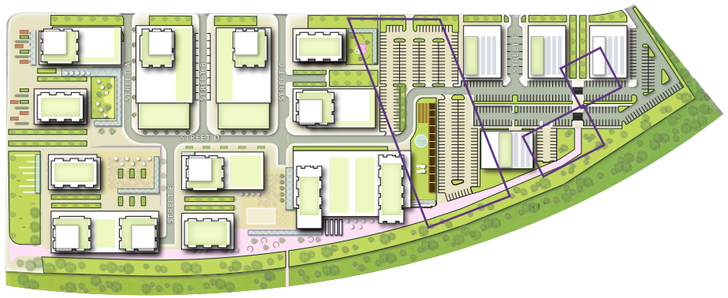


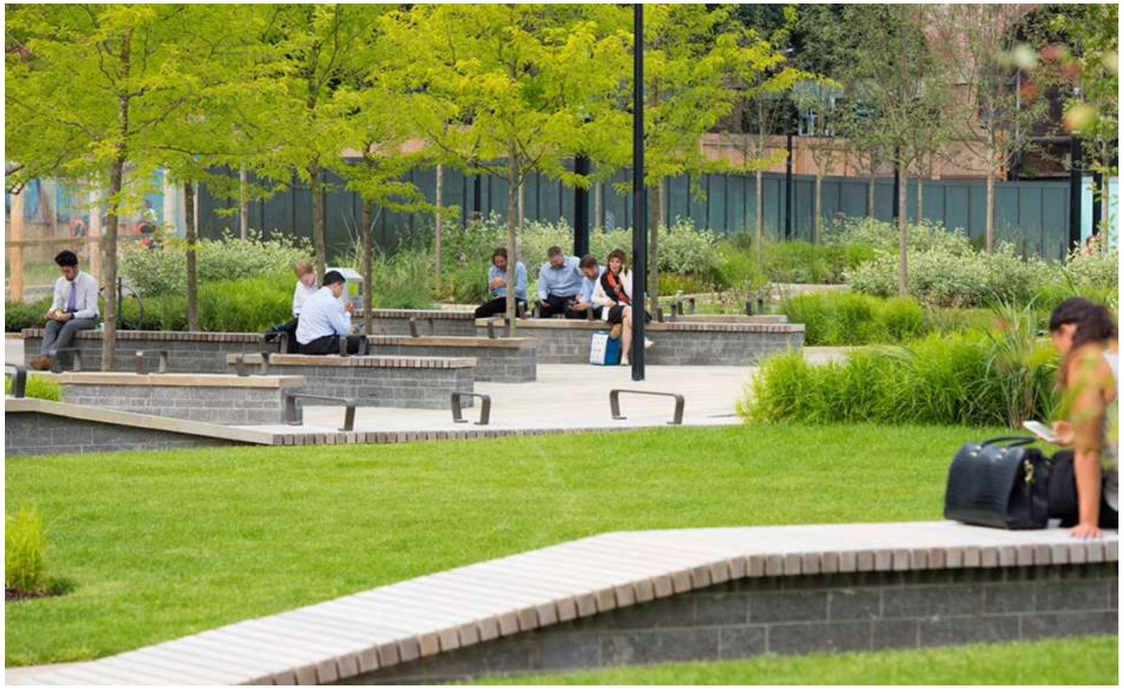




3.3.3 Parks and Open Spaces

The Kraus District Master Plan envisions two primary large open spaces serving the new residential and business communities in this area – 1) the Re-imagined Hydro Corridor – an approximately 7,800m2 linear park in the heart of the District; and 2) the proposed Raised Promenade – a linear, elevated urban park bordering the over 600 m District frontage along Conestogo Pkwy. These open spaces are very different in character and they serve the District and the larger communities in different ways. The Hydro Corridor fulfills outdoor recreational functions (such as urban farming, community gardens, outdoor recreation fields, etc.) and provides a critical green link between the District and the community at large; The Raised Promenade is a built up elevated park that relates more directly to the residential and commercial building functions that frame it.







Rendered view looking south east from Hydro Corridor
(ABA, 2021)

Hydro Corridor

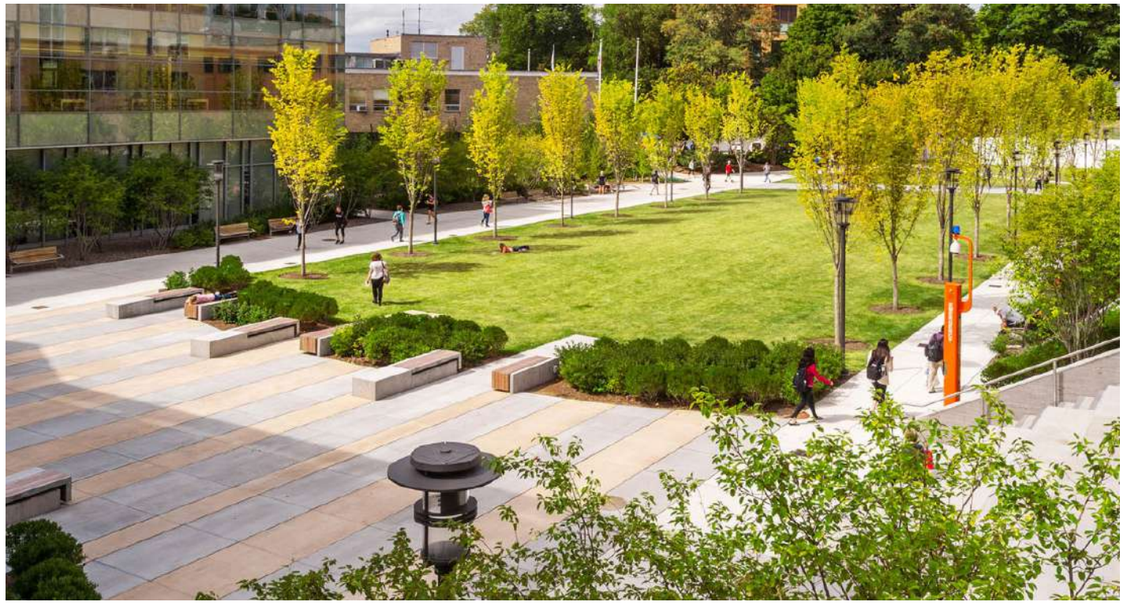
The Kraus District site is bisected by a Hydro corridor, containing both above grade and below grade infrastructure. According to the Functional Servicing & Stormwater Management Report prepared by WalterFedy for this submission, the hydro corridor is "entirely paved in its current state, while the site itself is estimated to be approximately 75% impervious." The Kraus District Master Plan proposes the existing Hydro Corridor running from King Street N to Conestogo Pkwy (and beyond, to Weber Street N), into surface parking lot with landscaped edges.

The approximately 45m wide and 175m long Re-imagined Hydro Corridor, traverses the District from east to west, from Conestogo Road to the proposed Raised Promenade.



Rendered view of Re-imagined Hydro Corridor
(ABA, 2021)





Design Guidance

Enhance the character of the Re-imagined Hydro Corridor through enhanced landscaping features:

- Locate surface parking behind or beside buildings, away from primary street frontages and street corners.
- Organize parking spaces and rows to provide consolidated soft landscaped areas and opportunity for on-site stormwater management
- Limit the length of parking rows and longer rows should include landscaped breaks, such as islands, with shade trees.
- Provide barrier free parking spaces in accordance with applicable disabled parking by-laws, using the City of Waterloo Accessibility Design Guidelines, where appropriate.
- Provide shade and visual interest to the area while also applying Hydro Corridor restrictions on plant species within the Hydro Corridor easement to protect transmission lines.
- Consider introducing resilient native species from the Forwell Creek area, drought resistant planting.
- Include wayfinding features to direct pedestrian and cycling users through the Kraus District.
- Create visual connections to building entrances and programming related to the corridor for adjacent Blocks 7 and 6 (to the north of the corridor) and Block 8 buildings (to the south of the Corridor).

Scenic Pedestrian Promenade

Elevated Linear Park and Circulation Corridor

The proposed Raised Promenade is elevated above the landscape and maintains a minimal footprint on the existing site and GRCA lands below whenever possible. Its profile ranges from 6.5m width at the south end of the site, to 8 – 10m wide as it borders the Block 6, 3 and 1 buildings, before descending upon the Landscape Plaza along Northfield Dr. W. Programmatically, it connects retail frontages, residential outdoor patios and amenity areas, as well as shared recreational spaces for the wider community use.

A 14.0m wide MTO setback along the western property line creates a generous separation from the busy Conestogo Pkwy corridor below. The Master Plan envisions this consolidated landscape buffer as a lush, ecologically diverse green corridor, including the proposed watercourse rehabilitation of the Forwell Creek tributary that traverses the site at this location. This area presents an opportunity for utilizing landscape as a remediation tool to reverse some of the pre-existing brownfield aspects of the site after former extensive industrial use, as described in the Environmental Site Assessment report.





Rendered view of Pedestrian Promenade along west property line (ABA, 2020)

Design Recommendations

- Maintain and enhance landscape buffer between Conestogo Pkwy and proposed Raised Promenade along the western edge of the Kraus District, such as existing mature trees, vegetation and wildlife on site.
- Consider introducing plants with phytoremediation properties, to reverse any pre-existing industrial infiltration on site. Encourage creating diverse landscape zones along the Raised Promenade landscape corridor such as – woodland and wetland zones, meadow areas with native plants and grasses, as well as native plant species from the Forwell Creek watershed ecosystem.
- Ensure accessibility to all users to the Raised Promenade from different points along the District – AODA compliance.



3.3.4 Plazas and POPs (Privately Owned Publicly Accessible Open Spaces)

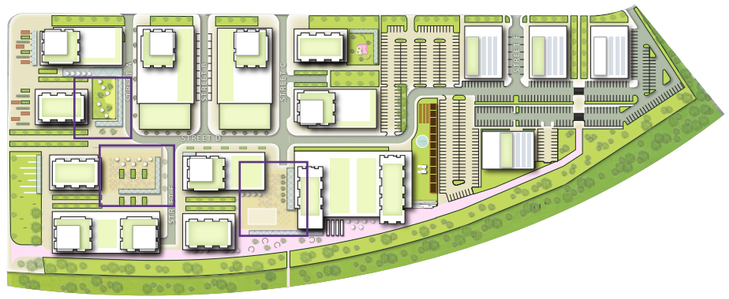
The Kraus District Master Plan proposes a series of interconnected outdoor rooms and terraced plazas that further complement and strengthen the pedestrian porosity of the District in conjunction with the proposed pedestrian priority corridors and enhanced landscaped boulevards throughout.

These Privately Owned Publicly Accessible Spaces (POPS) “provide a critical public realm bridge between publicly-owned spaces and privately-owned buildings and spaces” (Guidelines for Privately Owned Publicly Accessible Spaces, 2019).

POPs are animated gathering places with predominantly hard surfaced landscape features flanking public streets. They offer opportunities for social interaction, for recreational activities & play for residents and visitors of all ages and physical abilities.

Blocks 1, 2 and 3 of the Kraus District accommodate open spaces within their boundaries. The Blocks 1 & 2 Plazas are located at grade and are clearly visible from adjacent streets. Block 3 Plaza is accessible by a set of stairs / ramp and connects the public realm at grade to the proposed Raised Promenade above. Underground parking garages are located below all three plazas.

Canopies, trellises, screens and planters placed at key locations along the outer edges of the plazas are incorporated in their design to further improve pedestrian comfort level at grade and reduce any potential increased wind activity generated by surrounding building fabric.





Rendered view of Block 2 Plaza, looking west
(ABA, 2020)



Rendered view of Block 3 Plaza, looking east (ABA, 2020)

Design Recommendations

- Create seamless transitions between public realm of the street to the plazas, ensuring material continuity and avoiding any visual barriers that might indicate exclusive private use.
- Consider a combination of softscape and permeable surfaces in order to mitigate stormwater runoff and prevent further burdening of municipal stormwater systems.
- Consider allowing for sufficient soil depth provisions above the finished parking garages roofline below the plazas in order to better accommodate tree plantings, vegetation.
- Include a combination of flexible and fixed seating, as well provisions for storage in order to support multi purpose uses, different activities and events.
- Ensure versatile range of activities throughout daily and seasonal cycles.
- Locate plazas strategically to maximize sky views and sunlight, and minimize shadow impact from adjacent building massing.
- Animate plaza edges with active building fronts including windows / entrances.
- POPS must not be adjacent to service/delivery areas or parking areas.
- POPS must meet wind conditions, comfortable for sitting out at least 80% of the time during spring, summer and fall months. Ensure implementing wind mitigation strategies wherever needed, such as canopies, trellises, screens and vegetation.

Reference: Guidelines for Privately Owned Publicly Accessible Spaces (POPS) – February 2019

3.3.5 Public Realm Design Guidelines

Planting and Landscaping

Although opportunities for planting vary throughout the District – from the ecologically and programmatically diverse Hydro Corridor (entirely paved in its current state but envisioned as a varied landscape of community gardens and outdoor recreation fields) - to the predominantly hardscaped streetscape corridors, plazas and the Raised Promenade – the underlining vision for the area is to convert this former brownfield site into a rich, bio-diverse urban environment.

- High quality planting and landscape design throughout the Kraus District - including planting surrounding buildings, streets, parks and open spaces - should be promoted to encourage a vibrant neighbourhood. A low maintenance approach to planting, with preference given to native, non-invasive species with high tolerances to adverse seasonal and urban conditions (i.e. salt and drought tolerant species) is recommended in order to ensure a sustainable long term planting strategy.
- Natural features, including existing mature trees and vegetation should be protected and maintained wherever possible.
- In areas where below grade parking garages extend beyond building facades, sufficient soil depth should be provided to ensure viability of proposed tree plantings / vegetation.
- Landscape buffers and setbacks should be provided to ensure gradual transition from public to private realm.
- Encourage cisterns and on site water retention to reuse water for landscape irrigation where necessary.
- Consider use of modular soil cell systems to assist with root zone establishment in predominantly paved areas.
- Explore opportunities to soften hard urban surfaces with soft landscaping features (planting beds, planters) to increase on site water retention.
- Adopt a Low Impact Development (LID) approach to landscape design, integrating bio diverse landscape buffers between buildings and streets that allow water to infiltrate, store and detain runoff in place.
- Provide seasonal interest throughout the year by selecting plantings with varying bloom periods, leaf and fall colour, and textures.
- Enhance overall urban tree canopy with tree plantings in landscape boulevards, plazas and open spaces.
- Provide enhanced landscape treatments along building frontages, building entrances and points of interest.
- Where possible, planting beds within paved areas should be raised to reduce contact with salt.







Paving and Surfaces

The majority of the Kraus District's circulation corridors, plazas and pedestrian promenades are envisioned as predominantly hardscaped spaces, accommodating a variety of pedestrian, cyclists and vehicular users. A wide range of paving materials can be implemented to further define and underline intended hierarchies of movement throughout the District, while also ensuring minimizing the larger environmental impact hard surfaces might have on the site and surrounding areas.

In addition to the more typical asphalt and concrete application to roadways and sidewalks, a wider range of paving materials - such as permeable pavers, materials with textured surface finishes, accent pavers, etc – should be considered to help reinforce a sense of place and identity for the District, increase safety and resilience as well as reduce overall environmental footprint.

- Surface paving should include durable materials, with non-slip or textured surface finishes, complying with AODA requirements.
- Permeable pavers are to be considered for areas where soil conditions and hierarchy of use permits, in order to reduce stormwater runoff.
- A select paving palette should be developed to ensure diversity as well as connectivity between the different District blocks.
- Consider consistent paving finishes throughout shared vehicular / pedestrian corridors (or "living streets") – such as the Central Spine - in order to establish a strong sense of hierarchy of users and encourage traffic calming for the District.
- Include highly visible painted or raised pedestrian crossings throughout the District.
- Incorporate high quality materials and construction techniques to ensure increased lifespan and usability of the street and reduce need for maintenance and upgrades in the long term.







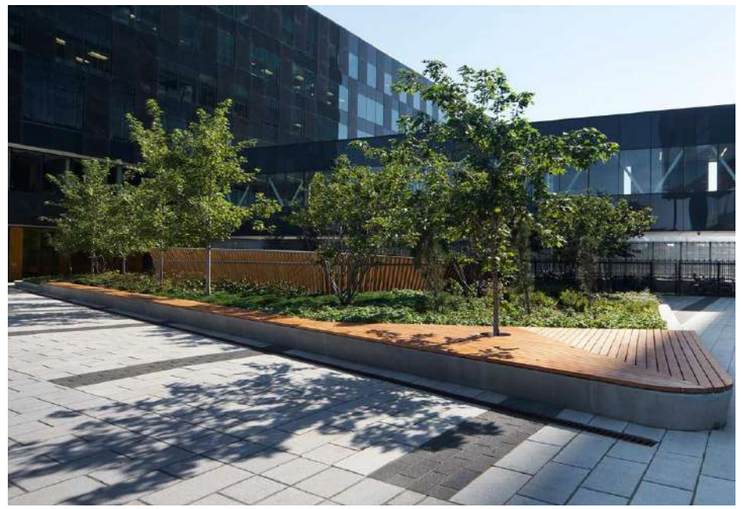
Site Furnishings

The Kraus District identity can be reinforced through the development of a coherent overall Site Furnishing Strategy. Although different site specific needs will need to be addressed on a block by block basis, achieving a cohesive and consistent site furniture strategy throughout the District will ensure visual connectivity and a stronger overall sense of place. Coordinating site furnishings together with landscaping and paving material selections will also help further articulate the District's overall design vision.

- Throughout the District, site furnishings should be constructed of durable materials, resistant to external environmental factors, with preference for low powder coated aluminum, stainless steel or exterior woods.
- Bench seating proposed should conform to current AODA guidelines design and provision standards, including benches with backs and side or centre arms.
- Where fixed, cluster seating is provided, it should be located in a manner that does not impede pedestrian flows, or limit maintenance vehicle movement and access.
- Larger pedestrian plazas and courtyards with higher visibility could provide for movable site furniture to allow users to manipulate and change their environment based on intended use, catering for individuals or larger groups.
- Shade structures such as umbrellas and canopies, are encouraged in open areas exposed to sun and other climatic elements to increase pedestrian comfort.
- Bike racks should be located in highly visible areas, in close proximity to building entrances, transit stops, or programmed outdoor spaces. Protection from the elements through overhangs or structures at bike parking locations are preferred to provide cyclists with shelter from the elements.
- Bike maintenance stations (including repair tools, air pumps, etc) are recommended in proximity to recreational trails and intended high cycling use (such as the re-imagined Hydro Corridor) and the Central Spine.
- Waste and recycling units should be provided throughout the District and placed with appropriate spacing from pedestrian seating elements, within hardscape paving areas with appropriate clearances for AODA access. Durable materials and a complementary design to other site furnishings are recommended.







Open Space Accessibility

Design of Parks and Public Spaces throughout the Kraus District should comply with the Ontario Building Code, the City of Waterloo Accessibility Standards, the City of Waterloo Universal Design Guidelines, and other applicable legislation, in order to ensure inclusive access of users of all ages and abilities.

- Grade changes to building entrances should be minimized and made accessible by ramps and slopes that comply with Ontario Building Code requirements.
- All pedestrian crossings should include accessible curb ramps and detectable warnings where individuals enter the crossing.
- Sidewalks and pedestrian paths should meet dimensional requirements in order to accommodate two-way travel for persons using mobility devices – a minimum width of 1.5m is required for all exterior paths of travel (reference: City of Waterloo Accessibility Standards – Section 3.0 Exterior Paths of Travel).
- Provide accessible on-street parking as well as accessible parking spaces within surface parking areas and within parking structures. Appropriate signage and markings should be implemented to comply with applicable standards.
- Firm, stable, non-slip and non glare surfaces should be provided for exterior ramps and slopes, avoiding aggregates or ridges which would be more susceptible to water or ice accumulation.
- Colour and texture contrast should be provided at the top and bottom of ramps and stairs.
- Trails and pathways should accommodate a wide range of users and should have a minimum width of 3.0m
- Provide accessible playground equipment in all recreation / play areas throughout the District.







Lighting Design

The lighting strategy for the Kraus District should aim to further underline a safe, inviting and lively urban environment, while accounting for any potential light pollution impact on the larger urban context. Assuring appropriate lighting is implemented along all streets, plazas, parks and publicly accessible spaces, can improve the quality of life for employees and residents as well as visitors to the area.

- Consider use of sensor activated lighting in infrequently used areas to prevent energy loss as well as night time pollution.
- Ensure all building entrances are well lit for visual connectivity and safety;
- Light standard types should complement one another and be appropriate in style with the existing built form and aesthetic of the District.
- Consider lighting standards which are of appropriate scale for their intended use – such as pedestrian level fixtures and spacing along walkways and plazas, higher poles and fixture heights along roadways and parking areas.
- Light standards should be placed in a manner which does not impact pedestrian routes or travel, or provide opportunity for conflict with vehicles in parking areas. Suitable offsets from walkways or back of curb locations should be provided.
- Establish a hierarchy of lighting throughout the district, such as pedestrian scale lighting along primary pedestrian routes (Central Spine, Raised Promenade).
- Consider use of special accent lighting in key areas to accentuate feature buildings or public spaces.
- Integrate site lighting within building design wherever possible.
- Consider use of energy efficient light fixtures (LED), directing light toward the ground to reduce light pollution and potential negative impact on human well being.
- Consider use of alternative power sources such as solar panels to illuminate streets and public spaces in a low energy, cost effective manner.







Signage and Wayfinding

Site Signage and Wayfinding strategies for the Kraus District should be consistent throughout all development blocks. Wherever possible they should be integrated within the built form and developed to complement site furnishings throughout the District. Signage and wayfinding elements will be particularly implemented at the different Gateway locations, framing the District's visual identity and enhancing connectivity for all users.

- Incorporate free standing signage into landscape design, while also ensuring planting species do not interfere or obstruct with signage or projected light sources.
- Any signage associated with retail uses at grade should complement and not distract from cohesive site furnishing and planting palette.
- Signage should not interfere with pedestrian circulation or vehicular visibility.
- Include signage throughout the District to designate speed limits, parking zones, or to communicate urban regulations
- Coordinate signage and advertising illumination with proposed light fixtures to avoid any potential conflicts
- Consider intended end users in order to determine the scale and visibility of signage – for instance account for speed of travel in order to optimize signage design for pedestrians versus vehicular traffic.







Public Art

The City of Waterloo recognizes Public Art as a valuable asset that has the ability to enhance and strengthen quality of life, improve the public environment, and contribute to the city's overall social well being and economic vitality. Incorporating Public Art within the Kraus District Master Plan provides opportunities to celebrate the unique culture and heritage of this site and build a stronger sense of local identity for the Kraus District community.

- Public art pieces should be located in highly visible, publicly accessible spaces throughout the site.
- Consider permanent and temporary works of art to be displayed in active open spaces, such as the Plazas, Hydro Corridor or the Raised Pedestrian Promenade.
- Integrate public art elements at key locations with high volume of pedestrian, cyclist and vehicular traffic, such as the different Gateway access points throughout the District.
- Consider public art opportunities to include functional landscape design elements such as water features, lighting, seating, walls.
- Consider seasonal and daily uses of public art settings and how public art pieces could be experienced in different climatic conditions or different times of the day. Ensure adequate lighting and visibility is provided as well as seasonal maintenance where necessary.
- Where needed, consider adequate building setbacks around public art to ensure ease of access.

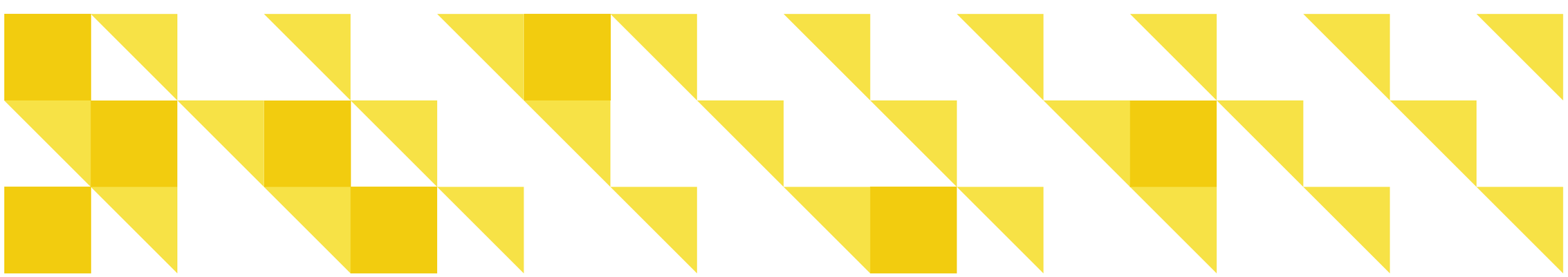
References:

- City of Waterloo Urban Design Manual – 2.4.2 Public Art and Culture
- City of Waterloo Public Art Policy





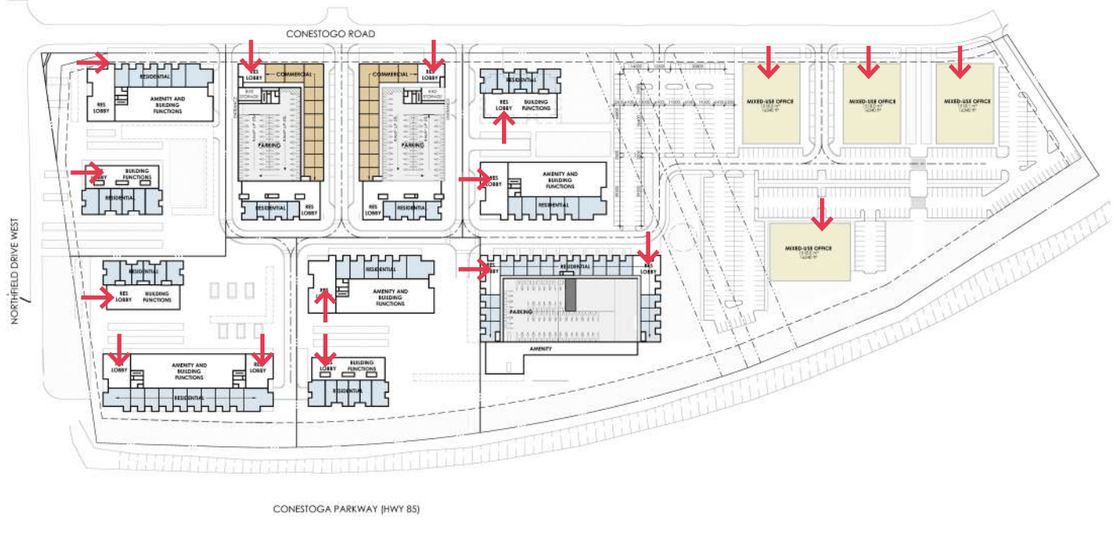




4. SUPPLEMENTARY PLANS AND SUPPORTING STUDIES

4.1 Underground Site Master Plan

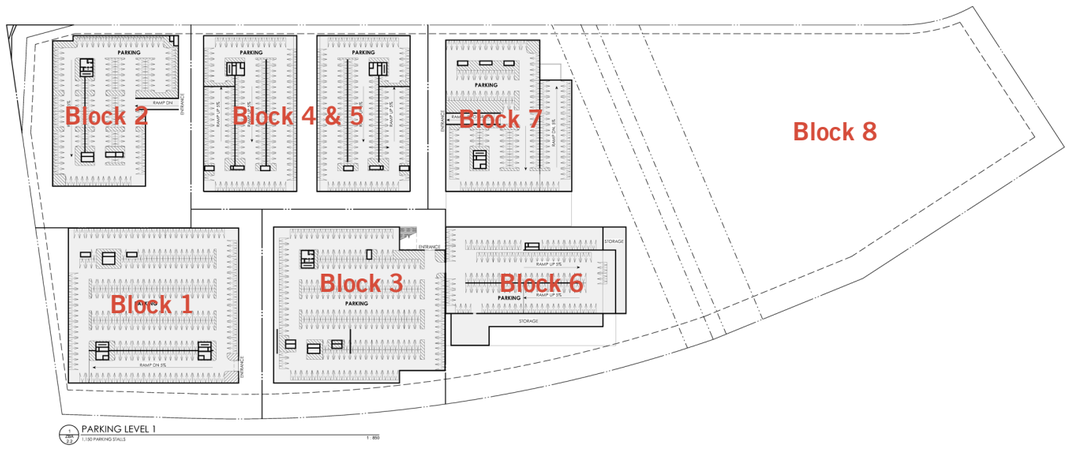
Ground Level Plan



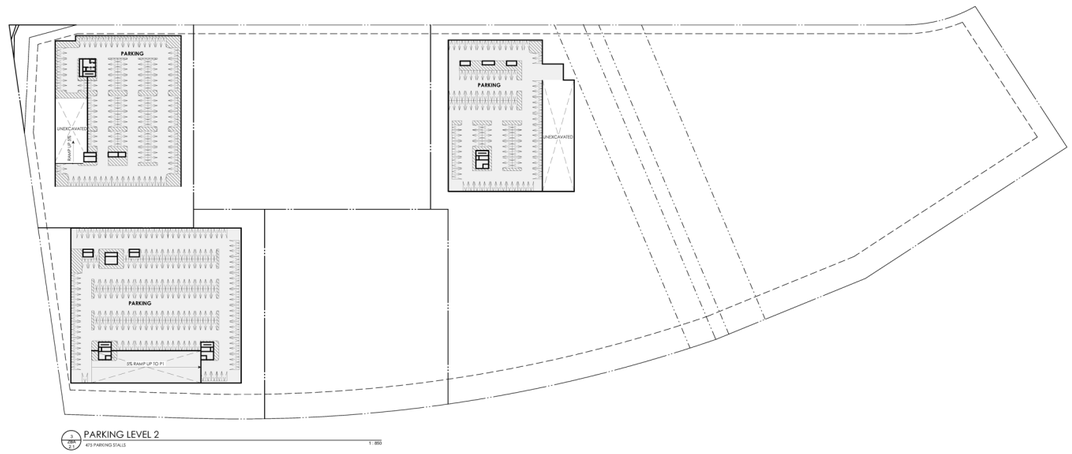
At full build-out parking throughout the District will be accommodated primarily in underground and podium levels. Parking within each of the development blocks is self contained and includes separate accesses, with the exception of Blocks 3 and 6 which share an underground parking access. In the interim, as the District builds out, some interim surface parking will be appropriate to respond to market conditions to support offices uses for example.

Parking accesses to each of the blocks are shown in the diagram to the left. The podiums of Blocks 4, 5 and 6 include one level of underground parking and three/four upper levels. Blocks 1, 2, and 7 include a second level of underground parking. All blocks include parking within the building except for Block 8 where surface parking is provided.

Underground Level 1



Underground Level 2



4.2 Phasing Plan

Phase 1



Development phasing is expected to follow the same order as the numbering for each of the blocks. Phase 1 would include the buildings and public realm features of Block 1, including Streets A and E and a portion of the Promenade.

Phase 2



Phase 2 includes the two buildings of Block 2 and public realm improvements within this block. No internal streets would be constructed during this phase.

Phase 3



Phase 3 consists the two buildings of Block 3 and public realm improvements within this block, including Street D and a portion of the Promenade.

Phase 4



Phase 4 includes the single building of Block 4 as well as Street B.

Phase 5



Similar to Phase 4, Phase 5 is comprised of the single building of Block 5 as well as Street C.

Phase 6



Phase 6 consists of the two slabs above a shared podium of Block 6 and public realm improvements within the block, including a portion of the Promenade.

Phase 7



Phase 7 is comprised of the two buildings of Block 7 and public realm improvements within the block. No internal streets are built at this phase.

Phase 8



Phase 8 consists of the 4 buildings of Block 8 and surface parking, and open spaces planned within and around this block, including the Hydro Corridor and the southernmost portion of the Promenade.

4.3 Sustainable Design Strategy

Sustainable development requires a comprehensive, holistic and integrated approach to the design, construction, operation and maintenance of sites, buildings and landscapes. The Kraus District takes sustainable approaches to development at multiple scales: a "District Scale" derived from the inherent contextual characteristics and development form; a "Block Scale" derived from the arrangement of buildings and the design of the outdoor areas; and a "Building Scale" derived from both exterior and interior design and finishes. The following sustainability elements are part of the broad sustainability program either provided or that will be explored through the detailed design stage for the District.

DISTRICT SCALE SUSTAINABILITY

Existing Developed Site

The District is a previously developed, brownfield site that will take pressure off the development of new greenfield sites that are less ideally situated in Waterloo's periphery. The District's adjacency to existing development and roads brings connections to existing utilities, road and other infrastructure in place, reducing the need to build new infrastructure. Additionally, its situation within the urban fabric of North Waterloo situates the District within short trips of major commercial facilities including Conestogo Mall and Northfield/Weber (both including food stores), St. Jacobs Market to the north, and Uptown Waterloo and Waterloo Park by transit.

Transit Proximity

The District is within 650 meters of the Conestogo ION Station and 300 meters of the Northfield ION Station (or within a 10-minute walk), supporting daily transit use and reduced car ownership and use for travel between Waterloo and Kitchener. The Conestogo ION Station's major hub function additionally provides connections to two high frequency public transit express routes and multiple local routes (Northfield with connection to multiple local routes), improving connectivity between the east and west residential communities of North Waterloo. Convenient transportation choices (buses, light rail, carpool and bicycle lanes and sidewalks) promote shorter automobile trips, reducing vehicle trips and vehicle distance traveled and provide immense benefits for reducing emissions and the need for physical space dedicated to parking.

Housing Diversity

The District will accommodate different lifestyle needs for residents with a range of different housing types, forms and sizes. Smaller one-bedroom units will cater to entry level home buyers and two-bedroom unit sizes will cater to moving up for younger residents or downsizing for older residents. Abundant family-friendly three-bedroom units south of the hydro corridor will further the housing options for a unit type less commonly seen in such developments. Different building typologies of mid-rise buildings and tower forms will provide a diversity of choice throughout the development. Accessible units with universal design features will be integrated throughout the development and throughout buildings.

Compact Form

The District's compact and intense form efficiently uses an urban site, optimizes public transit use and provides a critical mass of people and employees supporting commercial activities. It will generate a population and workforce density in the order of 6,600 people in the District. As a result, such intensity requires parking garage solutions, either underground or above-ground garages, which in turn provides sustainability benefits of reducing parking footprints and associated heat island affects related to exposed parking areas.

Connected Active Transportation

The District is served by and existing system of sidewalks, trails and walkways in the surrounding area. The District itself will incorporate an interconnected system of sidewalks, walkways, multi-use trails, and open spaces that promote opportunities for active transportation choices for residents and workers. Benefits of the location are multiple and reinforcing. Living in a compact, mixed-use environment within walking distance of shops and services encourages walking and bicycling, which improve cardiovascular and respiratory health and reduce the risk of hypertension and obesity.

Connected Road Network

The District sits at the confluence of major transportation corridors within North Waterloo and Waterloo Region in generally, providing easy access for those drivers without traffic filtering through surrounding areas. Conestogo Parkway is a movement spine for the distribution of goods, employment-based transportation needs, intra-regional commuting and access to places of commerce, including neighbourhood-servicing commercial uses. Northfield Drive provides a similar east-west function through North Waterloo connecting the flanking residential communities and the employment corridor along the Parkway. King Street and Weber Street, a short distance to the east and west, respectively, provide additional north-south connections through the broader community.

District Energy Generation

District-level energy generation facilities have not been explored leading up to the Master Plan exercise; however, geothermal facilities for the broader site are a consideration moving forward in the development process.

Retained Natural Function

Development in the District is expected to be contained largely outside of the flood plain of the drainage feature tributary of the Forwell Creek and outside of the defined setback areas, with no expected alteration to the watercourse or its storage volume.

BLOCK SCALE SUSTAINABILITY

Pedestrian-Oriented Streets

Internal streets within the District will be designed to support a pedestrian-oriented walking realm that encourages active transportation options through a combination of design measures. Recessed ground floors will provide shading and wind protection to pedestrians. The proposed relationship of 1:1.5 podium-height-to-street ratio for typical towers and 1:1 for office buildings provides a comfortable, human-scaled development condition. Buildings have principal entrances onto circulation networks and continuous sidewalks and walkways. Plantings along the street edges to road and on-street parking, including tree lined and shaded streetscapes, assist with pedestrian comfort.

Building Solar Orientation

Blocks within the District have been consciously oriented considering southern exposure as it relates to solar orientation. Buildings oriented to maximize south-facing elevations will provide numerous benefits, including providing passive heating opportunities, maximizing daylighting into courtyards and plazas, maximizing the value of any photovoltaic installations, and providing consistent direct sunlight that can be filtered / shaded to provide natural lighting without heat gain and glare.

Minimal Surface Parking

Structured parking will provide virtually all parking needs within the different blocks of the District. The bulk is accommodated within underground parking garages beneath the blocks, some of which also contain integrated above-grade parking garages. Surface parking areas are limited to south side of the Hydro corridor and generally represent less than 19% of the total parking supply, which in turn allow for more efficient rainwater run-off and less impermeable areas as well as lessening the heat island effects. Where surface parking is proposed, such areas will be divided into small segments and landscaped to minimize impervious surfaces. As well, pervious surface materials for infiltration and/or high albedo surface materials on surface parking areas to minimize heat absorption will be explored through detailed design.

Permeable Infiltration

The overall imperviousness of the site at most will remain relatively unchanged from that of the developed condition, but chances are it will be slightly reduced. Landscape areas and green features through and between the blocks will provide rainwater flow reductions, particularly within the hydro corridor transforming from the entirely paved current state to a pervious landscaped open space. Runoff from the internal private roadways will be collected and treated through low impact development measures prior to discharge.

Rainwater Harvesting

Detailed design will explore opportunities for utilizing non-potable water sources where irrigation is required, such as roof capture, in combination with efficient, centralized drip irrigation systems.

Local Food Production

Opportunities for community gardens/urban farming are contemplated within the open space feature along the hydro corridor for food production for residents and the community.

Lighting

Landscape lighting plans will be designed to provide a uniform level of lighting across the District's landscape, including roadways, walkways and open spaces, while achieving lighting standards for light spill and over lighting. Options for energy-efficient fixtures and cut-off fixtures for parking areas, sidewalks and walkways will be explored as part of the detailed design process to eliminate or minimize light pollution reduction.

Bicycle Storage

Significant amounts of bicycle storage will be accommodated within the different blocks for residents and visitors to promote cycling. Short-term bicycle parking will be positioned around building entrances and in outdoor spaces. Long-term, secure bicycle parking will be distributed throughout parking garages and ground floor spaces of the residential and non-residential buildings.

Transportation Demand Management

Transportation Demand Management (TDM) practices will assist in providing for car-free living options (or car-reduced living options). Further to the transit support and cycling support considerations outlined above, the recommended TDM strategies that will be explored further include shower and change facilities for non-residential buildings, shared parking between residential and non-residential uses, unbundled parking for residential units, participation in a car share program, building or site TDM coordinator, and paid parking for non-residential uses.

EV Stations

EV charging stations will be provided throughout the underground parking garage. Opportunities for building in future capacity through electrical infrastructure will also be explored through detailed design.

BUILDING SCALE SUSTAINABILITY

Green Roofs

Alternative roof designs will be explored and used on larger exposed building roofs. “Green roofs” are contemplated for several buildings within the District. In such instances, vegetated roofs would provide a high solar reflectance and stormwater management function. “White roofs” with high solar reflectance are also an effective alternative where green roofs are not desired or feasible.

Solar Panels

Photovoltaic panels are contemplated for mid-rise forms with larger rooftop surfaces. The mid-rise office buildings are specifically targeted at this time for such installations, with south-facing exposures and broader rooftop spaces for layout purposes. Such renewable energy generation reduces carbon emissions and air pollution as well as reduces reliance on the electrical grid.

Building Envelopes

While materials and envelope construction is not known, generally speaking the wall-to-window ratio will balance between the interests of energy efficiency and those of urban design objectives related to visibility and transparency purposes. Exterior materials will be selected, to the extent possible, with a preference for those that are regionally sourced and those that are renewable.

Building Performance

Interior functions and areas of buildings are not known at this time and are not subject to the planning and urban design process. Nonetheless, they form part of the overall sustainability strategy. Broadly speaking, building design will look to optimize building energy performance; design building systems to reduce energy consumption (electrical, lighting, heating, ventilation, AC, water and wastewater pumps); maximize the amount of natural daylighting into building interiors to minimize energy use; incorporate low flow plumbing fixtures and waterless urinals; and provide for effective solid waste management, including the sorting of garbage and the incorporation of recycling and composting infrastructure.

4.4 Microclimate Studies

SHADOW IMPACT STUDY

Background

The Waterloo Urban Design Manual sets the criteria for shadow studies. Generally, the purpose of shadow studies per this guidance is to "illustrate the shadow impact the proposed development has on the site and surrounding properties with emphasis on residential uses, outdoor amenity spaces and park spaces, and to provide recommendations to reduce shadowing based on City criteria". The established criteria identifies that developments are considered compatible from a shadow impact perspective where the following is demonstrated:

- As a principle, at least 50% or more of any property should not be shaded for more than two interval times (a four hour equivalency); or,
- As a principle, at least 50% of any property should be in full sun for at least two interval times (a four hour equivalency).

The shadow criteria requires assessment of the following dates and interval periods to determine compatibility per the above criteria:

- March 21 (equinox): 10am, 12 pm, 2 pm, 4 pm, 6 pm
- June 21 (solstice): 10am, 12 pm, 2 pm, 4 pm, 6 pm
- September 21 (equinox): 10am, 12 pm, 2 pm, 4 pm, 6 pm
- December 21 (solstice) 10 am, 12 pm, 2 pm

The shadow study for the Kraus District has been done at the master plan level reflecting the larger macro district-scale of development. Generally, it considers whether the proposed general layout, form, scale and height for the Kraus District could satisfy the shadow criteria outlined above. It is expected that shadows will be further assessed as individual, refined building designs are presented and evaluated through the detailed Site Plan Approval process, at which time a more micro-scale of assessment within the District can be undertaken.

Assessment

a) Residential uses

Surrounding residential properties are not affected by the proposed development's shadow, given the distance to the closest residential areas starting on the west side of Weber Street and the east side of Davenport Road is greater than 800 meters. The area on the east side of Conestogo Road is currently industrial so there are no impacts to existing residential uses in that area. Any future transition of this area to a similar mixed-use area with residential uses would not be detrimentally impacted by the proposed development's shadows: the resulting shadows do not cross Conestogo Road in the morning periods (two interval periods) of the March 21, June 21 and September 21 dates, and when they do in the afternoon periods (three interval periods) the shadows are minor in nature owing to the slender tower form and spacing within the District nearest Conestogo Road.

Buildings within the Kraus District have been purposely arranged in two ways with an eye to minimizing on-site shadow impacts. First, a transition in building heights moving from north to south through the District prevents the tallest buildings' shadows from extending length-wise through the site, which they would if arranged in the southern end. Second, the mixed composition of mid-rise and high-rise buildings throughout providing for sun exposure in site's interior through the alternative pattern and reduces considerably any overlapping (and broadening) of shadows cast by the more slender towers.

Building-to-building shadow impacts are better addressed at the time of detailed design of individual buildings. At a master plan level, generally the east, south, west, and north building elevations throughout the District for June have at least two intervals periods of sunlight exposure throughout the day; while for March 21 and September 21 the exposure is less (something like 1.5 intervals of exposure generally).

b) Outdoor Amenity Areas

The shadows cast by the proposed buildings stay on the

site for two interval periods (largely, as a couple buildings do cast on Northfield Drive in these periods), so the criteria for sunlight exposure to any potential amenity areas in the surrounding industrial area would be maintained (and to any future transition including residential uses).

The core outdoor amenity areas in the Kraus District (promenade, courtyards, hydro corridor and Street D central spine) satisfy the criteria with sunlight exposure on at least 50% of their area for at least two interval periods on March 21, June 21 and September 21; in most cases it is three interval periods in all three seasons or four interval periods on June 21.

c) Park Spaces

Given the distance to the nearest public park in the surrounding area is generally 700 to 1,000 meters, shadows from the Kraus District would not affect existing public parks in the surrounding area. There are no public park spaces proposed in the Kraus District.

Based on the above assessment, the proposed Kraus District's form and scale is compatible from a shadow impact perspective per the Urban Design Manual criteria. Particularly this is accomplished as the proposed development is a compact urban intensification at the district scale. This does not preclude the options for further minimizing shadow impacts through various means at the detailed design and evaluation stage, whether through more minor shifting of tower footprints, fine-tuning of building heights or other changes to building masses.

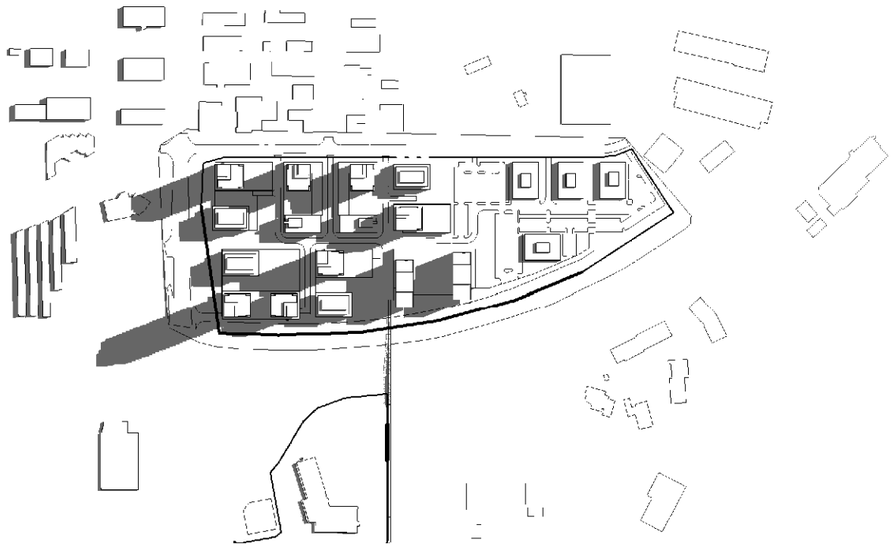
PEDESTRIAN WIND ASSESSMENT

RWDI undertook a Pedestrian Wind Assessment as part of the complete application for the Kraus District. This Assessment provides a "screening-level" estimation and assessment of potential wind conditions for the conceptual master development plan. From this assessment, recommendations for potential wind control measures are provided to improve wind comfort conditions with the proposed building form, where necessary. Also, more detailed, physical-scale model testing is recommended at the detailed design stage to confirm and quantify wind conditions, refine wind control measures and address phasing.

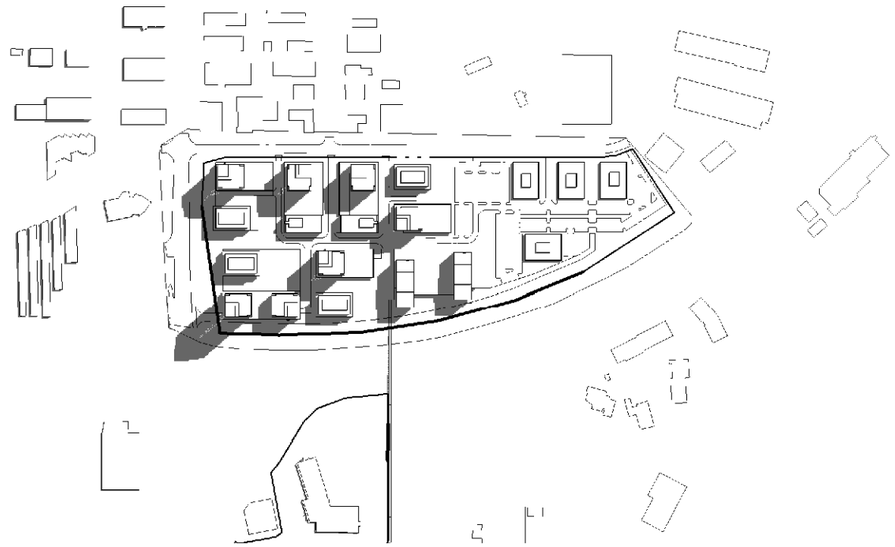
The Pedestrian Wind Assessment summarizes the findings as follows:

- Given the number of buildings that are taller than the surroundings it is expected that this development will increase existing wind speeds on-site but not have a significant impact on surrounding neighbourhoods.
- There is potential for some on-site locations to exceed the wind safety criterion.
- All public sidewalks are expected to have appropriate wind conditions.
- Supplementary wind control strategies have been incorporated in an effort to improve conditions at some sidewalk areas and most of the major building entrances.
- Roof deck courtyards have also incorporated design features in an effort to reduce wind impacts. Winter conditions may still be a challenge in isolated cases however use of outdoor amenities in the winter is less likely.

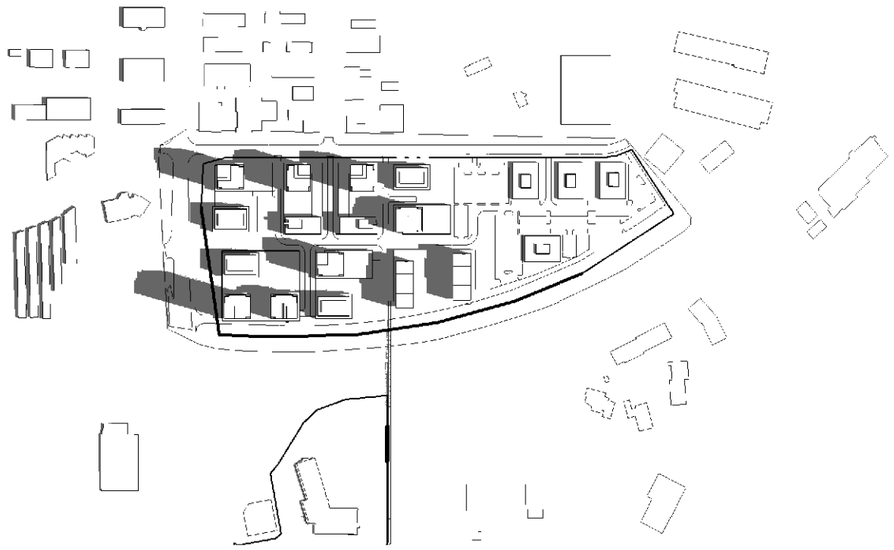
Scale model testing in a wind tunnel is recommended for this project to confirm and quantify the predictions in this report, refine wind control strategies where required. Impacts during interim phasing should be addressed.



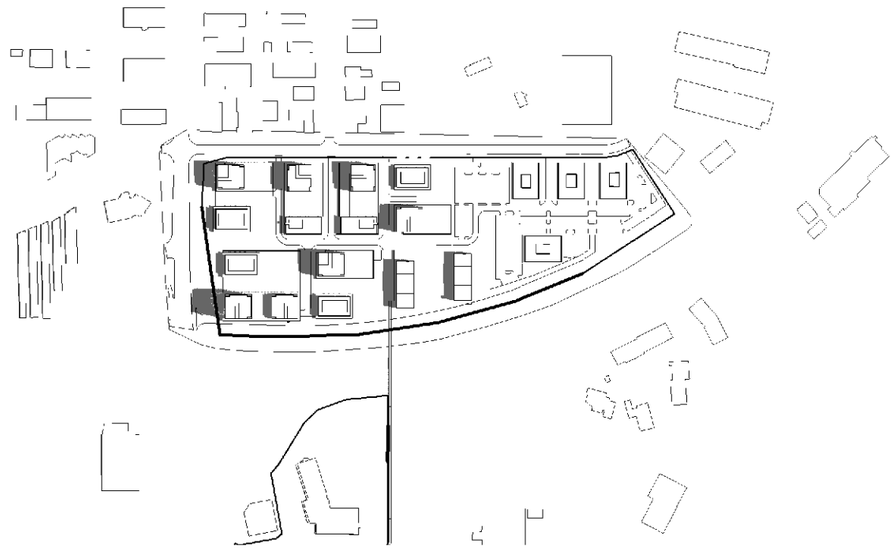
MARCH 21, 10AM



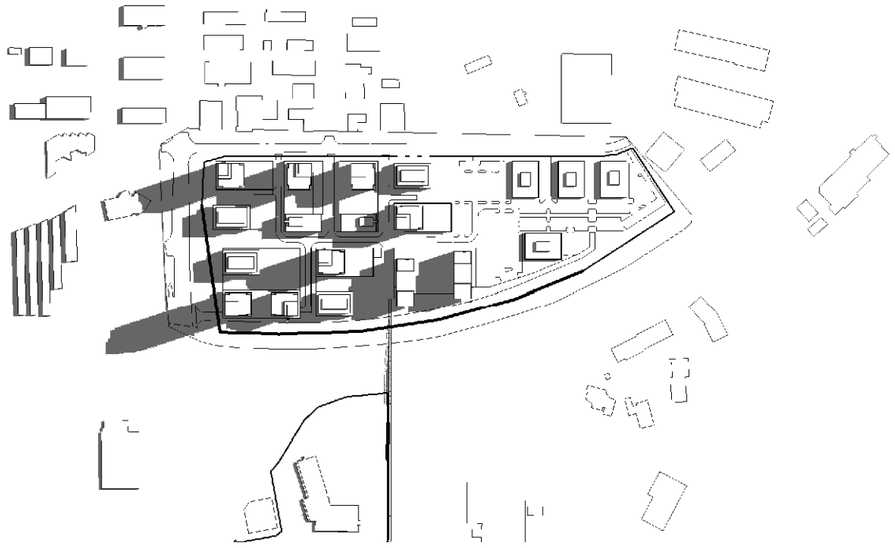
JUNE 21, 10AM



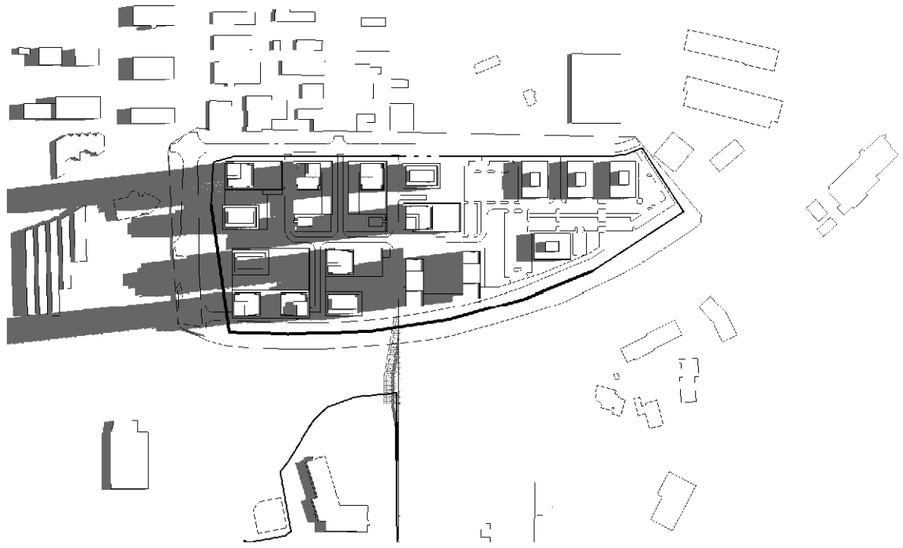
MARCH 21, 12PM



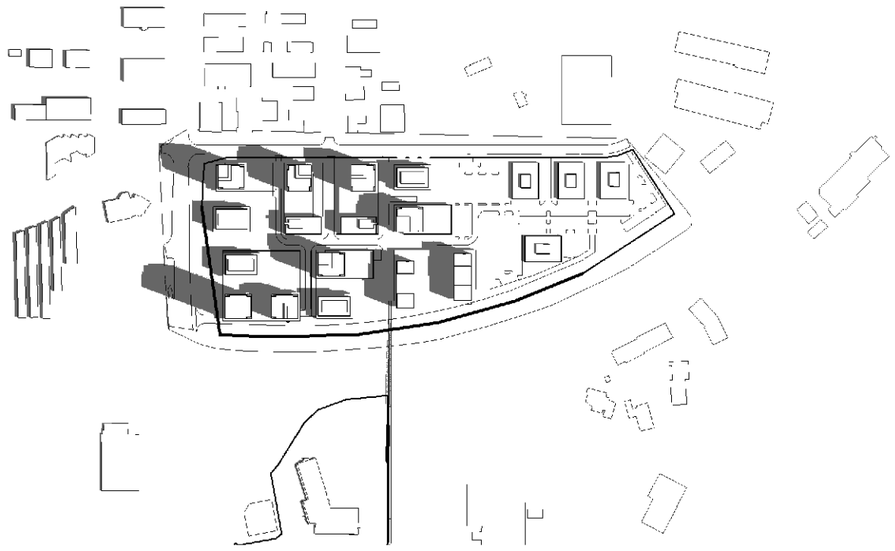
JUNE 21, 12PM



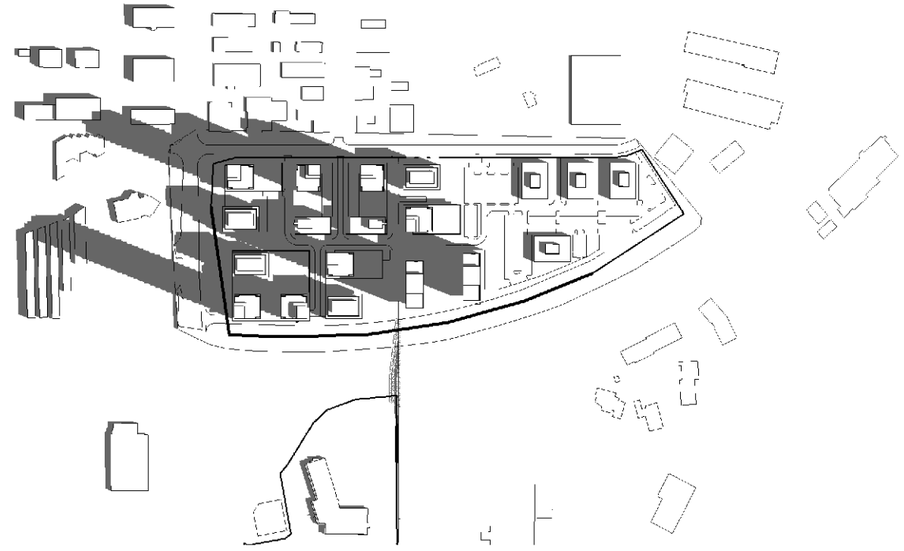
SEPTEMBER 21, 10AM



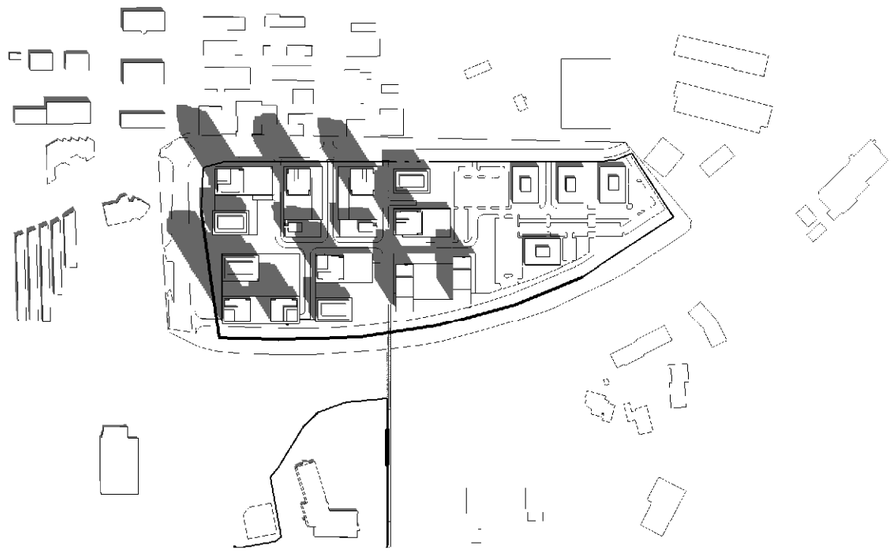
DECEMBER 21, 10AM



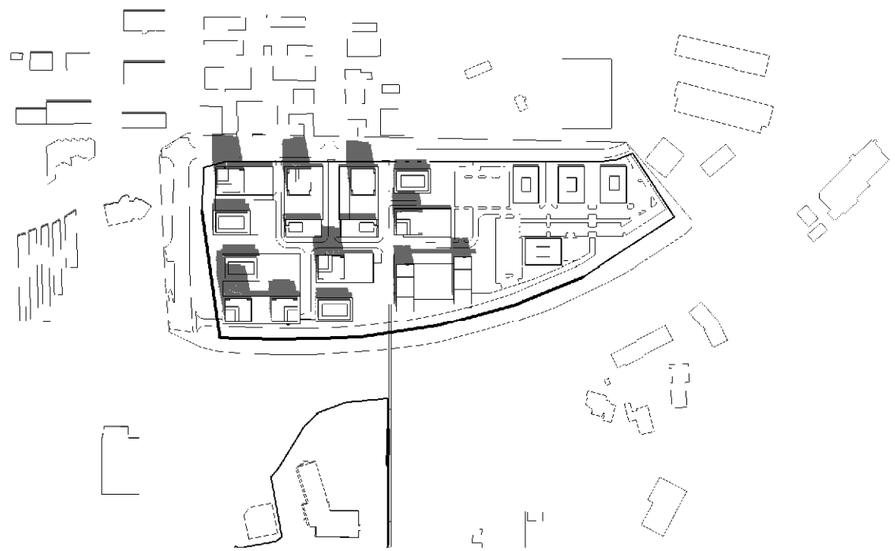
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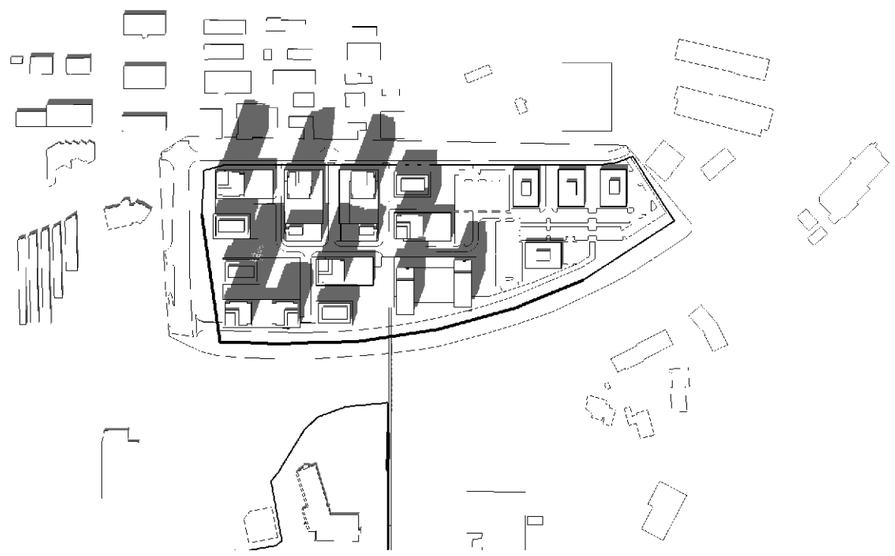
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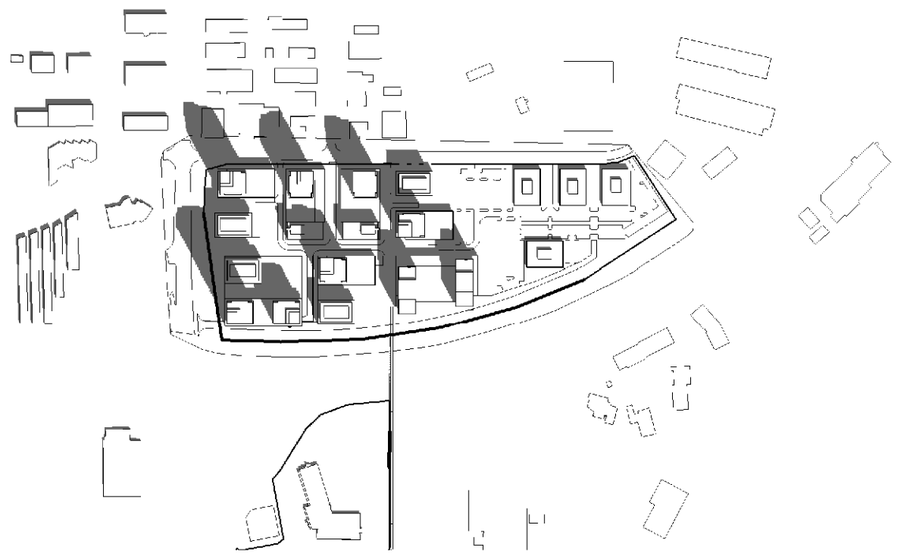
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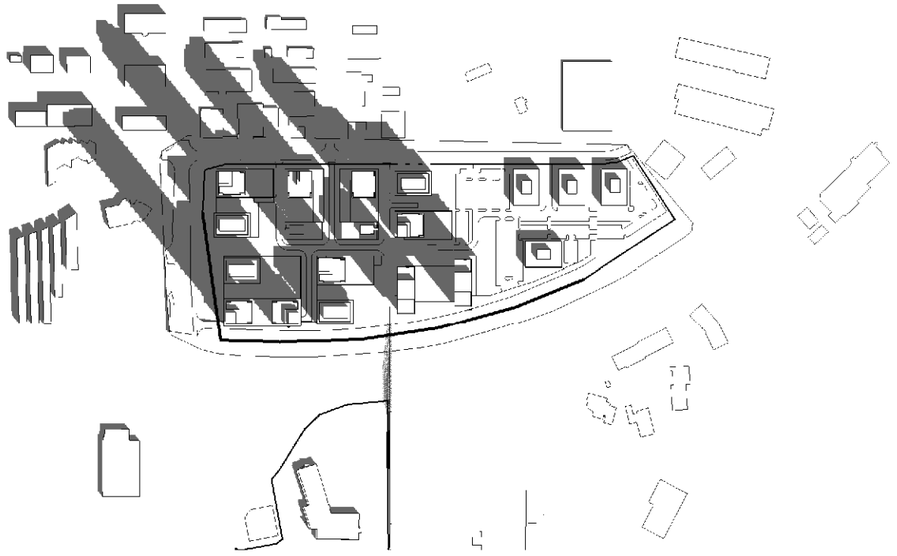
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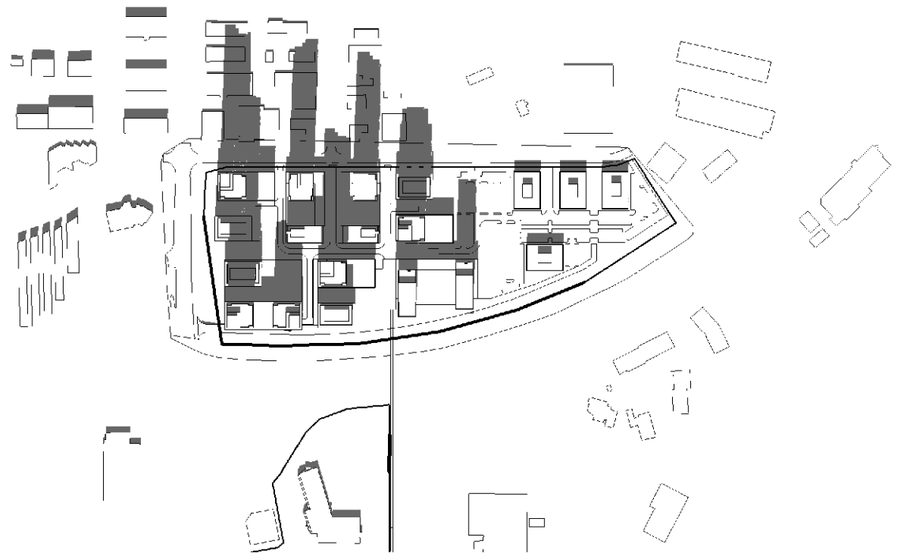
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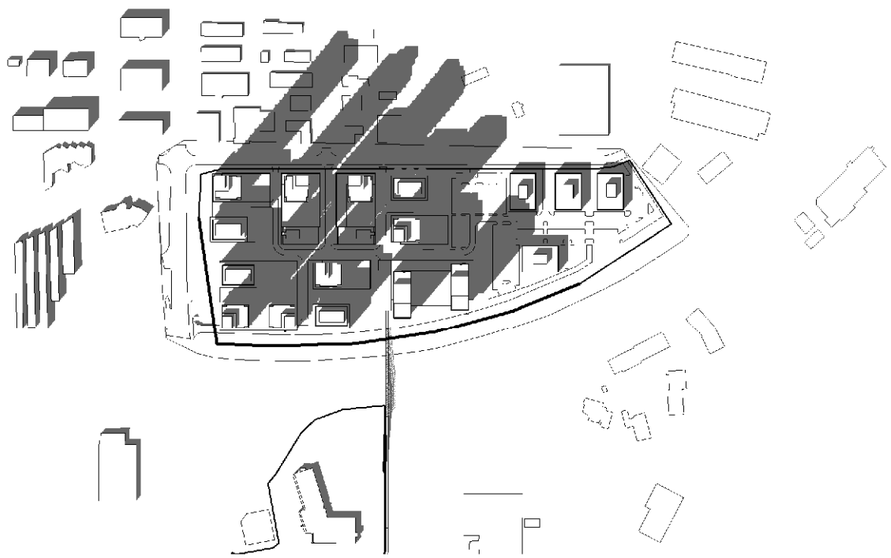
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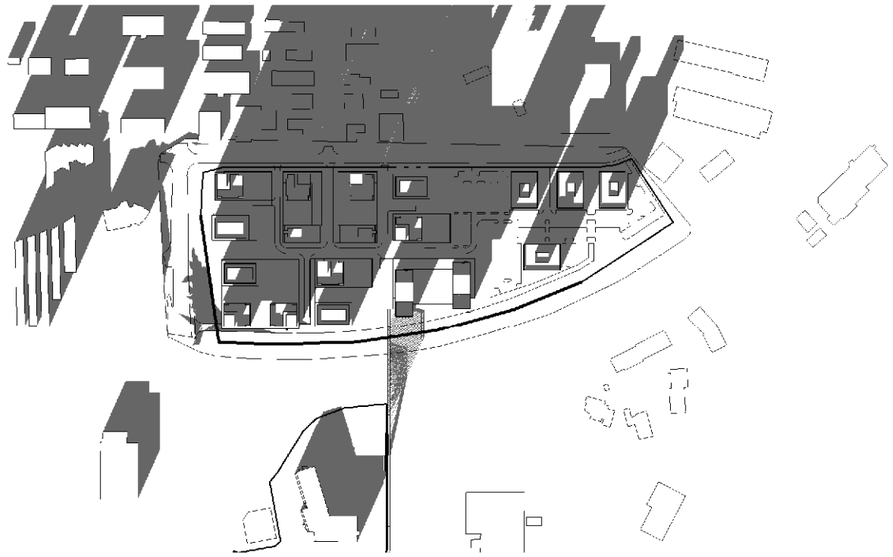
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5. CONCLUSION

5.0 Conclusion

Northfield Properties LP is proposing to redevelop the former Kraus Flooring site as a mixed-use community containing employment, residential, commercial, community and open space uses in close proximity to two iON Rapid Transit stations. The site development strategy generally follows the land use and urban design direction of the City of Waterloo Official Plan, Urban Design Manual and Station Area Plans, and implements the most recent Provincial land use policies relating to Major Transit Station Areas.

The proposed redevelopment includes a total of 8 future developments blocks connected by internal private streets, walkways, and courtyards with medium and high-density mixed-use buildings ranging in size from 5- to 35-storeys atop an expansive underground parking structure. Office space and retail opportunities will be provided along the Conestogo Expressway, Northfield Drive and Conestogo Road and internal courtyards. The proposed redevelopment scheme includes a pedestrian promenade extending along the Conestogo Expressway and a new pedestrian overpass across the Parkway providing a direct connection to the Northfield iON Station.

A variety of mid-rise and high-rise residential buildings and mid-rise office buildings are dispersed throughout the development blocks to promote a live-work environment. Building heights are highest along Northfield Drive and cascade to the south-end of the site. Each building has been conceptually designed to be self-sufficient for underground and structured parking. The modified grid layout provides opportunities for pedestrian linkages north-south and east-west throughout the site, with numerous publicly accessible outdoor amenity areas with a variety of programmes for employees and residents. The 46 metre wide hydro corridor is proposed to be reimagined for community gardens, and outdoor passive and active recreational spaces, including pedestrian and cycling connections across the site. The layout achieves a compatible arrangement with surrounding land uses, provides a significant contribution to transit ridership and assists the Region and City in achieving employment and resident population targets. The Kraus District will become a new integrated neighbourhood in the City of Waterloo.

This District Plan demonstrates the appropriateness of the proposed Official Plan Amendment, Zoning By-law Amendment and Draft Plan of Subdivision from an urban design perspective. This Urban Design Report provides detailed design guidance for consideration and refinement for the Site Plan Approval stage as plans evolve.