



INNOVATE THE SPACE

CITY HALL OUTDOOR SPACES

SEPTEMBER 2016

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**“ Cities have the capability of providing
something for everybody,
only because, and only when,
they are created by everybody”**

– Jane Jacobs

1. Executive Summary

For the last year, GSP Group has been working with the City of Kitchener on a major design initiative to transform outdoor spaces at City Hall into new, vibrant civic spaces at the centre of Downtown Kitchener. The goal is to create an active and appropriate forecourt (Carl Zehr Square) to one of Kitchener’s most iconic structures, along with the redevelopment of a contemplative garden and art space along Duke Street.

The master plan has been prepared by a team of Kitchener-based designers from GSP Group, RSA Architects, MTE Consultants and Mighton Engineering.

Innovate the Space

On a sunny Wednesday afternoon in June, five farm vendors set out produce and flowers along the fountain’s edge in Carl Zehr Square. Live music sounds in the background while pizzas bake in a portable wood-fired oven. Some people come to buy food, some come to eat lunch, while others bask in the sun. By midday, every seat in the square is filled and the buzz in the air was indescribable.

There was nothing flashy or complex about what happened that day. Yet it was so symbolic of why Carl Zehr Square is a truly special place. People weren’t just looking to buy produce at a mini-market, they were looking for an opportunity, maybe an excuse, to be around other people. They were looking to connect with their community.

Whether it’s to celebrate, be entertained, or simply be around others, there is something so simple yet powerful about bringing people together in one space. For Kitchener, Carl Zehr Square is this space, representing the urban, social and economic fabric of the City.

The master plan proposes to redevelop Carl Zehr Square into a space that is more suitable for events of all sizes and scales. The Duke Street civic space is proposed to be a space that celebrates the City’s rich history and art community and provides a distinct connection to transit.

Feedback with city staff, stakeholders and the public focused on the fountain, skating rink and the stage at Carl Zehr Square. The waterproofing membrane above the underground parking garage is near the end of its life and must be replaced. This presents opportunities for uniform grading of the Square, redesign of the fountain, and a newly designed multi-level stage at the northwest corner that will act as a seating platform when not in use.

A reflecting pool is proposed for the centre of the plaza. The design allows visitors to sit near the water, dip their feet or even wade through it. Programmable, interacting jets add an element of sound and play – a feature desired by the public and stakeholders. The pool can be drained within hours for programmed events, and the perimeter size can be scaled as warranted. The surrounding areas around the pool are activated with site furnishings, movable trees and information kiosks.

In winter, the fountain transitions to an ice rink with a temporary barrier system for skaters and cleaning equipment, and temporary benches to allow users to tie their skates or watch.

Additional planting beds, seating, and a ‘little library’ are among the features at the northeast corner of Carl Zehr Square. Movable trees replace the green slate wall as gesture to keep the linear connection toward Victoria Park, with electrical GFI receptacles installed to allow for seasonal lighting and mobile device charging.

The vision for a revitalized Carl Zehr Square favours electrical upgrades, audio / visual connections and rigging, and strategies for sustainability. Stormwater best management practices would include permeable paving and soil cells to capture stormwater runoff. By including best management practices (BMPs) for stormwater management, increasing the City’s urban forest canopy, using sustainable materials and practices, and providing active transportation infrastructure, we are able to support the City’s Strategic Plan through this master plan.

Improving the outdoor spaces at the Duke Street Entrance identifies a desire to link pedestrians and cyclists to future LRT and GRT stops, and integrate a custom bus stop. The site as a secondary event space makes use of existing grades for an informal amphitheater with electrical, audio and visual components. Lighting upgrades will allow for controlled dimming and colour changing, while stringed LED lights will provide a theatrical effect across the lawn area and smaller lighting solutions will be installed in the gardens and relocated Cube art installation.

Green, shaded seating areas and lawn present a space for outdoor cafe tables and chairs and a community work station, native gardens and spaces for art exhibits, along with a programmable lawn area with small stage for small scale events.

The plan proposes to remove large access stairs to Young Street and to upgrade existing drainage infrastructure using Low Impact Design principles, while providing USB chargers and a Wi-Fi hot spot in the upper terrace area.

The master plan’s recommendations for redevelopment support infrastructure renewal and programming initiatives to realize the vision of flexible all-season use of Carl Zehr Square and the Duke Street Entrance.

2. Background

2.1 Study Area and History

The outdoor spaces study at City Hall focuses on Carl Zehr Square and the Duke Street Entrance. The outdoor space is bounded by Duke Street to the north, King Street to the south, College Street to the west and Young Street to the east.

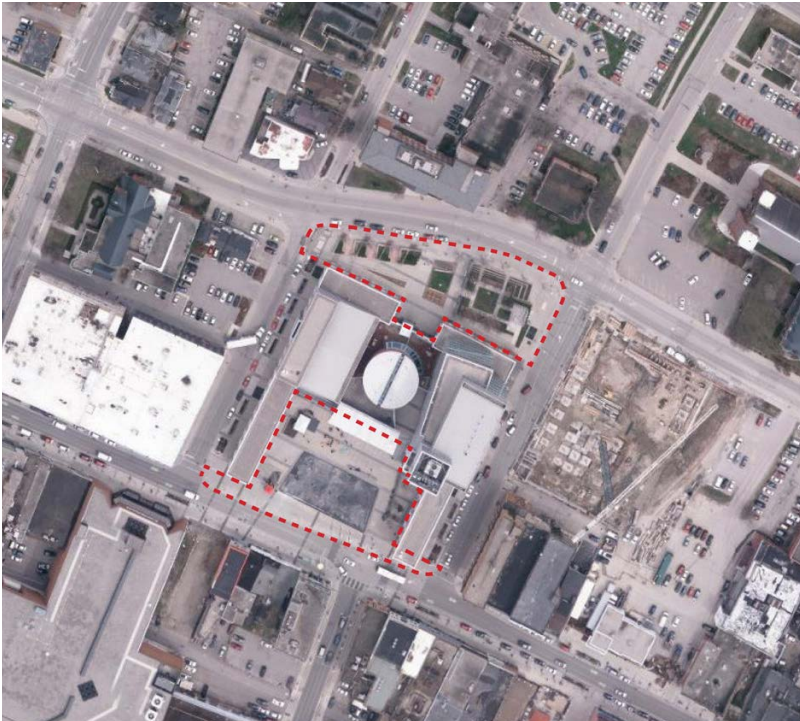


Fig. 1 Aerial view of the 3-acre project area.

Kitchener City Hall was designed by the Toronto-based architectural firm KPMB with lead designer Bruce Kuwabara. The design was selected through a national architectural competition in 1989 which had 153 entries. The building opened in 1993 and has won many awards, including a Governor General's Award — Canada's most prestigious architectural award. KPMB has gone on to design several other city halls and many prominent public buildings across the country.

The City Hall design competition was guided by the criteria and directions of a design brief. The KPMB design is conceived as an assembly of spaces and volumes to contain the program both inside and in the outdoor spaces. The design mediates the grade change between Duke Street and King Street, and allows for passage

through the building from street to street. The building has a u-shape to define the street edges and contain the public square that fronts onto King Street. The civic rotunda is the central internal gathering space that links directly with the public square.

The square was intended to be an urban room for the city, providing the opportunity for a range of seasonal activities. The intent was to provide a European styled space, simple in design, allowing for a variety of activities and expressions to occur in the space. A reflecting pool with an infinity edge along King Street occupies a significant amount of the space. The pool is transformed into an artificial ice skating rink during the winter months. The hardscape surface for the square is made up of precast concrete slabs, with linear granite paver bands. A small stage is located in the north corner of the square and a green slate wall aligns with Gaukel Street, creating a visual link from Duke Street through the site to Victoria Park.

The Duke Street frontage of City Hall was designed to be a more quiet, contemplative space in contrast to the more active civic square fronting King Street. There are a series of smaller spaces along Duke Street with hard surfaces and benches toward College Street, and a small enclosed courtyard toward Young Street.

A number of public art pieces have been installed along Duke Street, along with a large steel frame cube which was originally designed to be covered with vines.

Since its opening, there have been some minor changes to both public spaces, but generally the original design intent has been retained. King Street received new streetscaping in 2000 providing for closures of King Street in front of City Hall for major events. Various pieces of public art and memorials have also been installed and seasonal furniture is placed in both spaces during the summer. Most notable is the wide range of events and activities that have found a home over the last 23 years. While Oktoberfest, Canada Day, New Year's Eve have been celebrated at City Hall for many years, new events like the Kitchener Blues Festival and CAFKA have become provincially and nationally recognized events centred on Carl Zehr Square and City Hall.

City Hall, Carl Zehr Square and the Duke Street Entrance are significant modern architectural compositions. Modifying and updating both civic spaces requires sensitivity to the original vision for the spaces, its modern architectural expression, and its materiality.

2.2 Purpose of this Study

The study will determine priorities for investment in infrastructure and activity programming to meet today's needs and the design intent for Carl Zehr Square and the Duke Street Plaza as attractive, high-quality and flexible places for the community. The master plan will consider:

- The existing infrastructure of the outdoor spaces, and the level of retrofitting required to meet current and future programming requirements;
- The use, function and accessibility of the outdoor spaces based on observation, as well as staff and public experiences over the first 20 years of use by the community; and
- Understanding community and event needs of the future, and providing necessary facilities and technologies to support increased programming and maximize flexibility of the outdoor spaces.

An extremely sensitive and deft touch will be required in considering what should be changed and what should be left untouched. Determining the value of certain design options and conveying these to the project team and stakeholders involves mediating between the value of the past versus the future. Our vision for the future must be tempered by a respect for the design of the building and spaces.

Some components of the project area work well, some perhaps not as well as intended, and other parts struggle to have a role and purpose. This study provides the opportunity to review the performance of both public spaces and create a plan to refresh this civic space. The study will examine opportunities and ways to better accommodate existing roles while providing flexibility for the widest range of four-season activities.

Both spaces do not need a complete redesign, rather a sensitive curation to enhance the space while respecting its modern character.

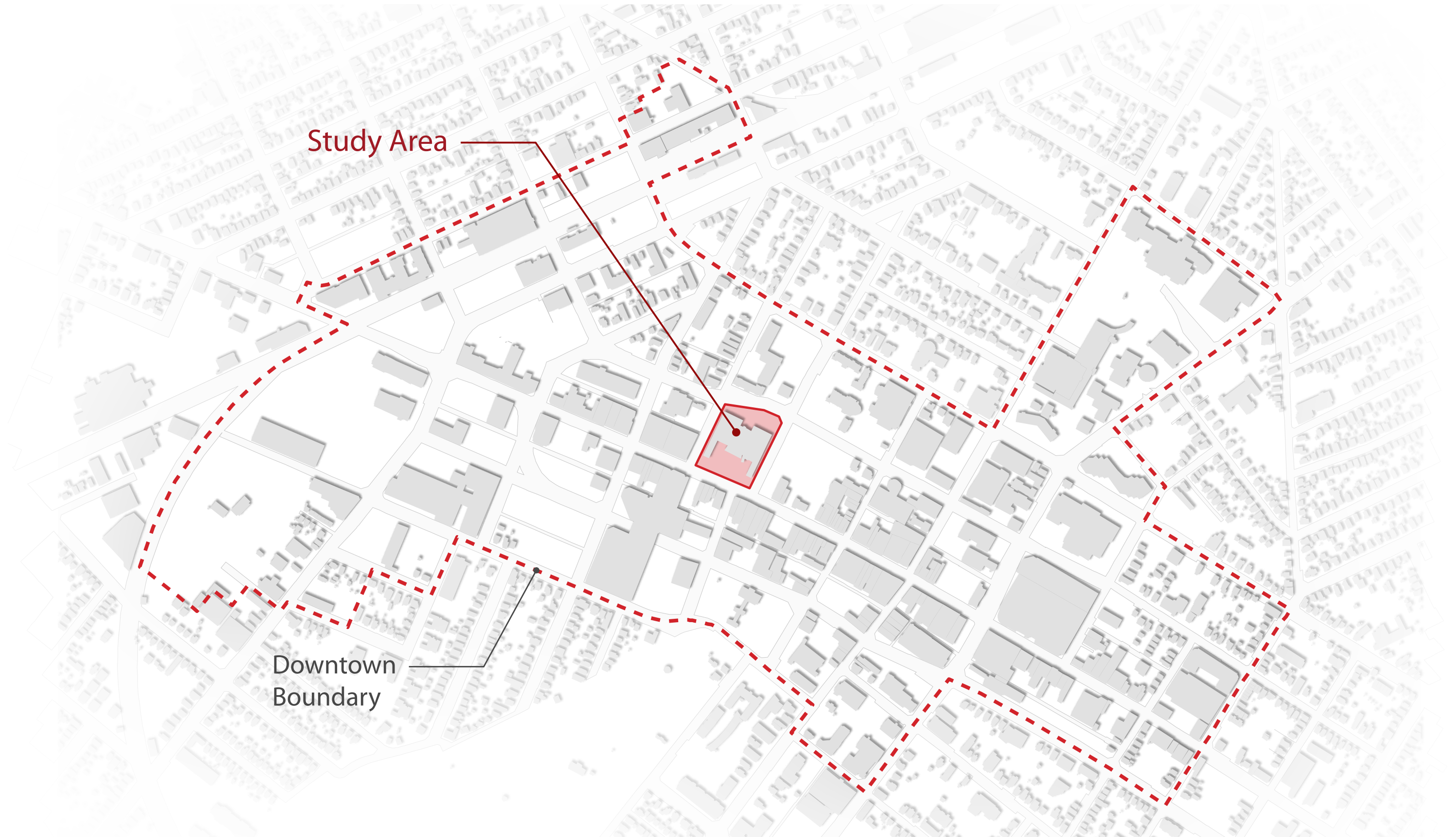


Fig. 2 Kitchener City Hall: The outdoor spaces are located within the Downtown core of Kitchener and are within close proximity to other Municipal facilities.

3. Existing Conditions

The outdoor spaces at City Hall are a complex urban landscape. The sites are laden with various physical conditions above and below the surface, include a wide range of public and private stakeholders, and contain a complicated history. A summary of the primary concerns in regards to the existing conditions can be found below:

- Existing paving within Carl Zehr Square and Duke Street is cracked and a safety concern;
- Current stage configuration and size does not maximize audience size, use or experience;
- Current fountain is not flexible for programming, nor does it allow for public access within the standing water;
- Change in grade within the Duke Street Plaza is not convenient nor accessible for users;
- Lack of shade in Carl Zehr Square inhibits use during the summer months; and
- Some of the site lighting is out of date and in need of replacement.

3.1 Context

Carl Zehr Square

Carl Zehr Square serves many purposes. It functions as a venue for hosting community events throughout the year including festivals, concerts and formal gatherings. It's also an urban space for day-to-day use by individuals passing through the space to get to and from work, enjoying a coffee, or to take a few moments to sit and observe the activities and movement of others around them.

As a civic space in the heart of Kitchener's Downtown, Carl Zehr Square provides an open and flexible activity space. As the entrance to City Hall, the plaza space is barrier free and identifiable as a cultural hub for local residents and visitors to the community.

The civic space plays an important role with the opportunity to continue to draw pedestrian traffic from Victoria Park (Gaukel-Young Pedestrian Corridor), surrounding districts (Heritage, Victoria Park, Innovation, etc.) and Downtown businesses, restaurants and shops during the day and into the evening hours. Currently there are over 800 employees working at City Hall, and another 14,000 working within the Downtown. There are also 3,700 students studying at secondary and post-secondary institutions in the Downtown.

In addition to the commercial connection, residential influences with the Kaufman Lofts, 1 Vic Condo and City Centre development will continue to increase the potential for foot traffic within the space. Currently there are 2,000 people living within the Downtown, with another 42,300 people living within a 20-minute walk of Downtown (2012-2016 Downtown Action Plan).

Downtown has become the home of many festivals and events. Over 400,000 people annually attend events in the Downtown, with many of the events focused on City Hall and nearby Victoria Park.

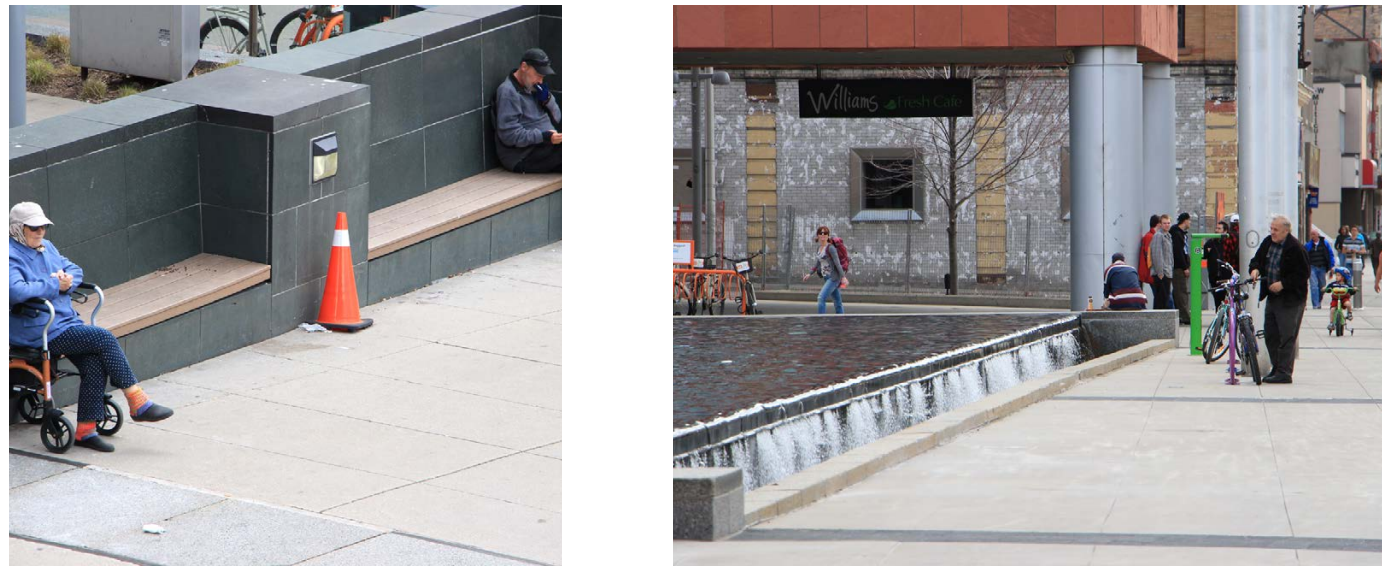


Fig. 3 Existing physical barriers within Carl Zehr Square.



College Street Chess corner Public washroom Upper terrace Green Welsh slate wall Williams Cafe entry Covered area Young Street

Fig. 4 Panoramic image of Carl Zehr Square.

Duke Street Entrance

The Duke Street Plaza and Entrance is a more passive area compared to Carl Zehr Square, but it still plays an important role in life of the Downtown and as a showcase for local artifacts and public art.

It will become a much busier area when the Light Rail Transit (LRT) system begins operations, given its proximity to the Duke Street stop. The Duke Street frontage along with the public space across to the Wilfrid Laurier University campus provides an opportunity to rejuvenate a much larger area, and increase the prominence of the space as an active entrance to City Hall.

In contrast to the Carl Zehr Square side of City Hall, the Duke Street Entrance acts more as a parkette than a gathering space for events or public gatherings. In a typical day, the space is highly underutilized by the public with only limited use by City Hall employees.

With the new City Centre development, there will most likely be an increased need for public open space, and a need for a variety of programmed and informal spaces.

The Duke Street Entrance has the potential to play a significant role in meeting these needs.



Fig. 5 Existing art and cultural artifacts located in the north public gardens.

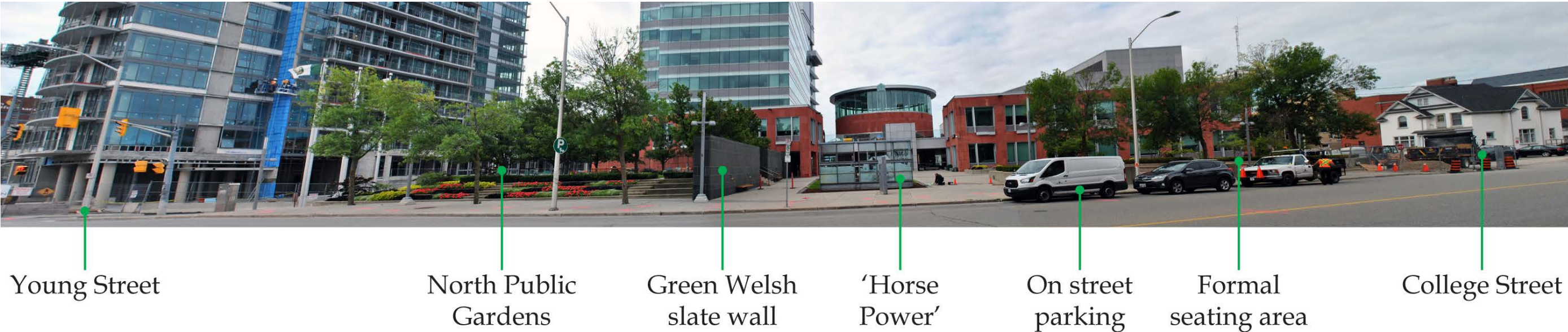


Fig. 6 Panoramic image for the Duke Street Entrance.

3.2 Connectivity

Access to the Overall Site

With City Hall being centrally located within the City’s Heritage District, its location sits along the main traffic spine for the Downtown core. Bound by King Street to the south and Duke Street to the north, the project site is currently serviced by GRT bus routes and will have access to the future LRT system on both Duke Street and Charles Street. The site is also within 500m of the proposed Downtown multi-modal transit station at King Street and Victoria Street. The facility will be the home to GO Transit, VIA Rail, inter-city buses, the GRT system and rapid transit.

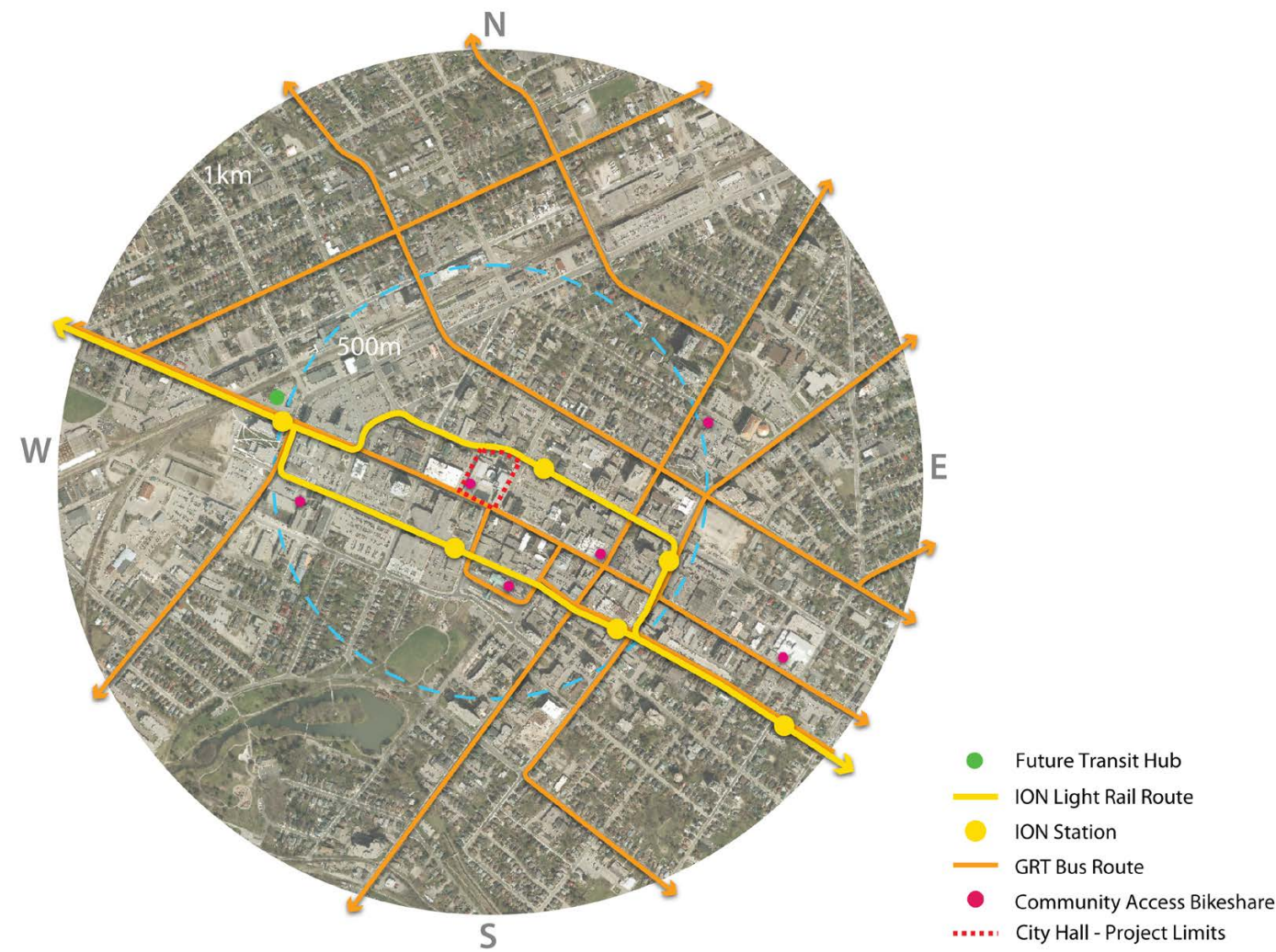


Fig. 7 Existing and future public transportation routes and station locations.

City Hall’s location within the Downtown core allows it to be very walkable to a number of destinations across Kitchener, including numerous restaurants and bars. Currently, the highest volume of pedestrian traffic across the site is along King Street. Few pedestrians traverse along the Duke Street side, but that should change once the LRT system is operational.

Because there are no dedicated protected bike lanes on either Duke Street or King Street, cyclists often find it hard to navigate through the traffic on King and Duke Street. This could change as the City begins to implement its Cycling Master Plan over the next few years.

The plan presents a network of bikeways that are to be implemented over time, along with policies supporting the proposed infrastructure and potential dedicated bike lanes that would replace the existing sharrow lanes.

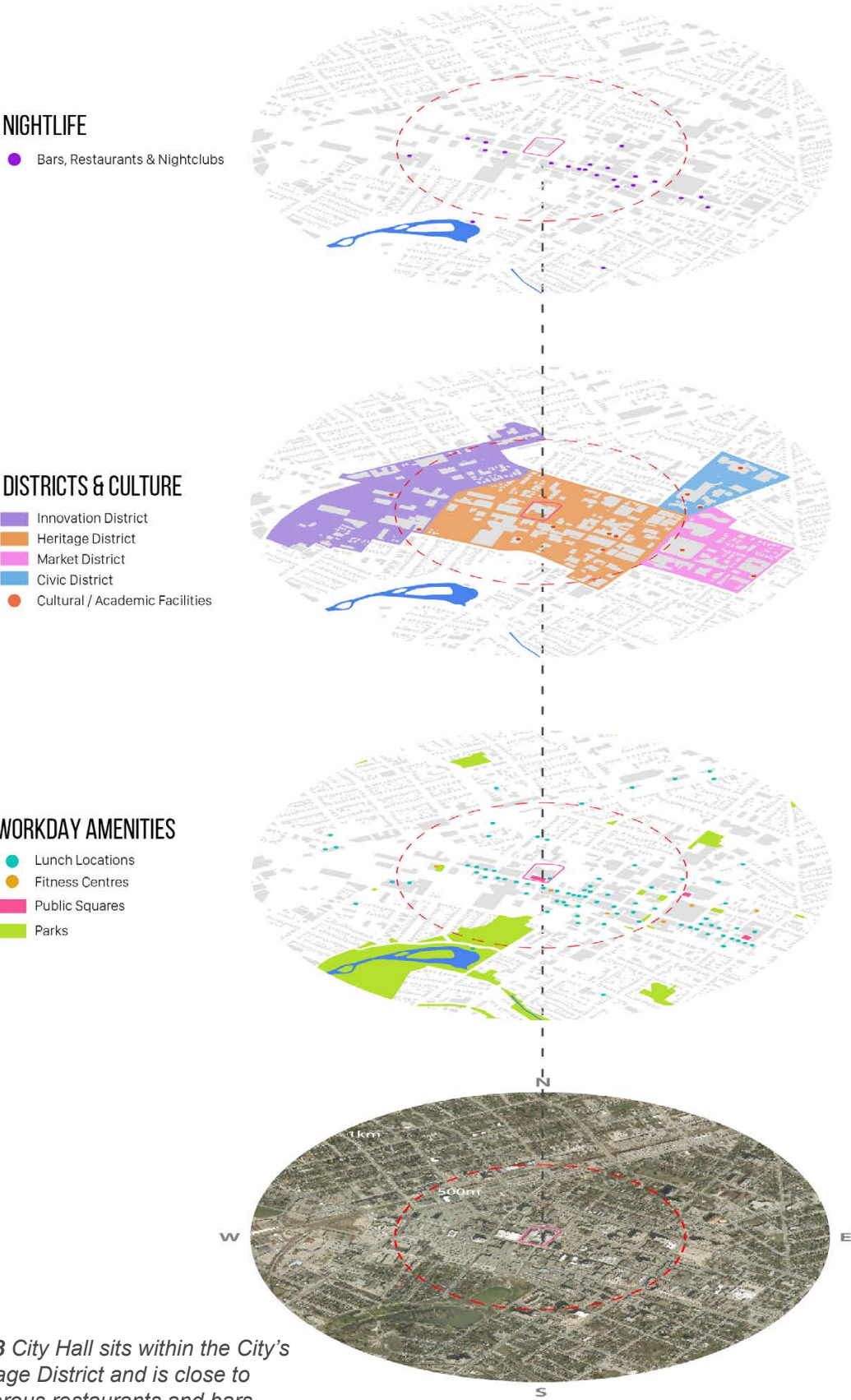


Fig. 8 City Hall sits within the City’s Heritage District and is close to numerous restaurants and bars.

3.3 Comfort

Carl Zehr Square



Fig. 9 A windy summer day at Carl Zehr Square.

City has provided tables and chairs, including some with umbrellas within the plaza to provide some shelter from the hot sun.

Duke Street Entrance

The Duke Street Plaza does contain trees which provide some shade and is also on the north side of City Hall, thus providing significant shade during the summer months from the shadows cast by the building. The recently completed City Centre condominium building also adds to the shaded area for the Duke Street Entrance, casting a shadow across the site during the morning hours. There is little refuge from rain within the Duke Street Plaza.



Fig. 10 Street trees along Duke Street provide shade during the summer months.

Shade Considerations

Careful consideration in regards to shade in both public spaces needs to be taken into account when talking about comfort. Each site was assessed for its own plan and the following graphic helps illustrate the current shade patterns throughout the day over the four seasons. These overlays of the current shade pattern and Region of Waterloo Shade Work Group resources helped the design team determine areas which require more shade through the form of built structure, site furnishings or trees.



Fig. 11 Graphic illustrations depicting the shaded areas at City Hall over the course of the day.

3.4 Circulation

Carl Zehr Square

Carl Zehr Square is accessible from King Street, as the at-grade connections to the space transition seamlessly from the right-of-way into the space. As noted in the following diagrams, the current configuration of the water feature and its central location within the square creates a physical separation from the street, and forces pedestrians to enter the plaza on either side of the feature from the College / King corner to the north, or the Gaukel / Young / King corner to the south.

Currently, the highest volume of pedestrian traffic across the plaza is from both corners of the site and into the main entry for City Hall. The pedestrian flow is also heavy from the main entry to Williams Fresh Cafe. Few pedestrians tend to travel across the middle portion of the site, tending to focus on the shortest route between the street and main entrance (see **Figures 16-18** – Site Circulation Patterns).

This pattern of circulation can be classified as a “necessary activity”. Necessary activities are those in which we are required to participate. Things like going to work, running errands, or waiting for a bus. Because these activities are considered necessary, their occurrence is influenced only slightly by the physical environment.

The Carl Zehr Square plaza space contains people participating in “optional activities”. Optional activities are those that are participated in under favourable conditions, like taking a walk for a breath of fresh air, enjoying the sounds of a tumbling water feature on a beautiful spring day, or enjoying a cup of coffee under shade. These activities take place only when exterior conditions are favourable.

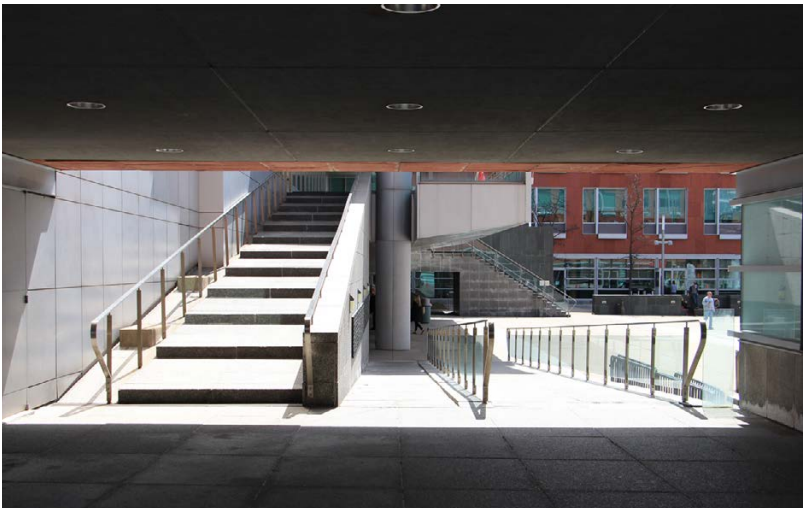


Fig. 12 Existing connection to the upper terrace and College Street.

There are two ramps in the northwest corner of the Square. The first ramp connects the square to a secondary entrance along College Street. From that point, the second ramp provides access up to the second level balcony. The elevation difference between Carl Zehr Square and the second level is approximately 4.4 metres. This second section of ramp includes risers at 1.5 to 2.0 metre intervals along its length. Given the combined ramp / riser configuration, this area is not considered to be accessible by Ontario Building Code (OBC) or Accessibility for Ontarians with Disabilities Act (AODA) guidelines.

There is also a staircase to this second level at the east side of the square. This staircase appears to be in compliance with the OBC guidelines but does not fully comply with AODA. Additional consideration should be given to retrofitting this staircase so it meets AODA standards.



Fig. 13 The upper terrace and staircase is one of many underutilized civic spaces located around City Hall.

Duke Street Entrance

The Duke Street Entrance is accessible primarily from Duke Street, but can also be accessed from both College Street and Young Street.

The central courtyard provides the only barrier free access to City Hall from Duke Street. Access from College Street to the entrance contains a series of risers. Additional access points from Duke Street are provided by three small staircases among raised planter beds. The grading of this western area should be considered further to reduce the number of riser sets required.



Fig. 14 Access to City Hall from Duke Street.

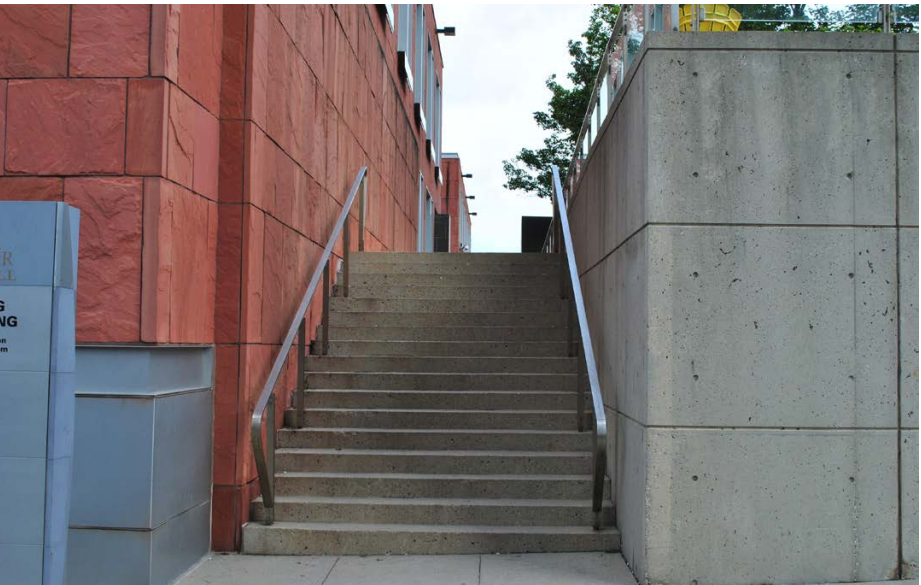


Fig. 15 The only access to Young Street is provided adjacent to this eastern courtyard.

The raised garden courtyard to the east is currently accessible by a barrier free ramp and a staircase from the central area. Due to the significant grade difference between Young Street and the City Hall entrance (approximately 2.7 metres), the secondary access point to the raised garden is by a large staircase from Young Street.

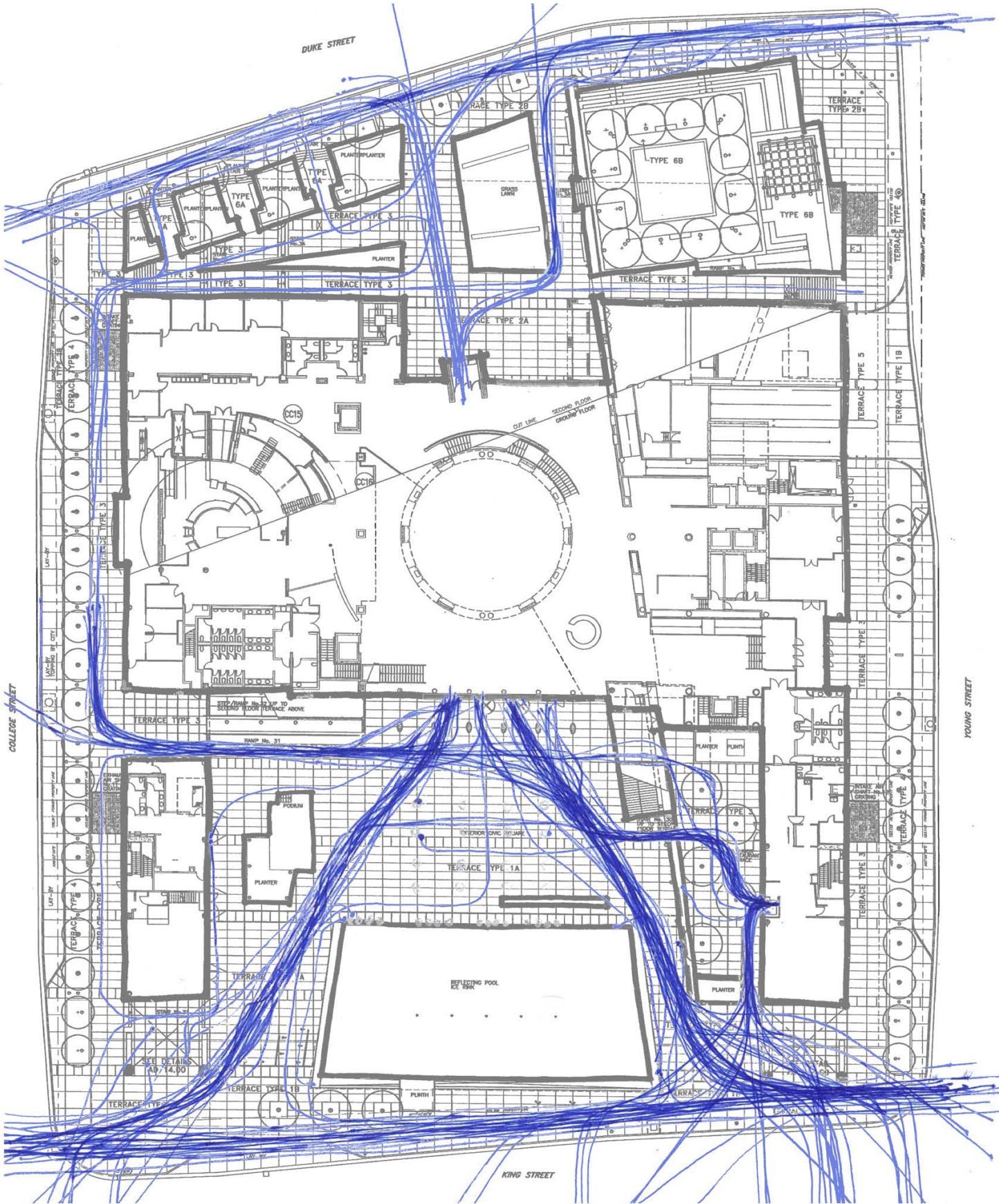


Fig. 16 Site Circulation Diagram - Morning Movement (8:30am - 10:00am)

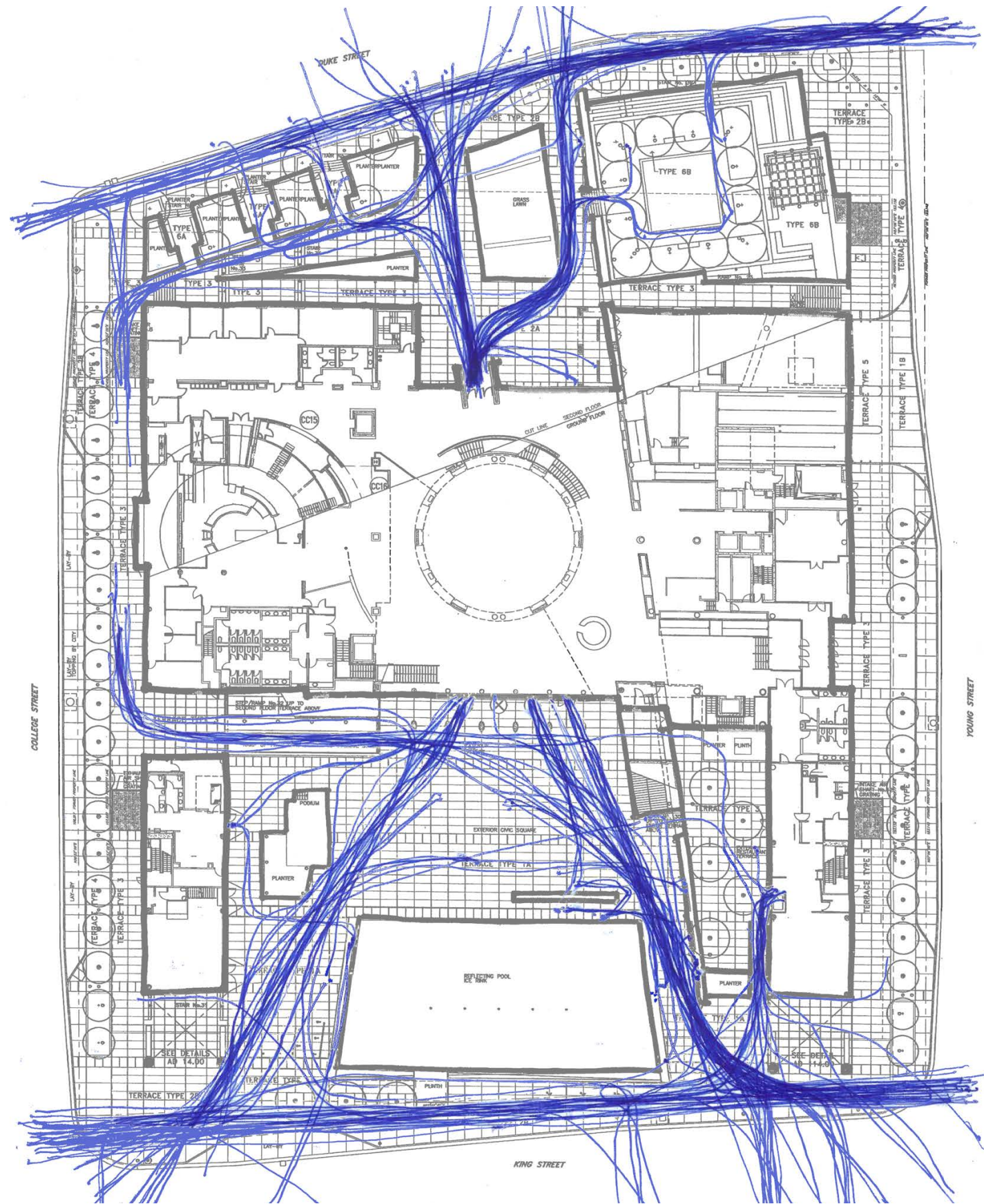


Fig. 17 Site Circulation Diagram - Lunch Movement (11:30am - 1:00pm)

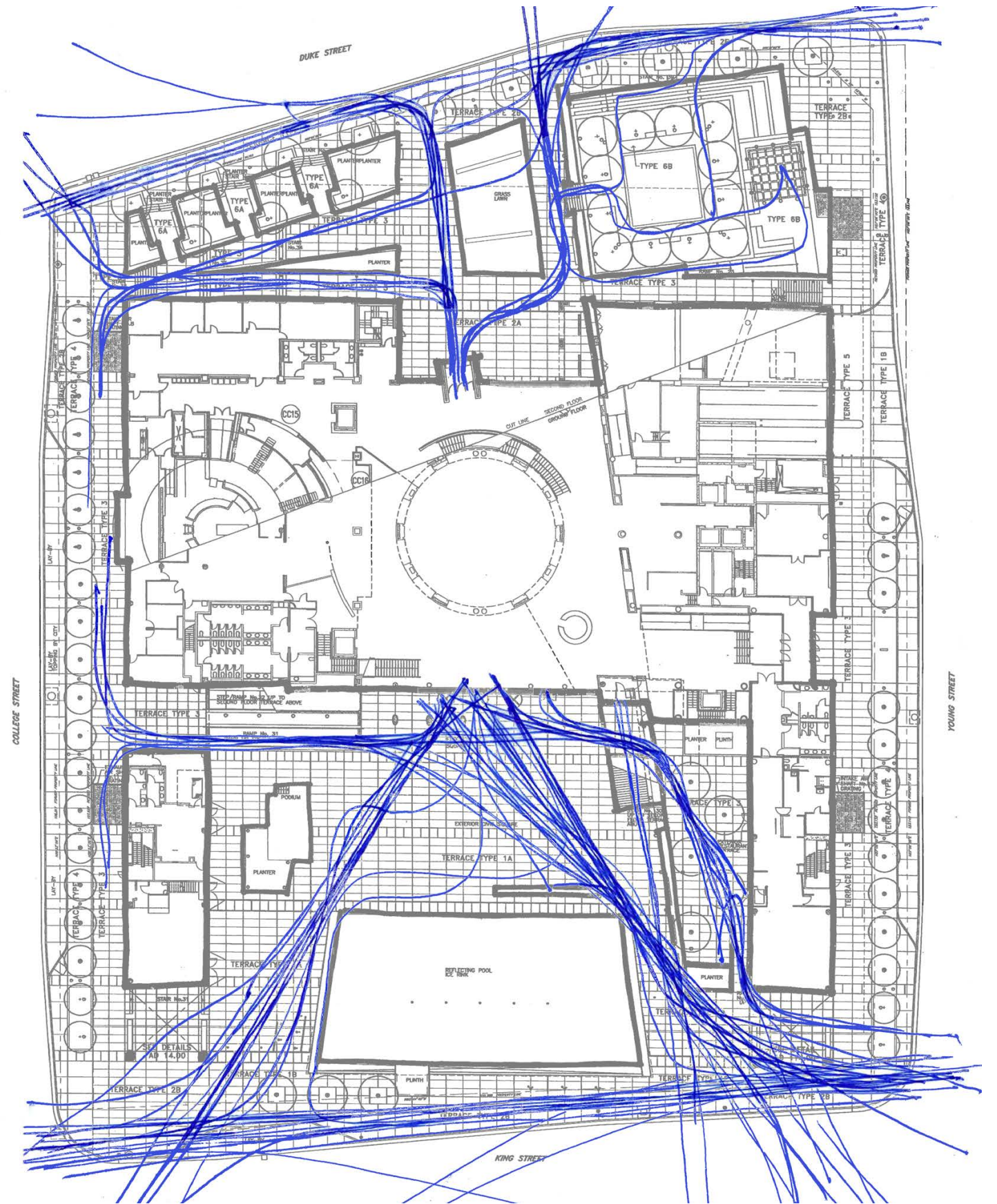


Fig. 18 Site Circulation Diagram - Evening Movement (4:00pm - 5:00pm)

3.5 Programming / Special Events

Organized programming specifically within the Carl Zehr Square space takes place year round, although March through December is considered the busiest time of year. During this time, the outdoor space at City Hall hosts events, concerts and regular programming such as the Downtown Live! lunchtime series or Food Trucks Downtown. As one of the few large hardscaped public spaces in the city, it is often used for large festivals, including the Kitchener Blues Festival, Oktoberfest and Christmas Fantasy / Christkindl.

Examples of year-round programming include:

Typical Major Events Schedule for Carl Zehr Square		Fountain Drained	Temporary Stage
March	Pakistan Canada Day	No	No
March	Hockeytown	Yes (rink)	Yes
April	Twilight Grand Prix	No	No
May	Cinco de Mayo	No	No
May - June	Tri-Pride	Yes	Yes
June	Muslim Women's Festival	No	No
June	King StrEATery Food Truck Festival	No	No
June	Summer Lights Festival	No	No
June	KW Multicultural Festival	No	No
July	Canada Day Celebration	Yes	Yes
July	Discovery Square	No	No
July	Cruising on King Street	Yes	Yes
July	Rock and Rumble	Yes	Yes
Aug.	Kitchener Blues Festival	Yes	Yes
Aug.	Hot Summer Pupusas Festival	No	No
Oct.	Oktoberfest	No	Yes
Nov.	Night / Shift Placemaking	No	No
Dec.	Christkindl	Yes (rink)	No
Dec.	New Year's Eve	Yes (rink)	No

In addition, Carl Zehr Square hosts a series of smaller scale programmed events:

- Live Music on Tuesdays and Fridays;
- Art Market once a month; and,
- City Hall mid-week market.

Based on 2015 events, Carl Zehr Square was programmed between May 1 and September 30 for a total of 20 out of a possible 65 weekend days (Friday, Saturday and Sunday). Eight of those days were via direct City of Kitchener-run events. The others were by community groups with the City's assistance. While only 40 events were held in 2011, that total grew to 100 in 2015.

When looking at attendance, Downtown Kitchener has seen roughly a 32% increase in the past 5 years, growing from approximately 440,000 in 2011 to approximately 584,600 in 2015. Of the 584,600 participants, 280,000 can be directly connected to events in Carl Zehr Square or immediately adjacent to City Hall.

Carl Zehr Square is also the location for many spontaneous impromptu activities. For example, if people wish to organize a protest to a local, national or international event, crowds from across the Region will gather here more frequently than at Uptown Waterloo or Downtown Cambridge.

The challenges of the current design and the amount of programmed or unprogrammed events held each year at City Hall are part of the reasoning for this master plan. Because the pool needs to be drained for larger scale events and because the stage is inadequate in size for large events and too big for small events, a redesign should be considered. The orientation of the stage is also a constraint, as the original design intent was to allow approximately 200 people in front of the stage for events, and plug-and-play audio / visual connections were not provided in the design of the stage system. Therefore, for major events within Carl Zehr Square, the City is forced to rent a temporary stage and accompanying audio / visual equipment. The total cost spent by the City and Community Groups in 2015 for temporary stages, sound systems and lighting was \$124,000.

The following images and diagrams help illustrate how the plaza space is currently being used for a wide variety of events and gatherings and the constraints associated to the existing design.



Fig. 19 Mayor's Cup Minor Hockey.



Fig. 20 City Hall Mid-Week Market.



Fig. 21 Informal protest at City Hall.



Fig. 22 Filming of Hero's Reborn at City Hall.

Carl Zehr Square Programming Diagrams (existing conditions)

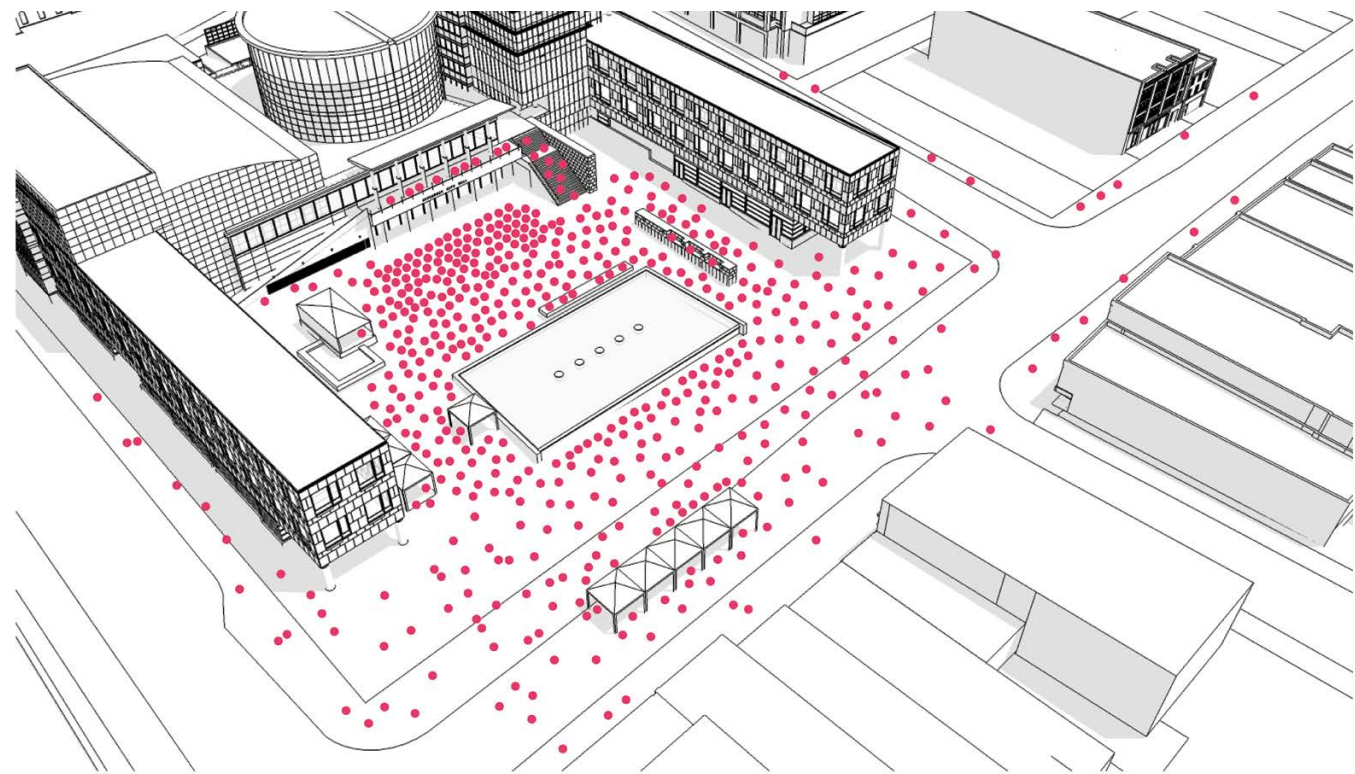


Fig. 23 Carl Zehr Square during the 2015 Oktoberfest Opening Ceremonies - Fountain remains in place, a larger portable stage is brought in and the existing stage is used as a secondary stage.

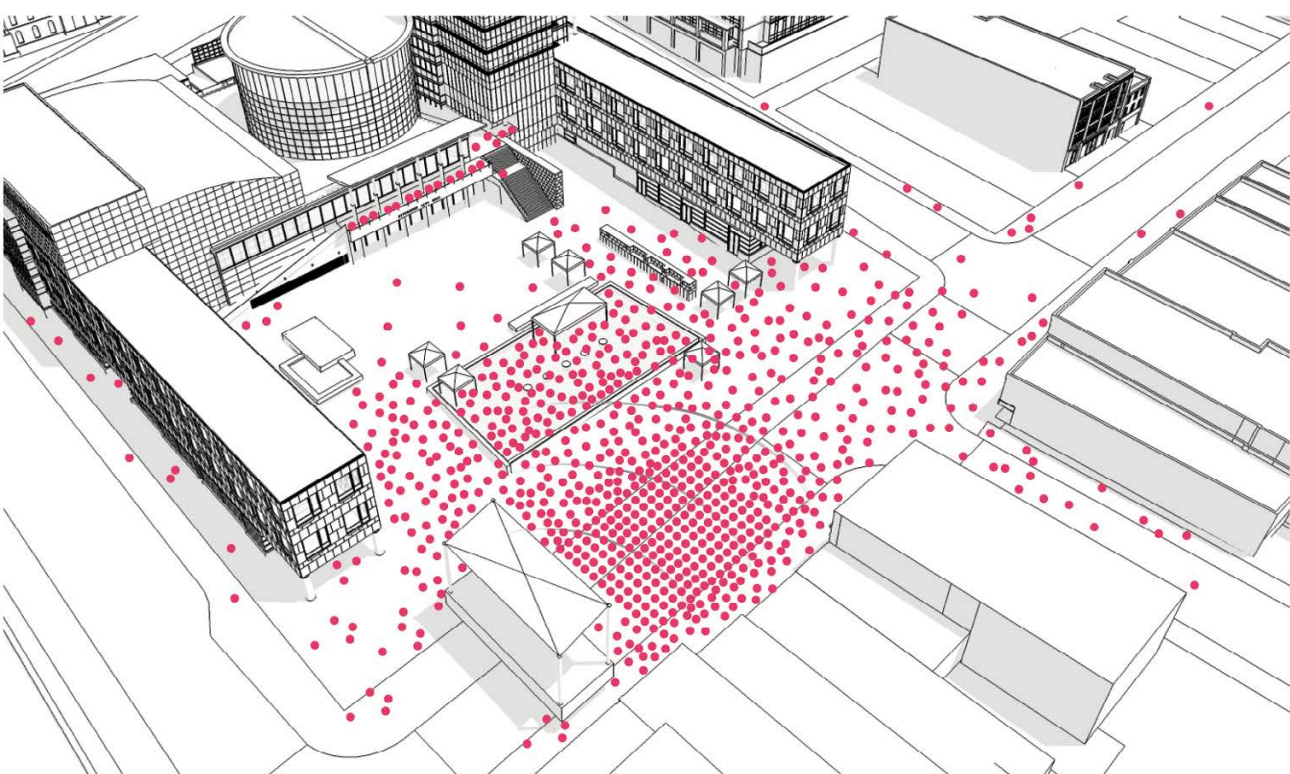


Fig. 24 A diagram of Carl Zehr Square during the 2015 Kitchener Blues Festival - Fountain is drained and larger rented stage is placed on King Street.

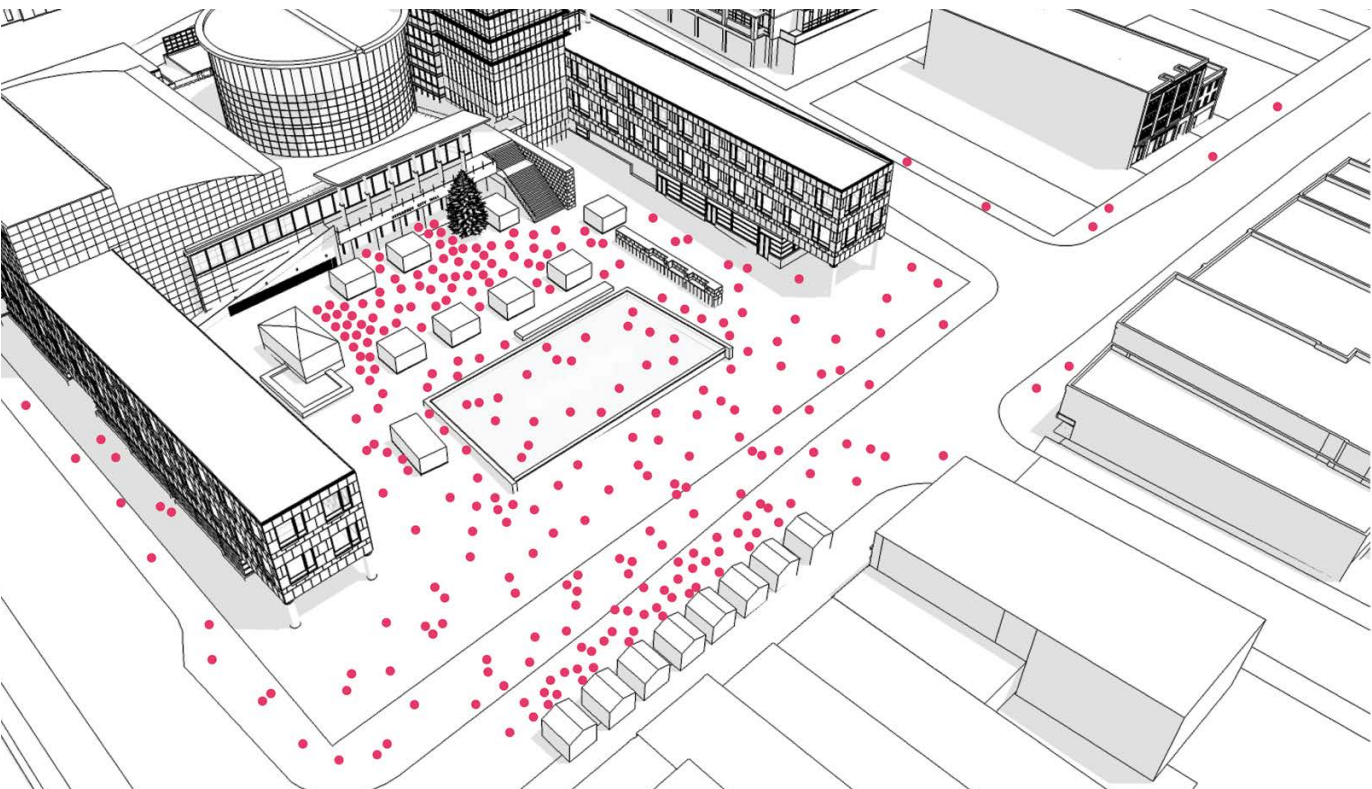


Fig. 25 A diagram of Carl Zehr Square during the 2015 Christkindl Market - Skating rink is in place and the existing stage is in use.

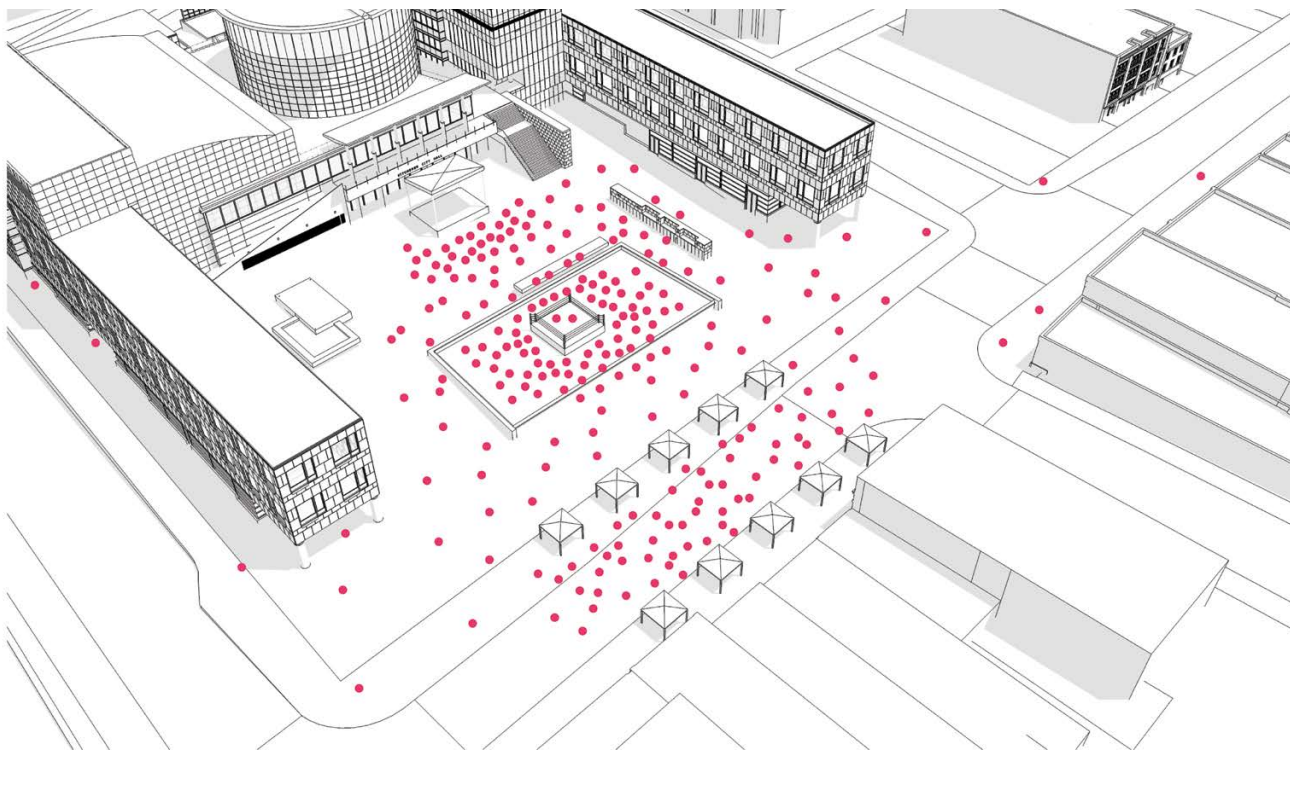


Fig. 26 A diagram of Carl Zehr Square during the 2015 Rock and Rumble - Fountain is drained and a rented stage is brought in and placed in front of the existing stage.

3.6 Site Grading

Carl Zehr Square

In the existing condition of Carl Zehr Square, the outdoor space between City Hall and the King Street West right-of-way generally slopes from the building face toward the right-of-way.

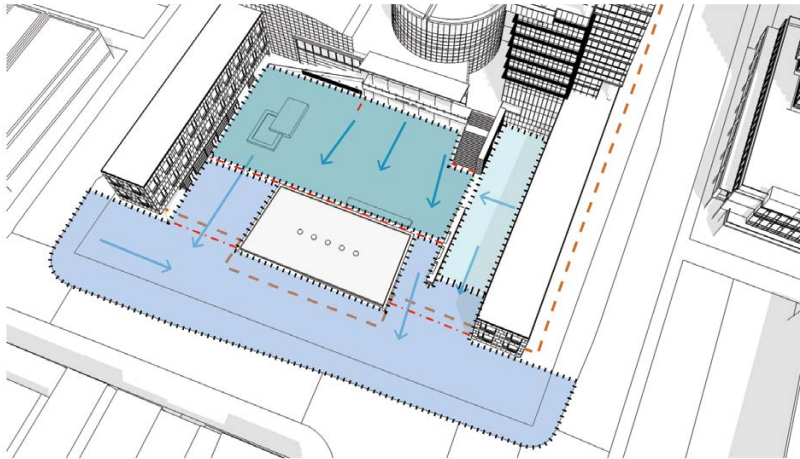


Fig. 27 Spatial diagram depicting the surface grading for Carl Zehr Square.

The northern courtyard is the flattest portion of Carl Zehr Square. Runoff drains from the building face toward a trench drain that runs east-west, close to the northern edge of the fountain. There are pedestrian connections at the east and west sides of the fountain that slope from the north edge of the fountain toward another set of trench drains which run east-west close to the King Street right-of-way. While the slope of these connections is slightly steeper than in the northern courtyard, they are still barrier free by OBC and AODA guidelines.

The trench drains that run east-west through the square and at the western edge of the Williams Fresh Cafe courtyard are 200 mm wide and in fair to poor condition. The trench drains connect into the parking garage plumbing system. The trench drains have longitudinal slotted galvanized steel grates. Most of the grates are in poor condition, having been damaged by snowplowing activity. In higher traffic areas, there is accumulated debris in the trench drains that should be regularly cleared. Despite these concerns, the trench drains appear to provide sufficient drainage for typical rainfall events. Moving forward, alternative grate solutions that are more durable and conducive to plowing activity should be investigated.

Duke Street Entrance

The Duke Street Entrance area to City Hall generally slopes from the building face toward the Duke Street right-of-way. The space is divided into three main sections: the tiered planter beds to the west, the main entrance courtyard in the centre, and the elevated garden courtyard to the east. The parking garage below extends approximately two-thirds of the way toward the right-of-way from the building face.

From a grading perspective, the space is divided into two main sections: the open courtyard at the north side of the square and the fountain area at the south side of the square. There is also a small elevated courtyard at the east side of the square, adjacent to the Williams Fresh Cafe. The parking garage below extends to approximately three-quarters of the width of the fountain, measured in the direction toward King Street.

The northern courtyard is the flattest portion of Carl Zehr Square. Runoff drains from the building face toward a trench drain that runs east-west, close to the northern



Fig. 28 Example of cracked granite paving along the edge of an existing trench drain.

Runoff throughout these spaces is controlled with the use of trench drains, area drains, and planter drains that are connected to the parking garage plumbing system. In the central courtyard, runoff drains from the building face toward a 200 mm wide trench drain at the opening to the courtyard that runs east-west. From there, the runoff continues toward Duke Street and is intercepted once again by a set of shorter trench drains. In the two other spaces, runoff is controlled through the use of multiple area and planter drains.

As in Carl Zehr Square, the trench drains servicing the Duke Street Entrance area are in fair to poor condition. The galvanized steel grates have also been damaged by snowplowing activity. Alternative grate solutions should be considered in order to accommodate snow removal activity.

City Hall Parking Garage

As part of our mandate, we also reviewed the data and findings presented in the 2013 Structural Monitoring Report prepared by RJC dated May 24, 2014. As mentioned previously, the garage roof slab forms the podium deck of a majority of Carl Zehr Square and the Duke Street Entrance. The podium deck waterproofing is concealed by the existing concrete pavers. As such, the RJC report focused on a review of the podium roof slab from the underside (soffit), commenting on the visual concrete deterioration and observed active leaks. They were unable to review the waterproofing membrane which is concealed by the pavers.

RJC concluded that “the waterproofing system over top of the podium deck slab (garage roof) is exhibiting signs of localized distress” based on an increased presence of leaking cracks, peeling paint and efflorescence. The waterproofing membrane is original to the structure, which was built between 1991 and 1993. The type of membrane was not noted in the report; however, most membranes have a service life of around 30 years, depending on exposure and membrane type.

Therefore, it is likely that the existing podium waterproofing membrane will be nearing or be at the end of its useful service life within 5-10 years. As the costs associated with the improvements of the master plan are significant and anything constructed over the podium deck will need to be removed in order to replace the waterproofing membrane, it is strongly recommended that the membrane be replaced in conjunction with any work completed on the podium deck. We do not recommend a localized replacement approach over leaking cracks based on the age of the membrane.

In order to establish a full scope of work and associated costing for the podium deck waterproofing, we recommend undertaking a condition survey a few years prior to implementation of the improvements. This should include test openings in the podium deck to establish the composition of the overburden, membrane type, and other factors that may impact costs.

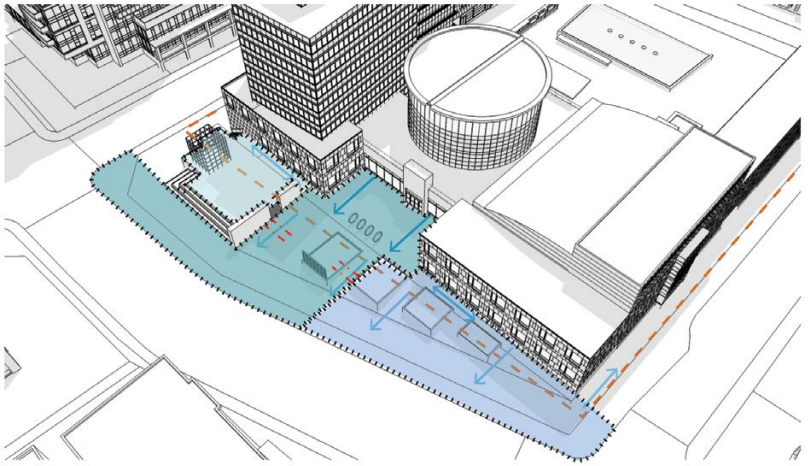


Fig. 29 Spatial diagram depicting the surface grading for the Duke Street Entrance.

3.7 Site Elements

Carl Zehr Square



Fig. 30 Granite paving bands extend across the plaza space with concrete paver blocks filling a majority of the area.

Paving: Concrete paver blocks interspersed with bands of granite provide surface cover in the space. The concrete pavers, which appear to be poured in place, are spalling or cracked in many locations creating dangerous tripping hazards, especially in the northern portion of the square. The granite slabs appear to be in better condition. However the granite is highly susceptible to flash freezing during the winter. Because of this condition, significant amounts of salt are applied which leads to residue buildup in the square. New surface treatment options for the square should be considered further.

Any proposed surface treatment options will need to be durable enough to withstand traffic from City vehicles and special event equipment.

Site furnishings within the large plaza space consist of a variety of materials, including a large linear granite seat wall, formal seating along with seasonal seating added in the summer months.

Fountain and Ice Rink: The combination fountain and ice rink at Carl Zehr Square is served by equipment located in rooms off the parking garage below. The majority of the ice plant equipment is original but well maintained. The hot water heaters are scheduled to be replaced in 2016 and the ice plant itself is near its life expectancy (typically a 25-year expectancy) and should be replaced as part of the implementation priorities.

The pumps for the water fountain are housed inside the City Hall parking garage, below the fountain, alongside a reservoir storing the bulk of the water. There are five pumps for the fountains and a sixth pump for the filtration system. All of these pumps are controlled via the lighting relay panel system in City Hall which allows for each fountain head to be turned on and off remotely. These pumps are regularly maintained and in working condition. The reservoir system requires some repairs as it has a small but persistent leak that is managed by maintenance staff.

Currently, only a maximum of two pumps are run at a time as running more pumps causes water to overflow out of the perimeter gutter system into the ice plant pit. The ice plant pit has no drainage system which causes the water to seep into the parking garage below. A drain should be added to this pit if the fountain is to be maintained in order to prevent water from getting into the parking garage, as well as provide the flexibility to run more fountain heads simultaneously.

The fountain heads are a removable component with integral lighting. These have to be removed in order to put in the ice rink or to host events in the drained fountain space. The removal and re-installation of these heads involves a significant amount of time.



Fig. 31 Existing electrical equipment for the fountain is still in good condition after 20+ years of use.

Stage: As noted previously, the orientation of the existing stage was to allow approximately 200 people in front of the stage for events and provide access only through a series of steps, thus making it inaccessible for those with a disability or challenged by stairs.

The stage has been deemed by users to be too small for larger events but too big for smaller scaled events and lacks connections for audio and visual components. It is clad in granite along the top and on one side, with the other three sides being clad in a recycled wood decking material. The current condition of the stage is showing signs of distress based on its use, as portions of the granite cladding are cracked and pieces of the siding are broken.



Fig. 32 Missing and broken siding along the edge of the stage.

Duke Street Entrance



Fig. 33 Existing pavers within the north public gardens are set on a sand base.

The surface cover for the Duke Street Entrance area is consistent with that in Carl Zehr Square: concrete pavers with granite banding. These pavers exhibit the same deteriorating conditions and present similar tripping hazards as seen in the Square. New surface treatment options should be investigated further.

The north public gardens are a raised plaza space located on the east side of the Duke Street Entrance where the paving system consists of granite pavers. In general, the pavers themselves are in rather good condition with few minor cracks and breaks.

Site furnishings within the upper gardens consists of one wood bench and two concrete trash receptacles, with seasonal seating added in the summer months.



Fig. 34 Various seating options exist during the summer months in the raised garden.

3.8 Site Lighting



Fig. 35 Colorful lights in the fountain and along the upper terrace illuminate Carl Zehr Square at night.

There is a wide variety of lighting sources and lighting functions throughout the site. As per the Lighting Study that was completed in 2013, the current light fixtures utilize older lighting technology and should be retrofitted to new sources such as LED in order to realize significant energy saving, and improve the available level of control. Some lights along City Hall have already been replaced in order to allow for cutoff controls. Any further changes to the lighting should be coordinated to ensure the colour of the light matches and suits the use of the space.



Fig. 36 Wall lights are starting to show signs of wear due to heavy salting of the civic spaces during the winter months.

Each of the three flag locations has a different lighting system. At the corner of Duke and Young, the in-grade fixtures have been removed due to ongoing maintenance issues. In front of the fountain / rink, there are lights mounted to the poles to illuminate the flags. To the east of Carl Zehr Square, the flags are illuminated by in-grade fixtures, however the area is elevated to reduce the wear and tear on the fixtures.

There are many lights cast directly onto walls, stairs, and planters at low levels. All show significant corrosion despite being recently replaced. This is attributed to the use of salt in winter, and fixtures not being designed to withstand salt. All of these fixtures should be inspected to ensure they are still operating in a safe manner despite the heavy level of corrosion. These lights need to be replaced with a light fixture that can withstand salt, similar to those installed in coastal regions. Other wall-mounted lights, at the entrance from Duke Street and at the ramp from College, are in better condition. These lights are of a different design and installed at a higher level, beyond where salt would be applied.

There are wall washing track fixtures adjacent to the Duke Street Entrance and pot lights at the King Street entrance.

There are also pot lights under the two building overhangs at King Street and the open walkway through to College Street. These lights are currently functional only in nature but could be retrofitted with the ability to change colour and add some interest to the entrances.

City Hall is illuminated by a combination of up and down lighting. There are in-grade uplights in the balcony level that wash light up the tower portion of City Hall as well as beside the stair / ramp up to the balcony that wash light up the wall to the left of the entrance to City Hall.



Fig. 37 Colorful lights in the fountain activate the King Street edge of the plaza.

3.9 Audio / Visual Equipment

There are building mounted metal halide lights at a high level which are designed to wash the building with light. All of these lights are static white with no ability to change colour or intensity based on schedules or user interaction.

The remaining lights supplement other elements on the site such as lighting below the benches adjacent the fountain, lighting under the railing at the balcony overlooking Carl Zehr Square, and lighting in the fountain attached to the fountain head assemblies.

One of the goals of the study is to maximize the number of environmental benefits with a cohesive vision for both plaza spaces and their surrounding environments – to improve the environmental performance of the site in concert with making a better civic space.

Currently there is a small amount of audio visual equipment serving Carl Zehr Square, while Duke Street is limited to a single event power connection. The audio at Carl Zehr Square consists of:



Fig. 38 Imagery and video can be projected across the Cube, however current limitations in the existing equipment do not allow for audio to be broadcast.

- Two pairs of exterior format speakers (70v) – one pair outside of Williams Cafe and one pair over the chess table area, and
 - One pair of small format public address loudspeakers, bolted to the underside of the main balcony, facing King Street. These speakers all have the same audio source which is located in the security office. Currently, the City controls the music being played via computer at the security desk running iTunes.
- The output of the AV receiver is patched into:
- One InterM PA-9324 Public Address Power Amplifier – which is running in 70v mode to power the chess and Williams Cafe outdoor speakers mentioned above, and
 - 1x Behringer Europower EP1500 2ch low impedance amplifier. The EP1500 channels output to ch1 = the under balcony speakers facing King Street and ch 2 = speakers in the Rotunda (interior).

The current audio system competes with both the fountain and the traffic on King Street. Upgrades are required to make the sound heard beyond the area immediately adjacent the speakers.

The visual equipment at City Hall consists of an exterior roof-mounted Christie projector which is used to project colours and imagery on the Cube. The Christie projector is maintained by a local AV supplier. The projection mount location is visible from several vantage points on and around City Hall's Carl Zehr Square.

The video-source and projector controls are located inside City Hall. Because of their current location, a specific issue raised in relation to the Christie projector is that audio associated with any video being projected onto the Cube was currently unavailable and unusable due to technical difficulties, which City staff hoped could be overcome in the near future.

Some rental groups currently bring in their own projection equipment and project onto the wall to the left of the entrance to City Hall. There is a strong preference by the rental groups to have a City-owned projection system for this or another area that can be offered for rent or use.

3.10 Electrical

The vast majority of electrical receptacles on the Duke Street side are not functional and have been abandoned. There is only one receptacle that appears to still work. Most or all of the receptacles are not sufficiently elevated above grade to prevent snow and water infiltration, and they should all be removed. Some of the tree receptacles are partly immersed in the dirt. Any new power put into this area should be properly elevated and designed to withstand the elements.

The receptacles located at Carl Zehr Square, below the stairs to the balcony and at the platform, are in much better condition due to having a more sheltered location and higher mounting elevation. There is also a dedicated receptacle for the Christmas tree display on the balcony which is tied into the lighting control system.

Event power ranges from the aforementioned three receptacles up to 60A Camlock power connections, which are located beside the Duke Street Entrance, behind the platform in Carl Zehr Square, and under the stairs to the balcony. These three 60A 120 / 208V Camlock connection points serve small to medium size events. Their different locations allow for a variety of service points depending on the layout of the event. For larger events, there is a panel with many different power configurations (up to 400A) available in the room behind the platform, which has a seasonal use for the ice cleaning machine in the winter and storage in the other seasons. Just beyond Carl Zehr Square, at the corner of King and Young, there is another power connection point for event power. This additional connection works well and acts as a good back-up for events.

3.11 Maintenance

Carl Zehr Square – Summer Months

During the summer months, a majority of maintenance is for the upkeep of the landscape planting within the Duke Street Entrance plaza space and that of the fountain in Carl Zehr Square. There are also additional horticultural maintenance requirements for the small planting bed around the stage and the planters along King Street.

Above and beyond the landscape maintenance, City staff daily install and remove cafe style tables and chairs, and Muskoka chairs within Carl Zehr Square and the Duke Street Entrance.



Fig. 39 Example of the annual planting along the terraced planters on Duke Street.

Carl Zehr Square – Winter Months

During winter months and inclement weather, snow removal and de-icing of the Square seems to have become a daily exercise for City staff. Because of the current alignment of the plaza, snow removal is an arduous task and a significant cost to the City's current operating budget. Working from the face of City Hall, snow is moved toward King Street and stockpiled on the southwest corner for pick up and removal off site. When the skating rink is installed between December and March, the Zamboni ramp adds to the conflict of snow removal as staff are required to lift and carry the snow up and over the ramp. The skating rink also adds to the quantity of snow removed, as the Zamboni cleans the ice up to 3 times a day and does not have a melting pit to dispose of the snow.

In addition to the lower plaza space, the upper terrace is also maintained during winter months. The snow that accumulates within the terrace is moved by hand down the stairs, stockpiled and then pushed toward King Street for removal.

Given the intricate network of stairs, ramps and obstacles like the fountain area and podium, this snowplowing procedure is time consuming for Operations staff.

As per the City snow removal guidelines, salt is applied when temperatures are above -12C. As evidenced, by the apparent spalling on the existing stairs and accessible ramps, the constant application of salt has had a negative effect on both public spaces. Salt spalling is a specific type of weathering which occurs in porous materials, such as brick, natural stone and concrete. Even with the application of salt within both outdoor spaces, there is still a safety concern for users. Because the granite bands will freeze first, they are typically dealt with separately from the concrete surface. The existing steel grates used for site drainage have also become a maintenance issue due to ice forming and becoming slippery.

Should the surface treatment in the square be replaced, consideration should be given to the installation of a de-icing system to reduce the amount of snow removal and salting required.

Duke Street Entrance – Winter Months

As with Carl Zehr Square, the current alignment of the Duke Street Entrance plaza has created an arduous task and a significant cost to the City's current operating budget for snow removal. Working from the face of City Hall, snow is moved toward Duke Street and stockpiled along the pedestrian corridor for pick-up and removal off site. Snow is also removed by hand from the upper terrace area down the stairs, stockpiled and then pushed toward Duke Street for removal.

4. Public Input

Working from a developed public and stakeholder communications strategy, a mixture of engagement was conducted over the last year. The consultation strategy included:

- A key stakeholder list;
- A mix of presentations, social media, open house meetings and face-to-face engagements, and
- A documentation process, including feedback and results throughout the consultation process.

The project was first introduced to the public through an open house in September 2015, prior to the development of initial design concepts. The goal of the first open house was to provide the public with an overview of the current site conditions and to obtain a clear direction in regards to their vision for the development of a master plan for both civic spaces.

A second open house was held in March 2016 to present the project design intent and two (2) proposed master plan options for both Carl Zehr Square and the Duke Street Entrance.

In connection with each of the open house events, an online survey was made available to the public in which questions were posed and the public was given the opportunity to provide general feedback on the project.

In addition to the scheduled open houses and stakeholder working group meetings, meetings were also held with the Public Art Working Group and the Grand River Accessibility Awareness Committee. Information gathered from these meetings formed part of the design intent and overall master plan concept.

Graphics representing key words or ideas that we obtained during the public consultations are as follows:

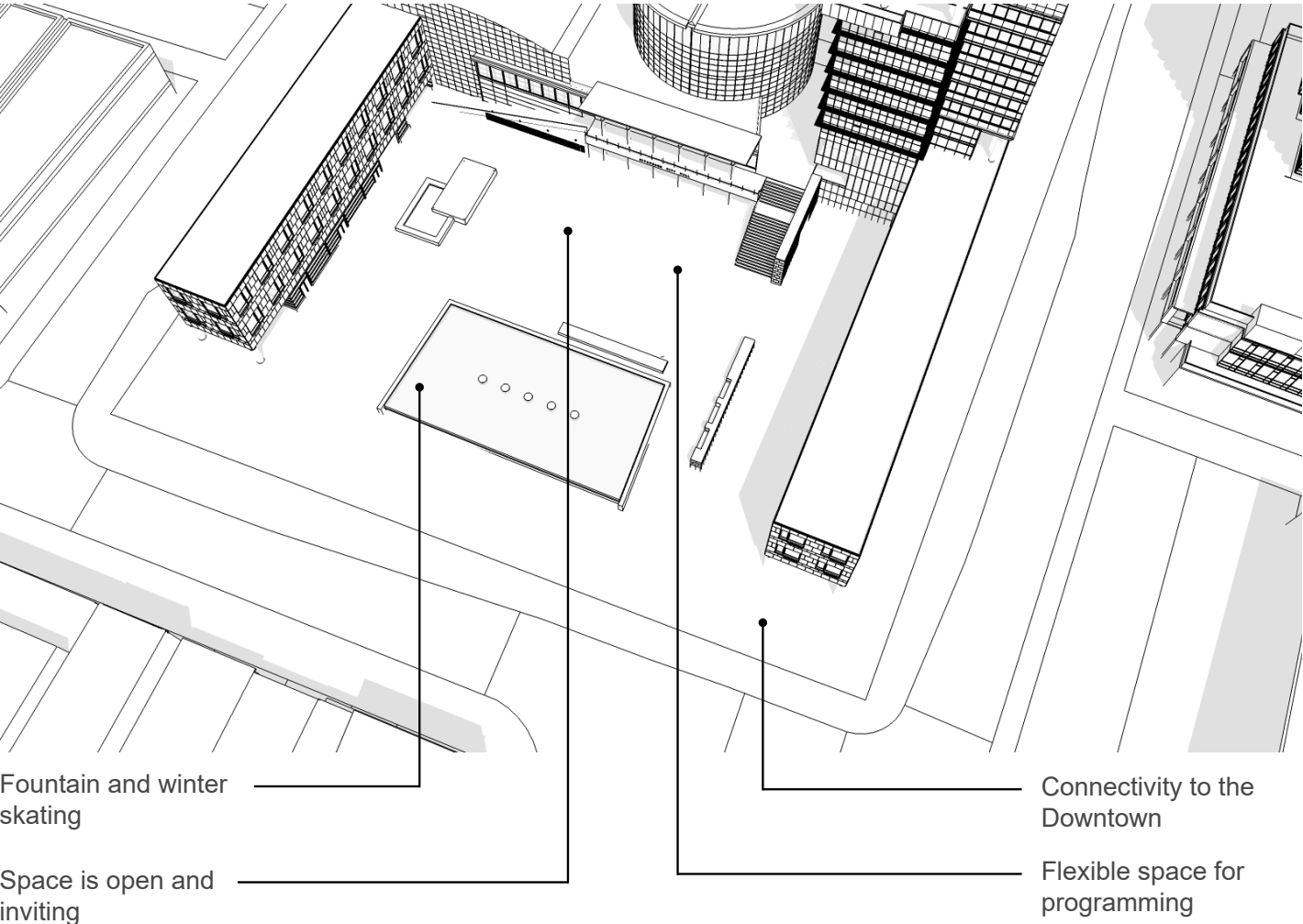


Fig. 40 ‘Wordle’ graphic for Carl Zehr Square.

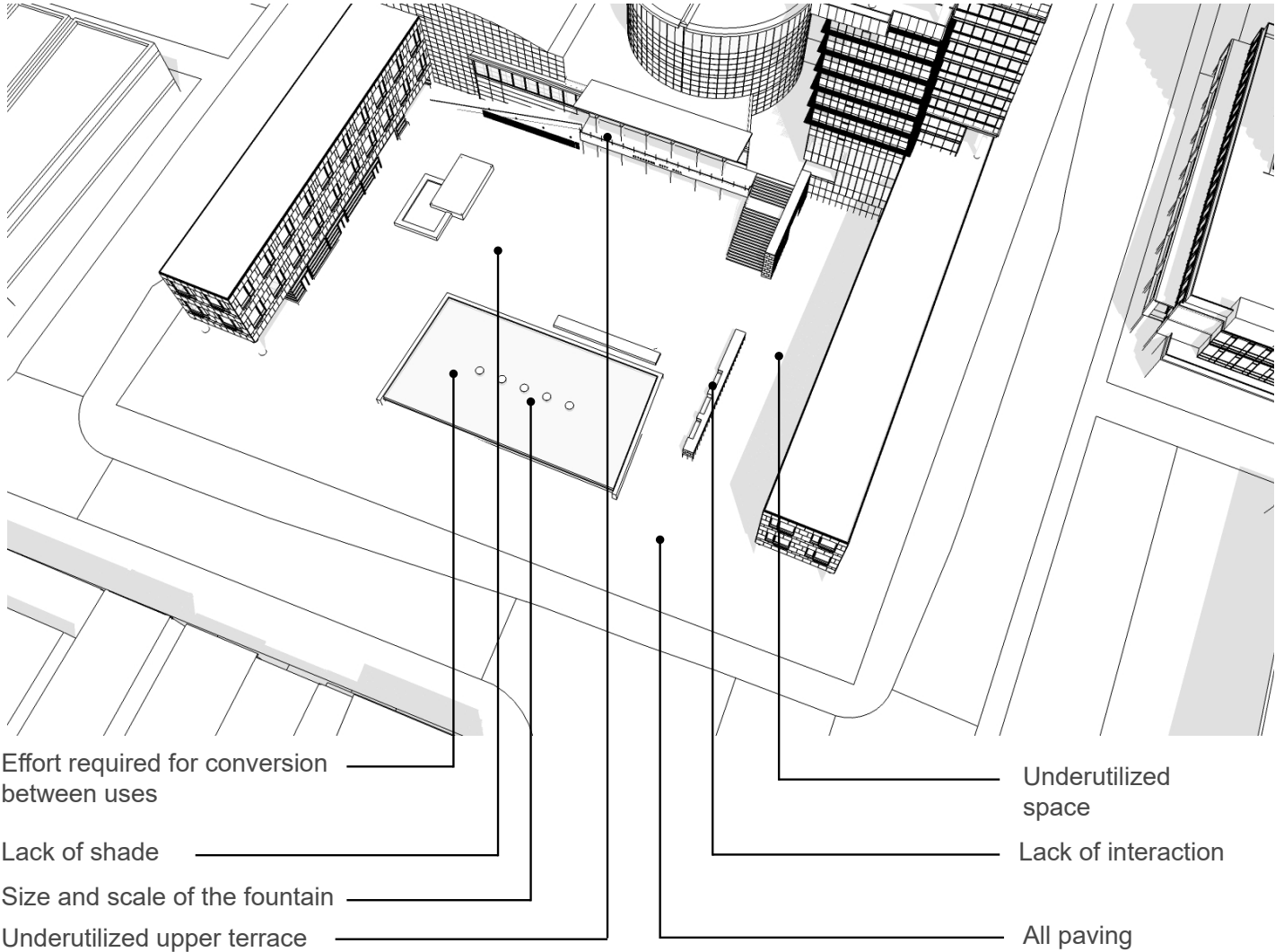


Fig. 41 'Wordle' graphic for the Duke Street Entrance.

Carl Zehr Square - Strengths



Carl Zehr Square - Weaknesses

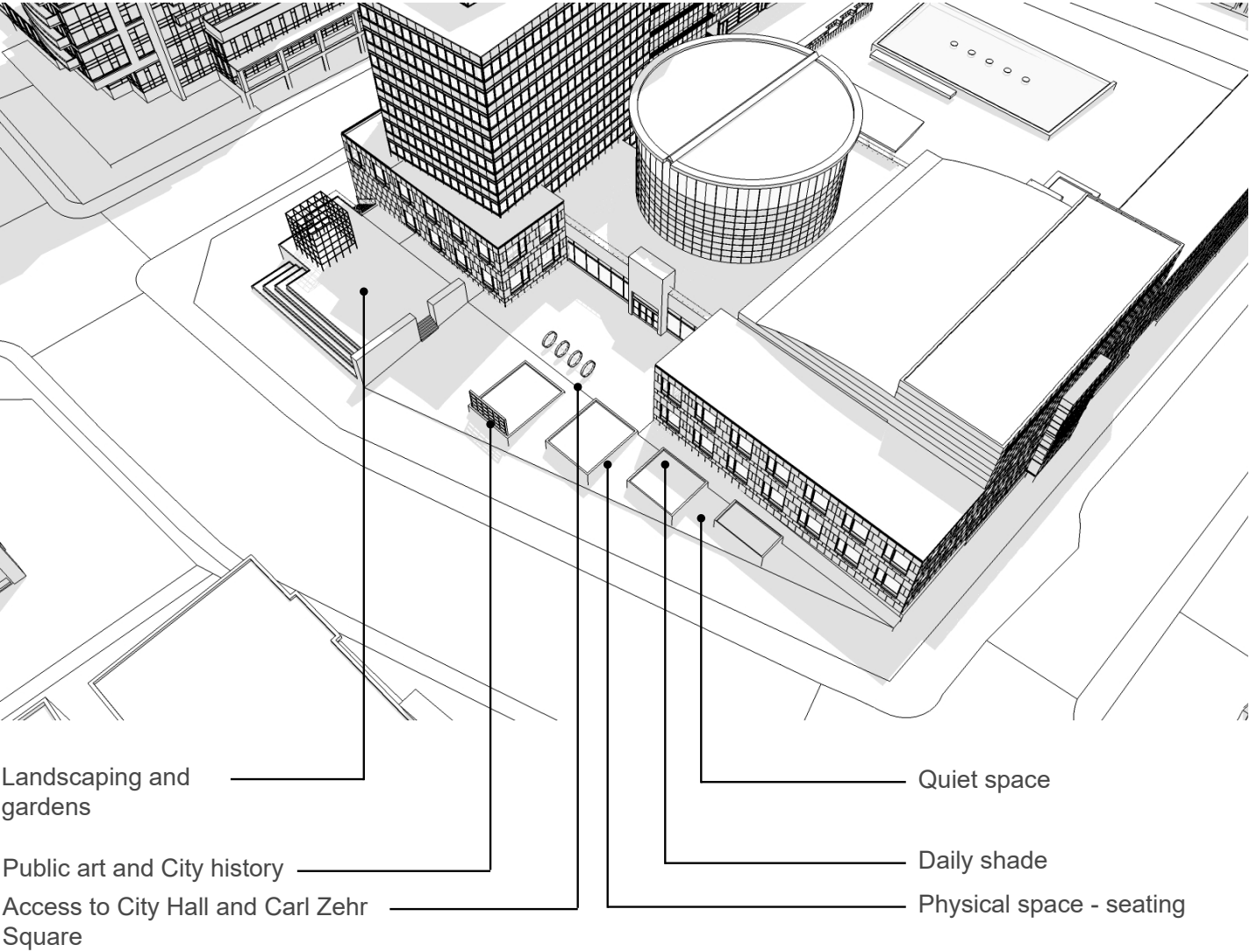


OTHER STAKEHOLDER AND PUBLIC COMMENTS

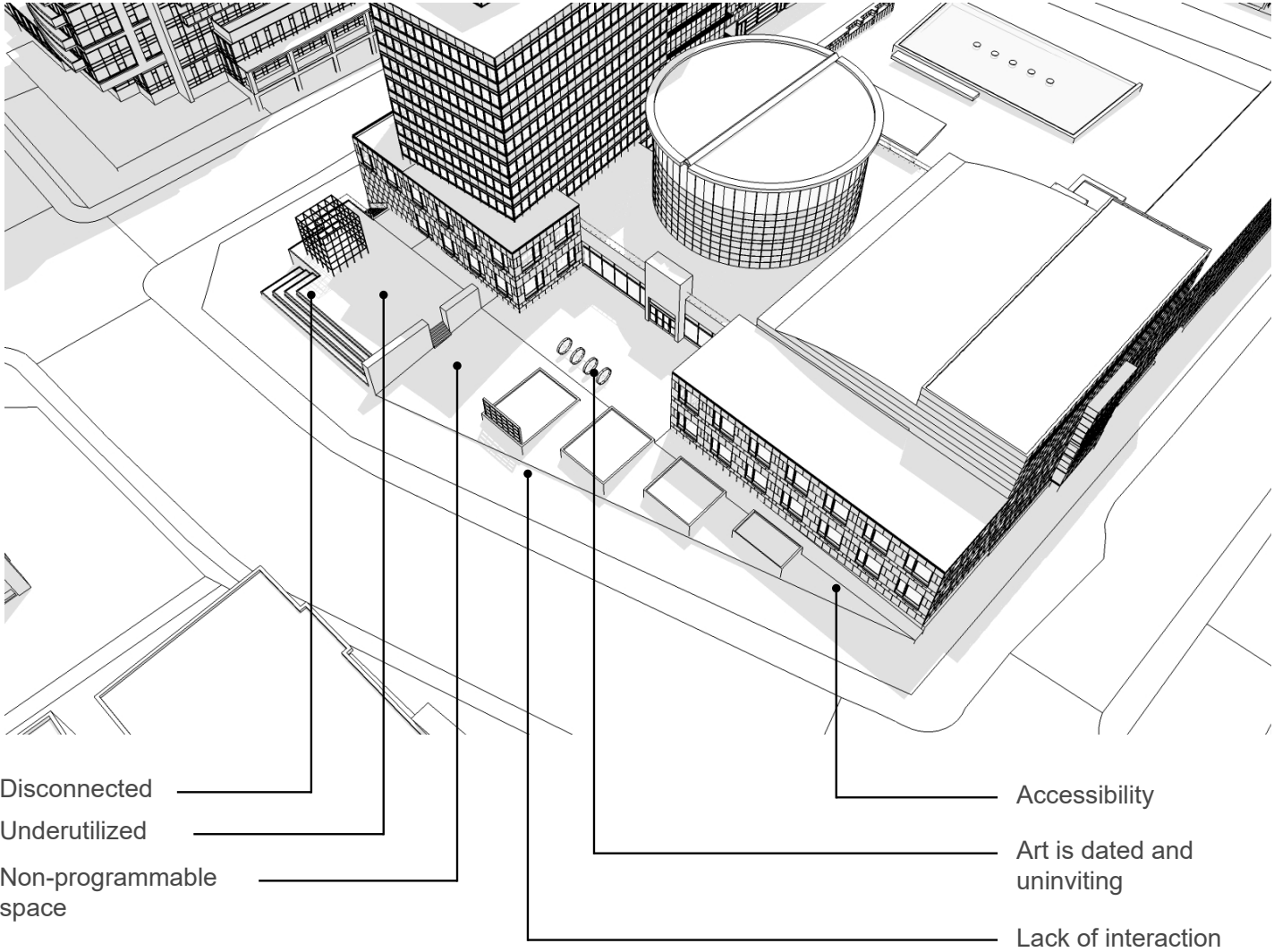
- Lack of landscaped features or natural materials
- Lack of programming after hours
- Seating opportunities for smaller programmed events
- Provide audio for the video feed on the Cube
- Support pop-up infrastructure and programming
- Need to showcase innovation and technology
- Create micro-destinations
- Increase visual interest
- Hard to maintain in the winter months
- Use sustainable practices to create a 'green' square
- Need ease of adaptability between uses

Fig. 42 Stakeholder and public feedback on the strengths and weaknesses of Carl Zehr Square.

Duke Street Entrance - Strengths



Duke Street Entrance - Weaknesses



OTHER STAKEHOLDER AND PUBLIC COMMENTS

- Different from Carl Zehr Square
- Too much visual separation from walls and planting
- Lack of activated edges along the building facade
- Open space up and create a destination
- Create interaction through games and seating opportunities
- Has become a smoking destination
- Create rotating exhibits for arts and culture
- Lack of flow through the space
- Communication hub for City events and news
- Lack of features from the younger demographic

Fig. 43 Stakeholder and public feedback on the strengths and weaknesses of the Duke Street Entrance.

5. Design Principles

Vibrant civic spaces don't happen by luck. Nor do they happen just because a space is pleasant to the eye. They happen as a result of core design elements being carefully integrated into the overall site, with acute attention to user experience and the ability to animate a space both formally and informally.

Academic literature by Project for Public Spaces reveals that there are simple, yet critical, principles to follow in establishing successful civic spaces:

1. IMAGE AND IDENTITY

Historically, squares are the centre of communities, and they traditionally help shape the identity of the entire City. When properly designed, public squares have the ability to strengthen community ties and build civic pride.

2. ATTRACTIONS AND DESTINATIONS

Activities are the basic building blocks of a place. Having something to do gives people a reason to come to a place, and return. Any great square or civic space has a variety of smaller places within it to appeal to various people. These can include outdoor cafes, fountains, art, or shaded seating areas.

3. AMENITIES

Civic spaces like those located at City Hall should feature amenities that make it comfortable for people to use them. A bench or a waste receptacle in just the right location can make a big difference in how people choose to use a place. Lighting can strengthen a square's identity while highlighting specific activities, entrance or pathways. Public art can be a great magnet for children of all ages to come together. Whether temporary or permanent, a good amenity will help establish an inviting setting for social interaction.

4. FLEXIBILITY

The use of the plaza space at City Hall changes during the course of the day, week, and year and so should the space. In order to respond to these natural fluctuations, flexibility needs to be built in. It is also important to have on-site storage for movable chairs, tables, umbrellas and games so that they can be used at a moment's notice.

5. DIVERSITY

A successful square cannot flourish with just one design or management strategy. Skating rinks, outdoor cafes, markets, horticulture displays, art and sculpture help adapt our use of the space from one season to the next.

Many of the most successful public squares in North America have established partnerships to supplement the municipal operations. For example cafes, markets, or other commercial uses on the site; such as film productions, help activate the space. These enterprises can also provide additional rental revenue for the City.

Vision

Based on feedback from stakeholders, the following design vision for the public spaces was defined:

Carl Zehr Square

- Carl Zehr Square is to be a premier public event space that has the ability to host festivals and events of all sizes;
- Carl Zehr Square is to strengthen the identity of Downtown Kitchener and inspire people to interact with the sights and sounds of the space while passing by or doing business at City Hall, and
- Carl Zehr Square is to be a comfortable, safe, and welcoming neighbourhood space that encourages people to meet and interact.

Duke Street Entrance

- The Duke Street Entrance is to be a passive space that creates a positive impression and opportunities for people to interact;
- The Duke Street Entrance is to be an attractive and inviting neighbourhood green space that encourages people to leave the path or take a seat in an urban garden setting; and,
- The Duke Street Entrance is to be a place to showcase Kitchener's rich history and strong artistic community, while embracing innovation in a way of befitting "Startup City".



Fig. 44 When the above principles are applied, public squares become infused with a sense of place, and begin to take on symbolic meaning to residents and visitors alike.

6. Site Master Plan

6.1 Design Principles - Introduction

The development of a preferred master plan was guided by what we heard from City staff, event organizers, members of Council and the public, and founded on the five principles critical to the development of public spaces.

From these meetings and our design experience, several themes emerged and became part of the basis for the master plan design that can be categorized as follows:

1. IMAGE AND IDENTITY

Kitchener City Hall plays an integral role in our community; the square and City Hall act as an iconic landmark for tourists and visitors. How they are used and viewed by the community shapes people’s interactions and perceptions of the city. The potential of these spaces could be transformational and could truly become the vibrant epicenter of our community by:

- Having a clearly articulated vision for both Carl Zehr Square and the Duke Street Entrance;
- Creating spaces for people to gather – By supporting daily interactions in a space that is designed to be comfortable, functional and flexible, the City of Kitchener can better connect with those it serves, and
- Including features that should be included that celebrate the history of the area and allow for community art.

2. ATTRACTIONS AND DESTINATIONS

People are already drawn to City Hall; enjoying coffee with friends, skating in Carl Zehr Square and attending the many showcase events hosted by the city and community members. By enhancing the existing spaces through new technology and high-quality, comfortable finishes, these spaces can further their status as venues to enjoy premier experiences. Specifically:

- The skating rink is a key component to draw people Downtown in the winter months and should not be removed;
- The fountain should be a key element of the redevelopment and should allow for flexibility, activity and animation of the plaza, and
- A more appropriately designed and positioned stage should be considered to allow for small and large events and maximize the event space for users to gather.

3. AMENITIES

Including the right amenities, in the right locations, contributes to users feeling comfortable, safe and connected to a space. The city can support regular use of the spaces around City Hall by:

- Adding shade to help define the space, allow for comfort and additional use of the space and provide ecological benefits;

- Maintaining or expanding the bicycle share program, bicycle parking and accessible walkways and connections to make City Hall a primary Downtown transportation hub, and
- Incorporating technology, power and audio / visual connections that allow community groups, regardless of budget or capacity, to host compelling events without sacrificing production value or experience.

4. FLEXIBILITY

Carl Zehr Square is host to a wide range of events and uses; from casual gatherings between friends to hosting tens of thousands of people during premier events, from family and children-friendly activities to licensed concerts and events.

Use of, and traffic patterns, through the Duke Street Entrance will change with the addition of Light Rail Transit and regional bus stops and new residential developments taking place. It’s important that:

- Both spaces should be flexible, accessible and safe;
- Hard barriers and finishes are removed or minimized to allow the spaces to transition as appropriate depending on the activity, and
- Spaces are designed to accommodate seasonal considerations.

5. DIVERSITY

The mix of opportunities for citizens to engage with public spaces should be as rich and diverse as our community is. The city can deliver meaningful activities that appeal to diverse audiences by:

- Working with community partners to offer more festivals, community events and daily activities, and
- Showcasing the talent, innovation and cultural history found in Kitchener through expos, markets and cultural celebrations.

The principals and strategies above are articulated in more detail in the master plan recommendations outlined over the next few pages.



Fig. 45 Overall master plan for Kitchener City Hall.

6.2 Site Design

Carl Zehr Square



Fig. 46 Plan view of Carl Zehr Square.

The design of Carl Zehr Square brings focus back to the residents, visitors and businesses which collectively make Downtown Kitchener a vibrant, regional destination. An inviting, flexible event space meets the needs of the City while prioritizing the visitor experience and encouraging lingering in the Downtown core for shopping, dining and cultural events. The innovative design takes a holistic and comprehensive view of City Hall as the heart of Downtown, connected physically, socially, and economically to the

surrounding streetscapes, storefronts and City Hall itself. More than just an idea, the proposed master plan creates a flexible space that meets the needs of multiple facets of the community and City staff.

As per the feedback provided by city staff, stakeholders and the general public, the design for Carl Zehr focuses on three key elements: the fountain, skating rink and stage. By keeping within the existing geometry of the square, the proposed design anchors the reflecting pool in the centre of the plaza, and activates the edges with site furnishings, movable trees, information kiosks and defined open space. The design for the reflecting pool and accompanying water feature should mirror the urban fabric of the adjacent architecture and should reflect the economic and social activities that symbolize Kitchener. For most, water serves as a tranquil medium and refuge from our day-to-day lives. It can also provide a focal point for gathering and social encounters, and a source of play and animation for children and adults alike.

The materials, accents and innovations celebrate the forward thinking philosophy of the City and its residents. The overall layout reflects the goals of placemaking and flexibility. By not crowding the space with hard elements, the proposed design creates a welcoming space for people, flexible enough for all-season use with opportunities to relax, interact, watch a performance, or dine at the restaurant.

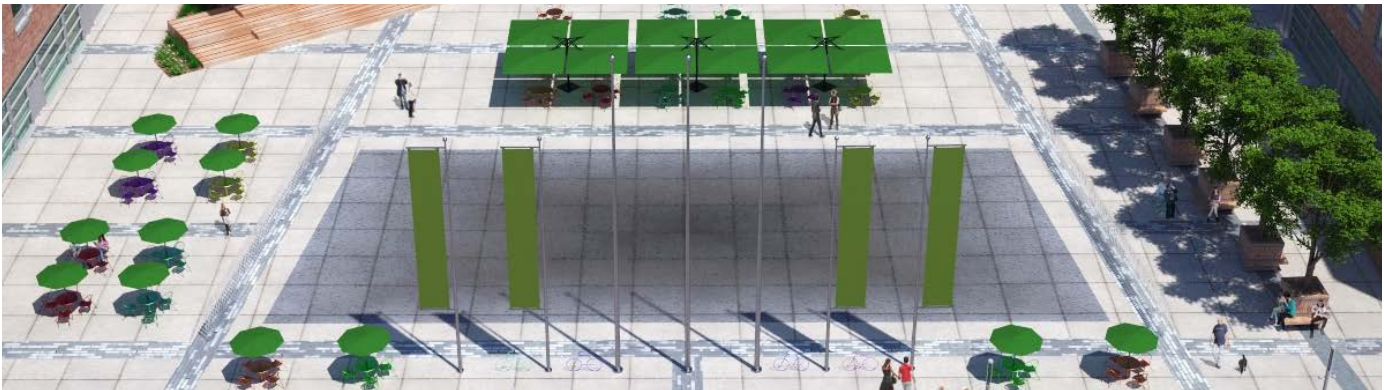


Fig. 47 Aerial view of the proposed reflection pool.

1

Reflecting Pool and Water Feature



Fig. 48 Animated water jets flank the outer edge of the large open reflective pool, adding elements of play to the plaza.

The proposed fountain within Carl Zehr Square has been designed to provide flexibility and interaction for the community and its residents. The large open reflecting pool pays homage to the existing fountain, but now allows for flexibility by allowing the City to control the outer limits of the water's edge. By eliminating a hard edge, the reflecting pool is opened up gaining maximum flexibility, reducing tripping dangers and allowing users to sit around, dip their toes or splash right in on a hot summer's day.

By gradually sloping the sub-base and installing a control valve and pump system, the outer limits can be controlled to provide a small inner stand of water or a large open but shallow reflecting pool.

This design will also allow for the fountain to be drained in hours, allowing for the space to be in use for a program of event in a short amount of time.

Accenting the reflecting pool is a series of fixed umbrellas with cafe tables and chairs, similar to the layout and orientation of the tables and chairs currently placed within the plaza over the summer months. The placement of these elements is based on the shadows study, as the centre of the square seems to be the hottest point of direct sunlight for a majority of the day.

Along the perimeter of the left side and right side of the reflection pool, interacting jets have been proposed to add the element of sound and play. The jets would be controlled by a computer software system and could have multiple settings of pre-programmed effects to create that element of interaction that we so often heard from stakeholders and the public during the conceptual design phase.



Fig. 49 Illustrations depicting the flexibility within the fountain design.

The proposed design for the outdoor skating rink is based on the original configuration of the existing rink, only we have increased the overall skating area to 30m long by 15m wide. Because the edge of the existing fountain has been removed, a temporary barrier system would need to be installed in order to provide a buffered edge along the perimeter, not only for skaters but also to hold the ice in place and to allow a hard edge for the ice cleaning equipment. Sleeves set within the concrete pavers would need to be incorporated into the detailed design to allow the barrier system to be installed with ease and in little time. The proposed design also has City staff installing three (3) temporary benches along the edge of the skating rink to allow users to tie skates, rest, socialize or just watch the action.



Fig. 50 Aerial view of the skating rink during the winter months.

2

Performance Stage and Seating Platform



Fig. 51 The stage, seating platform and overhead canopy during a small programmed event.

A 7.3m x 6.1m stage with seating alternatives is proposed at the northwest corner of the square, near the existing stage. While staying conscious of its proximity to the existing storage room along the western wing of City Hall, this larger stage design will involve a three-tier seating platform, barrier free access ramp and overhead cover for shade, and to allow for audio / visual connections and rigging for larger performances. The tiers are to step up, front to back, in 300 mm intervals. To reach the top tier, an access ramp has been provided that connects down from the College Street landing to the stage's top tier. The overhead canopy is to mimic that of the upper balcony shade structure to not compete with the existing architecture of City Hall. When not in use, the stage will act as a shaded seating platform.

Audio / visual connections and conduit are to be intricately intertwined within the structure to provide easy access for events and performances, provide easily accessible plug and play connections and eliminate the tripping hazard and barriers created by running conduit through the square as is currently done.



Fig. 52 Example of LED light bands on a seating platform.

Within the design development of the stage, consideration should be made to provide low level LED light bands within the underside of each tier of the seating platform, along with the provision of charging locations for computers, phones, etc. The perimeter of the stage is to be planted with drought tolerant, native plant species with the opportunity of creating a rain garden for surface runoff and collection. The concept for Carl Zehr Square also includes relocating existing restaurant patio space to below the southeast building overhang and accenting the patio with a raised planting bed that is clad with wood or accented with natural stone materials that compliment the building's stone veneer.

By relocating the patio space, the east side of the plaza becomes more usable and allows for installation of movable trees and additional seating.

The northeast corner of Carl Zehr Square has also been repurposed to provide additional planting beds, seating and the installation of the 'little library'. The existing green slate wall has been removed and replaced with a linear band of movable trees that are within raised planters that have cantilevered benches along the perimeter, uplights and GFI receptacles for seasonal lighting.



Fig. 53 The new patio space under the overhang with cafe tables and chairs.

Carl Zehr Square Programming Diagrams (proposed)

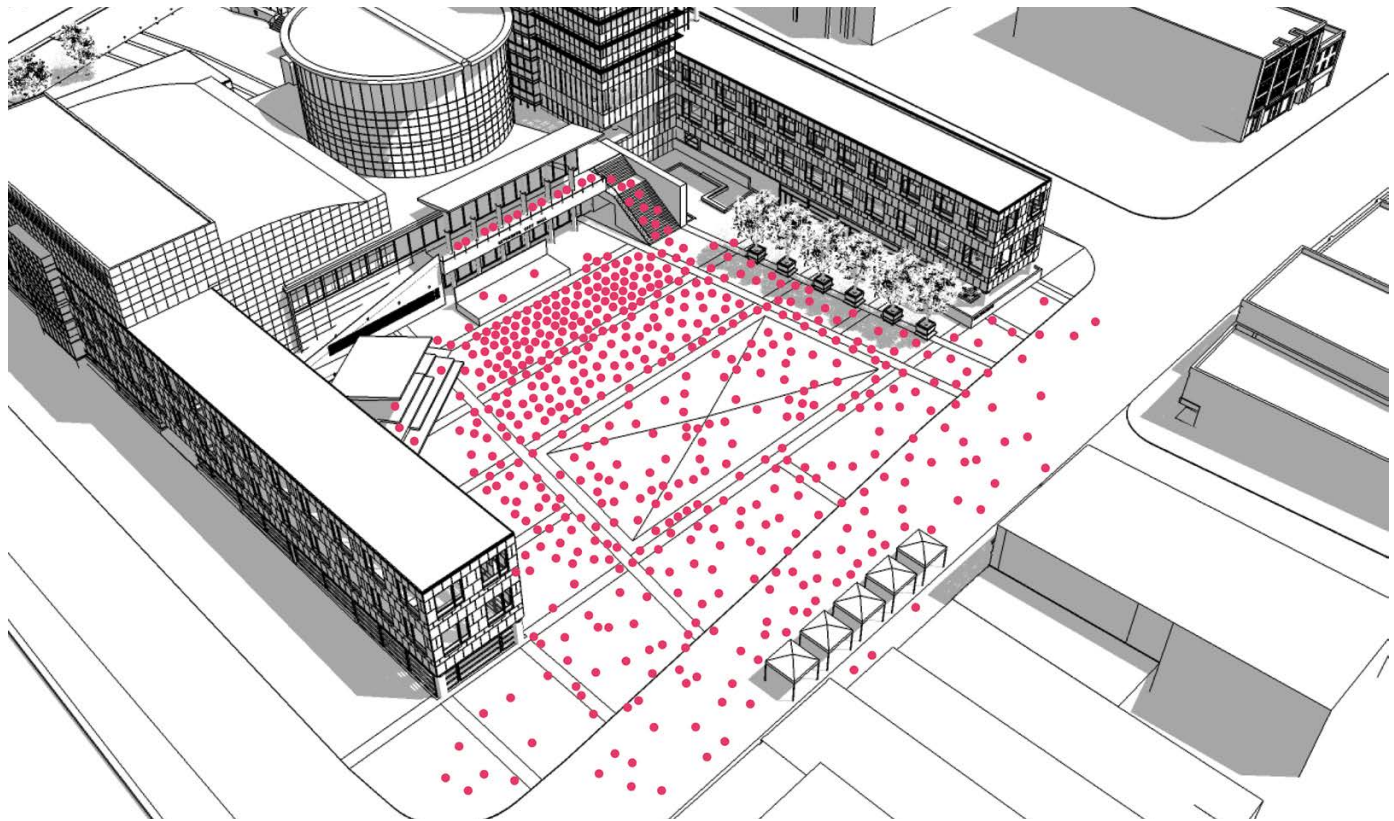


Fig. 54 Carl Zehr Square during future Oktoberfest Opening Ceremonies - Fountain is drained and the new stage is used as a primary stage.

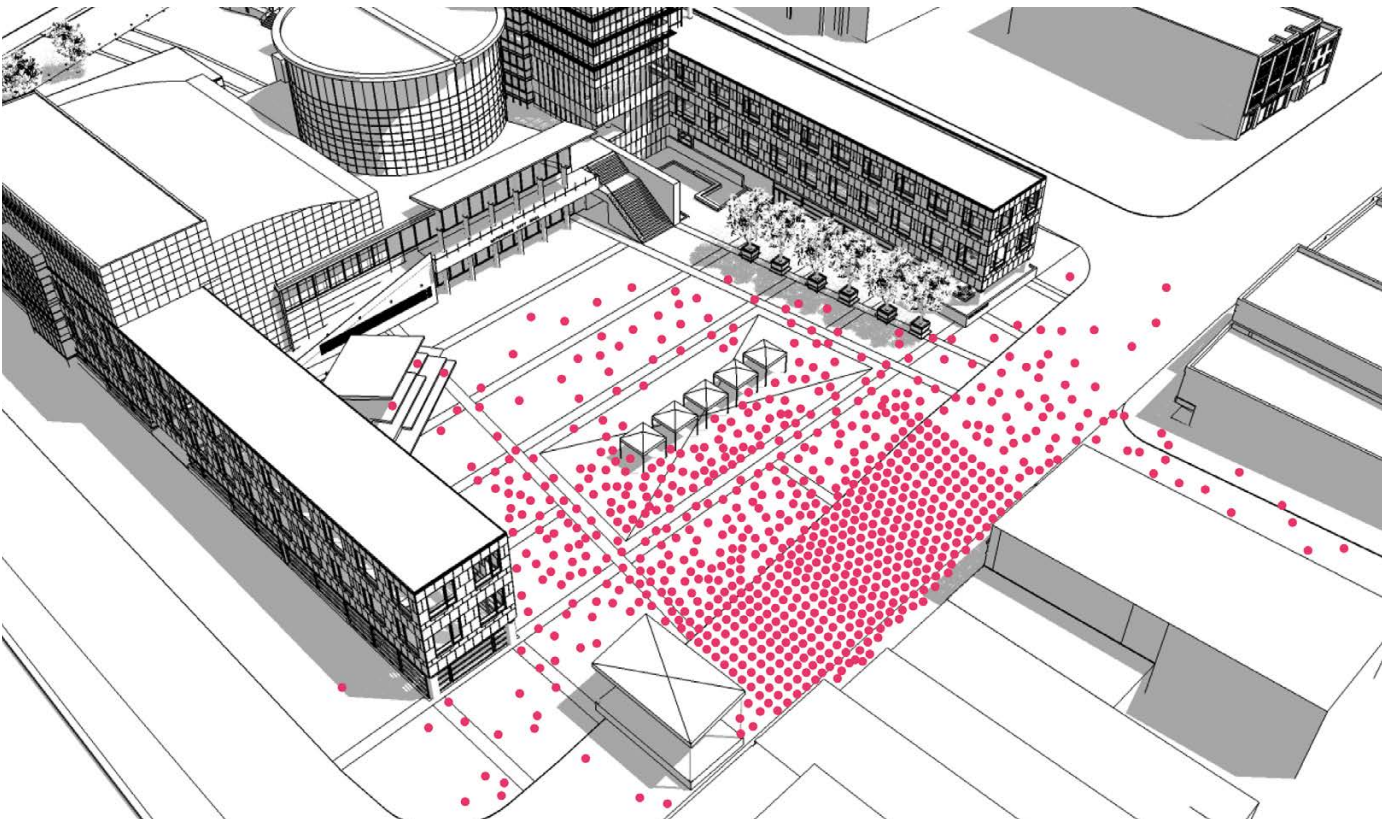


Fig. 55 A diagram of Carl Zehr Square during future Kitchener Blues Festivals - Fountain is drained and larger rented stage is placed in King Street.

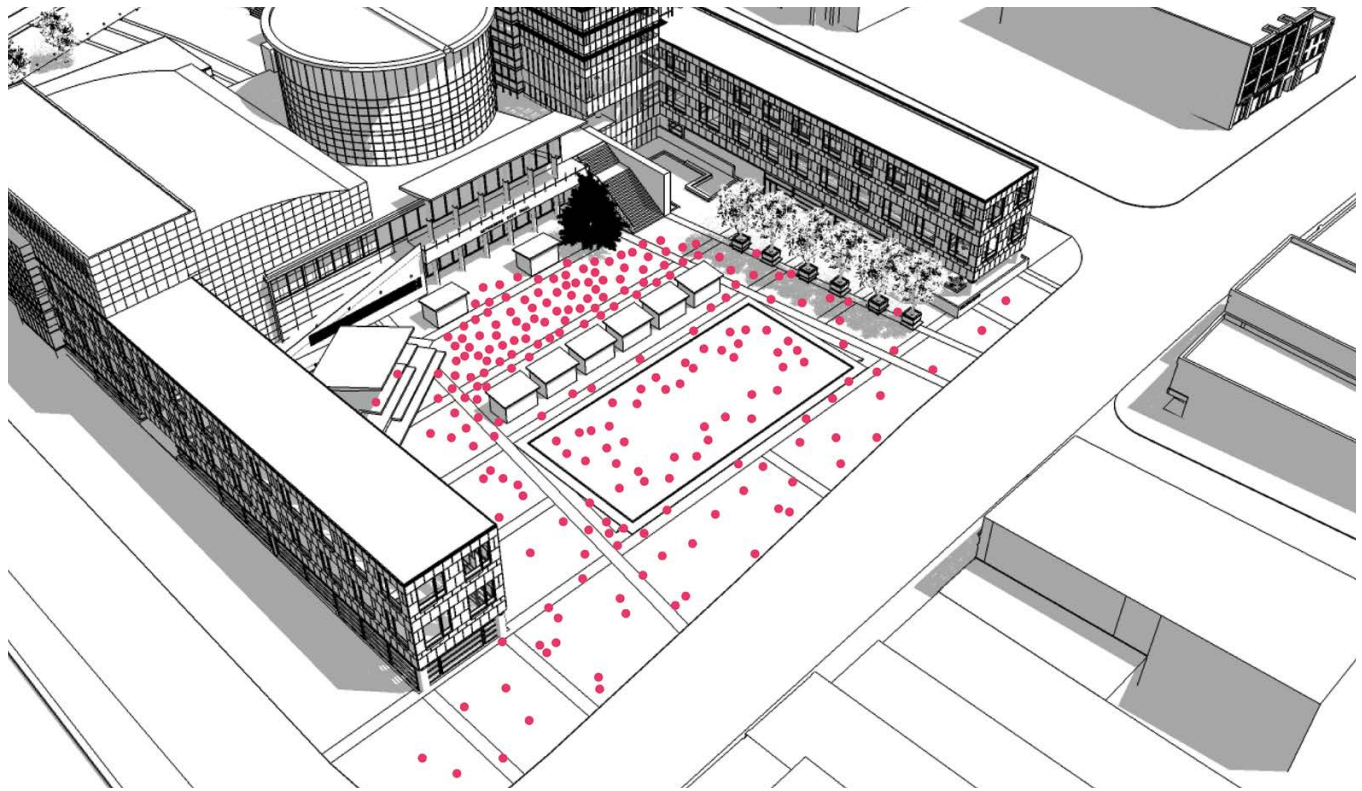


Fig. 56 A diagram of Carl Zehr Square during future Christkindl Markets - Skating rink is in place and the new stage is in use.

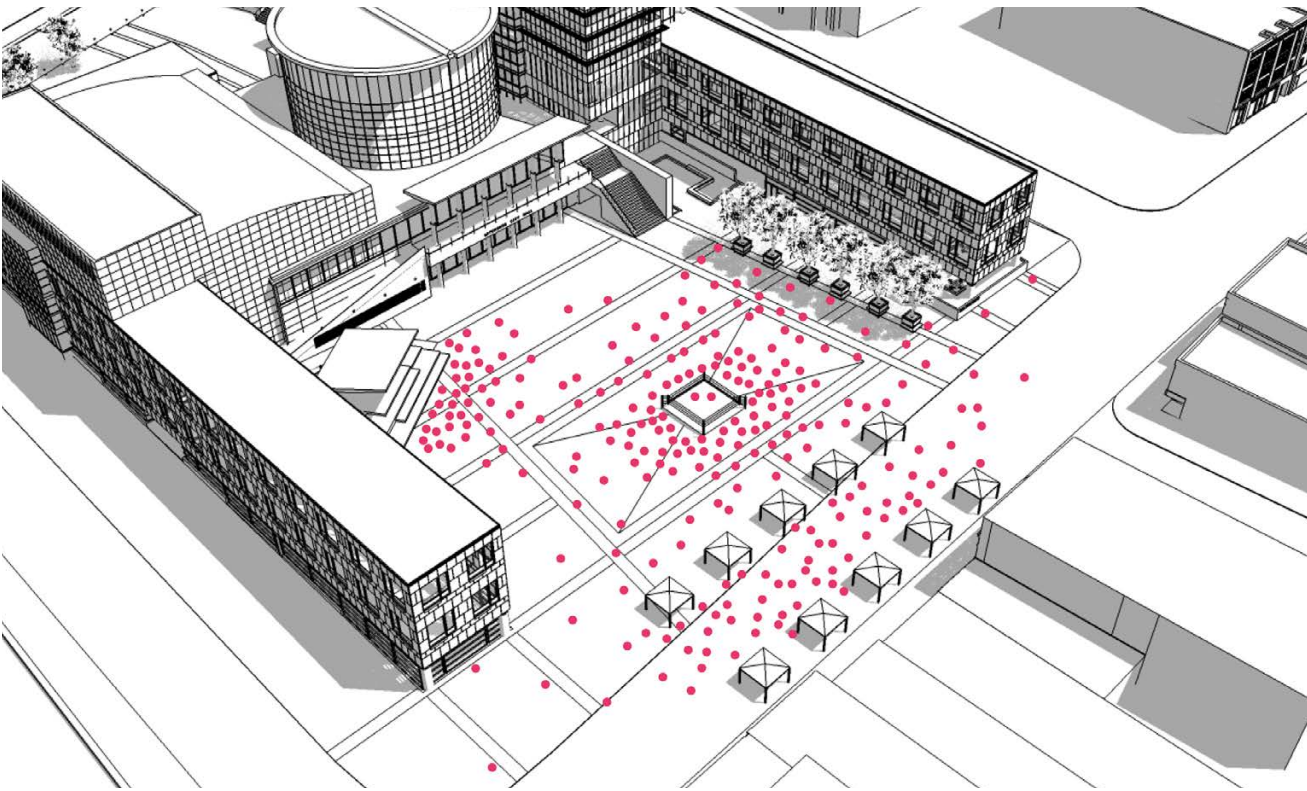


Fig. 57 A diagram of Carl Zehr Square during future Rock and Rumbles - Fountain is drained and the new stage is in use.

Duke Street Entrance

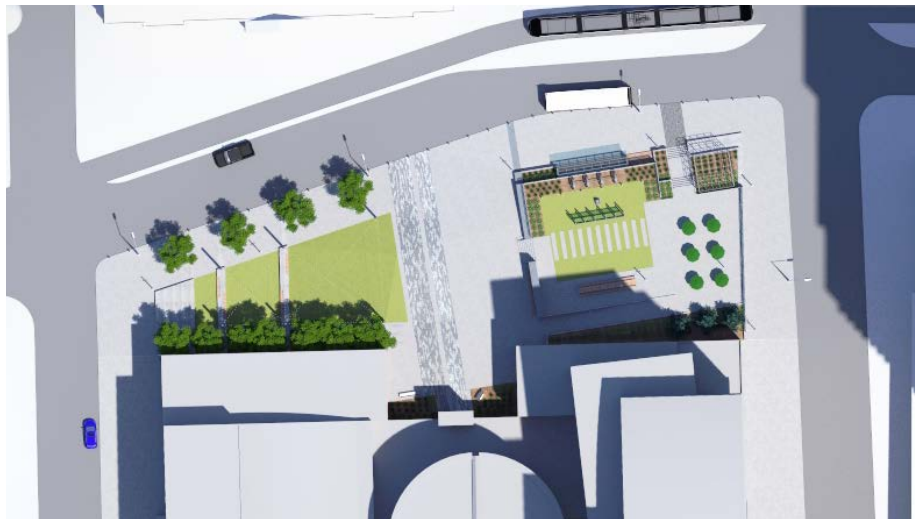


Fig. 58 Plan view of the Duke Street Entrance.

Through site visits and during discussions at the stakeholder workshops, online input and public meetings, the design team realized it is critically important to create visual and physical connections between the Duke Street plaza and the surrounding Downtown. Balancing visibility with a sense of prospect and refuge is fundamental to creating a comfortable public space. Bands of green space help infiltrate stormwater and provided a serene shaded space for quiet enjoyment.

Local art and historical artifacts are scattered throughout the Duke Street Entrance plaza space as a celebration of the community’s rich history and strong artistic community.

3 City Hall Great Lawn

As part of the consultation with City staff and stakeholders, it was determined that a secondary event space could be designed as part of the recommendations for the Duke Street Entrance. Because of the existing grades, the master plan slopes the grade from College Street, up toward the centre plaza in order to create an informal amphitheater.

A large open lawn area of synthetic or natural turf covers the slope and is separated by a large cast in place concrete walls that help break the grade and provide a secondary seating element. Large steel columns extend vertically from the ground plane to balance the height of City Hall and the large open lawn area. Lights set along steel cables connect at varying heights from pole to pole, providing a theatrical lighting scheme that can be programmed to change during events or with the seasons.

4 Duke Street GRT Stop

A custom bus shelter has been designed for the stop along Duke Street at City Hall. This large shelter would be able to accommodate multiple pedestrians, provide plenty of seating, create ample shade, and would blend in seamlessly into the overall garden space design fronting Duke Street. The proposed panels for the shade structure are yet another opportunity for the City to involve local artists in the redevelopment of this space.



Fig. 59 Duke Street great lawn and performance area.



Fig. 60 Proposed GRT bus stop and upper terrace design.

5 Upper Terrace

The corner terraces accentuate the Duke Street / Young Street edge by providing a place for seating, local plantings and LED light bands. The steel framed cubed is proposed to be relocated to a more prominent location and is to be accented with uplights and native plantings. As part of the City’s sustainability initiatives, this planting bed could be designed as a rain garden with appropriate plant species.

The upper terrace is accessed by three primary locations, a small set of stairs and accessible ramp off of the central courtyard and a set of stairs off of Duke Street. The terrace is to be opened up for additional seating, along with a perimeter garden for local sculptures



Fig. 61 Young Street terrace overlooking Duke Street and the entrance to City Hall.

and art pieces to be placed prominently along with Duke Street edge. The master plan also proposes the relocation of the art piece “Horse Power” to the front of the gardens. In addition to the gardens and seating areas, a community bench and table with charging stations is also proposed for the more active upper terrace area.

In addition to the garden space, artist opportunities and additional seating options, an extended planting bed is proposed along with building face to provide some screening to City Hall and also provide a sustainable rain garden feature that supports the City of Kitchener’s commitment to stormwater management best practices.

6.3 Site Grading and Drainage

The redevelopment of Carl Zehr Square and the Duke Street Entrance to Kitchener City Hall will encompass remodeling some existing features, removing or repairing some damaged components, and adding new and improved elements to revitalize these public spaces.

Carl Zehr Square

For Carl Zehr Square, the areas above the existing underground parking garage will need to be fully excavated so that the waterproofing membrane for the parking garage can be replaced.

As previously stated, the existing waterproofing membrane is near the end of its life cycle and has evidence of local distress. This replacement provides a new base for the master plan features that have been proposed during the planning stages of this conceptual design. The proposed features for Carl Zehr Square include:

- Universally uniform grading which reaches from building face to building face in order to marry each section of Carl Zehr Square to one another;
- A zero edge reflecting pool / skating rink to be constructed near the King Street right-of-way;
- Water features / fountains integrated in and around the reflecting pool;
- A newly designed multi-level accessible stage in the northwest corner of the square, and
- An optional geothermal snow melting system.

The reflecting pool and additional water features / fountains are intended to be one of the main focal points of Carl Zehr Square. Situated in a centralized location along the southern side of the Square, they will become the main focal point as viewed by the public traveling along King Street. The intent is to have a zero edge pool, with an approximate maximum depth of 65 mm, which can be converted into a skating rink during the winter months. In order for the pool to function properly, its entire perimeter will need to be lined with a trench drain system. Depending on the details of the pool’s plumbing design, this system could potentially include two rows of parallel trench drains. One could function as the pool water’s inlet for recirculation, and the other as a barrier; protecting the pool from any debris and stormwater runoff from the rest of the square.

In order to further reduce the impact caused by runoff accumulating in the pool, a grading strategy would need to be implemented to ensure positive drainage (at approximately a 1%-1.5% slope) away from its perimeter. Although the rest of the square is to generally be graded toward the King Street right-of-way, and

inadvertently in the direction of the reflecting pool, a well-designed trench drain system, combined with the grading strategy mentioned above, would ensure the pool’s protection against stormwater runoff.

As previously discussed, the overall grading strategy for Carl Zehr Square is to have uniform slopes from the building faces down toward the King Street right-of-way. Depending on the configuration of the reflecting pool and / or any other water features that may be introduced, grading the square in such a way to create linear drainage along strategically placed trench drains will ensure the stormwater is managed in the most efficient way possible. Additionally, to create this uniform grading platform, some existing features such as the ramp, stairs, and decorative wall near the Williams Fresh Cafe would need to be removed.

Furthermore, the existing trench drains throughout the square should be removed and replaced with new units. They should be installed in such a way as to blend in with any paver or concrete accent strips, yet still be beneficial to the overall stormwater management strategy. With new grates installed and the possibility of a geothermal snow melting system, the plaza’s drainage infrastructure will function properly over the life span of the design.

Duke Street Entrance

Similarly, the Duke Street Entrance plaza will require the areas above the existing underground parking garage to be fully excavated so that the waterproofing membrane for the parking garage can be replaced. This also allows the tripping hazards caused by the cracked and spalling pavers and the damaged or missing trench drains to be addressed. This will provide a new base for the newly designed elements required to create a more inviting atmosphere to this urban environment and to meet the future programming needs of the spaces. These include:

- Remodeling the existing elevated garden space in the northeast corner of this area;
- A large modernized bus shelter along Duke Street;
- A tiered seating amphitheater along Duke Street and College Street; and,
- Modern art pieces throughout.

In addition to the previously discussed changes that are proposed for the upper level garden space in the northeast corner of the Duke Street Entrance, the other major changes would include the removal of the large access stairs to Young Street and upgrades to the existing drainage infrastructure. The proposed tiered planting beds would be designed to include native plant species that are drought tolerant. Furthermore, these beds would include a minimum 600mm deep sandy soil plant mix to encourage infiltration of stormwater runoff and a sub-surface rainwater collection system to allow the runoff to be reused for irrigation purposes or the proposed geothermal snow-melting system.

The last major update to the Duke Street Entrance would be the introduction of an amphitheater in the northwest corner, near the College Street and Duke Street intersection. The “stage” is to be built at a maximum of 0.6 m above the existing College Street sidewalk in the aforementioned location. From there, the seating is to be built in tiers up toward the central portion of the Duke Street Entrance. Depending on the desired number, length, and height of the tiers, the seating section can be arranged in such a fashion as to accommodate a slope anywhere from approximately 5% to 10%.

The north side of the Great Lawn, fronting Duke Street, is intended to tie into the existing municipal sidewalk and eliminate the need for the existing sets of stairs, as illustrated in the appended renderings.

In addition to the above mentioned revitalization features, Carl Zehr Square and the Duke Street Entrance are to be designed and graded in such a way as to seamlessly blend into the surrounding landscape. They are meant to create a centralized local public space, without obstructing the overall experience of the Downtown core. These spaces are to include sophisticated landscape architecture to blend nature into the public realm. With the use of well-designed planter beds, benches, decorative walls, trees, and other elements to provide shade where desired, these spaces are transformed into Downtown attractions that are to be used throughout the year.

6.4 Lighting and Audio / Visual Components

Carl Zehr Square Lighting

The evaluation and consideration of what the Square has offered, what has worked well, and where improvements are required, has resulted in the development of strong design themes for the King Street and Duke Street sides of the building.

Because of the conditions and age of the lighting within Carl Zehr Square, recommendations for replacement are as follows:

- Replace all corroded and non-functioning light fixtures with new LED lights;
- Replace the existing in-grade uplights in the balcony level that wash light up the tower portion of City Hall with new LED lights;
- Replace the existing pot lights along the entrance area of City Hall with new LED lights;
- Replace the existing pot lights under the building overhangs at King Street and the open walkway through to College Street with new LED lights;
- Remove the uplights at the flag poles beside the rink at King Street;
- Replace the existing building mounted metal halide lights at a high level with new colour changing LED area lights. Light fixtures are to allow for dimming and colour changing via controls over the existing power wiring; and,
- Allowance for temporary lighting to be installed around the perimeter of the skating rink to animate the skating surface during the winter months.

Carl Zehr Square Audio / Visual

The following are the design elements for audio / visual components, lighting, control and system-operation security, technical and general-use electric, etc., that should be considered and further detailed as part of the implementation of the master plan:

- Power and associated components, including systems controls;
- Structure and mounting brackets for events;
- Seasonal considerations for lighting and audio components; and
- User access: staff-run, volunteer-run, or event-run systems.

A brief example of the type of design-assessment to take place in the implementation of the design is as follows:

Stage



Fig. 62 Example of LED light bands on a seating platform.

For the proposed stage, recommendations are to provide LED light bands within the base of the stage in order to accent the space when not in use for an event or performance.

A new lighting control station should also be provided with user level permission near the new stage location on the exterior of building to allow for control of the lighting within the space during events.

Although the structural characteristics of the stage roof or cover are schematic, the importance of the potential inclusion of a roof structure cannot be overstated in the context of stage design and use. The roof and its structure will need to receive special attention within many technical, programming and operational design aspects for the activation and use of the “stage-area” and “whole-square”. In addition, a Wi-Fi hot spot should be added to the new stage.

Fountain / Skating Rink

The skating rink is an important part of the activation of Carl Zehr Square during the winter months and adding accent lighting that can be installed temporarily and will help illuminate the space during the winter. By locating a series of light poles along the perimeter of the skating surface, lighting could be projected across the ice surface and potentially along the building facade of the two extending wings of City Hall. Future consideration should also be given to the use of video projection for both the ice surface and the building facade.



Fig. 63 Example of accent lighting on a skating surface.

Carl Zehr Square Electrical

Based on the current condition of the existing electrical components in Carl Zehr Square, recommendations for replacement / improvements as part of the master plan include the following:

- Keep existing receptacle on the balcony above the entrance to City Hall that is controlled via the lighting relay system that is currently used for the Christmas tree display;
- Rework the existing 60A 120 / 208V Camlock power connection and a standard receptacle mounted to the back of the existing platform to suit new stage;
- Existing power connections (up to 400A) available in the room behind the new stage is to remain the primary connection point for most large events;
- Keep the existing 60A 120 / 208V Camlock power connection and four standard receptacles mounted

below the stairs to the right of the entrance to City Hall; and,

- New receptacles should be installed near the stage in the step faces and at seating areas. Receptacles should be complete with integral USB chargers.

Duke Street Entrance Lighting

The consideration of current and future uses of this side of the building has been more challenging to arrive at, at least in part due to the ongoing transit-related construction and the wide range of future opportunities / needs as the Downtown continues to evolve.

The Duke Street / College Street corner has been identified as an area with a proposed mini-stage that allows for the flexibility to create a performance area, display area and focal point. Therefore the Duke Street / College Street mini-stage through to Duke Street centre-block area will have:

- Power and associated components, including systems controls;
- Structure and mounting brackets for events;
- GFI receptacles for device charging;
- Strings of lights from six steel poles along the perimeter of the open grass area;
- Seasonal considerations for lighting and audio components, and
- User access: staff-run, volunteer-run, or event-run systems.

The Duke Street / Young Street corner will require a bit more complex response to enable uses of the various elements / areas within the corner area, such as the cube or permanent and temporary art installations.

Additional upgrades and replacements include the following:

- Light fixtures are to allow for dimming and colour changing via controls over the existing power wiring. Receptacle for tree lights are to be provided in each tree along Duke Street c/w a receptacle end that is watertight when not in use and a cover to allow for use when lights are plugged in;
- Exterior at the building entrance and in the chess board area is to be replaced with new LED lights;
- Handrail lights are to be installed in stair and ramps for upper terrace space;
- Small scale landscape lighting to be installed in gardens and at Cube art installation, and
- All lighting in this area is controlled via the building lighting control relays panels.

Duke Street Entrance Electrical

Based on the current condition the existing electrical components in the Duke Street Entrance plaza, recommendations for replacement / improvements as part of the master plan include the following:

- All existing electrical wiring is to be removed back to the building and replaced with new wiring to the proposed fixtures / elements;

- New receptacles should be installed along the open grass area and at seating area. Receptacles should be complete with integral USB chargers;
- A Wi-Fi hot spot should be added to the upper terrace area, and
- The existing 60A 120 / 208V Camlock power connection adjacent the Duke Street entrance to City Hall which can be used for event power is to remain.

7. Sustainable Initiatives

One of the goals of the master plan is to synthesize the maximum number of environmental benefits with a cohesive vision for both civic spaces at City Hall. The proposed design scenarios tackle this goal in several ways, some explicit and quantifiable and others are less obvious. Through smart, sustainable design and the introduction of green infrastructure, the existing conditions of the outdoor spaces can be improved by considering shade / sun angles, stormwater management, active transportation, urban tree canopy and efficiency. These principles are also intended to align with the City’s Strategic Plan, as it is the intent within this plan to have well-planned, managed and cost effective infrastructure systems that support long-term community needs for services through green infrastructure programs in order to create a healthy urban environment. By including best management practices (BMPs) for stormwater management, increasing the City’s urban forest canopy, using sustainable materials and practices, and providing active transportation infrastructure we are able to support the City’s Strategic Plan.

The spaces at City Hall should incorporate best management practices for rainwater harvesting, water filtration and drainage. Through a detailed design process, one should continue to identify opportunities for innovation to save costs, achieve multi-layered benefits, find efficiencies between project components, and incorporate proven strategies that benefit the social, environmental, and economic bottom line of sustainability. For reference, there are a number of Low-Impact Development (LID) techniques well-suited for utilization within the master plan. A few that we believe to be most applicable are described below:

Stormwater Management

In March 2012, Council approved the stormwater credit policy. This incentive is provided to property owners who use best management practices (BMPs) to reduce the quantity and improve the quality of stormwater runoff entering the municipal stormwater system. Encouraging the use of stormwater BMPs supports the city’s stormwater management policies and water quality initiatives and should be a major component in the redevelopment of both public spaces at City Hall.

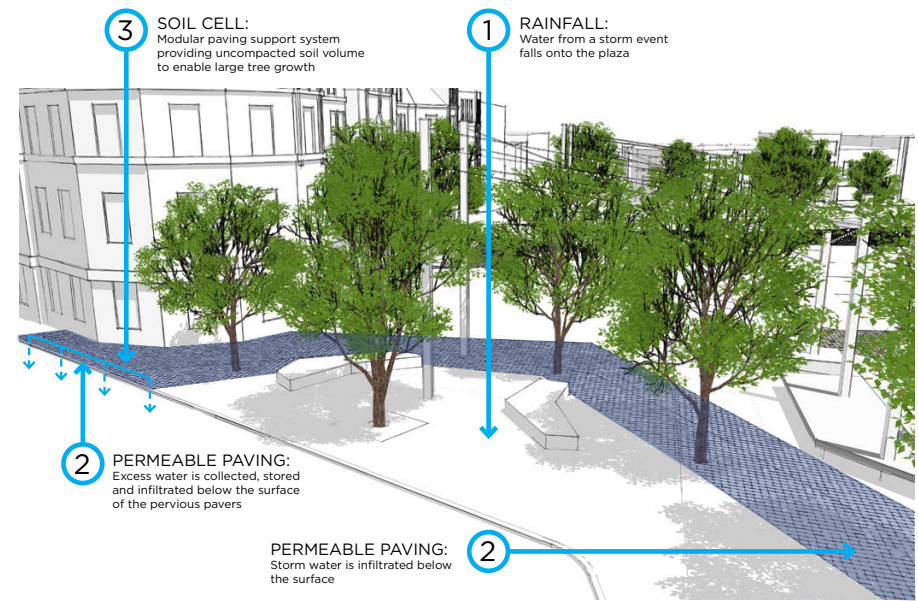


Fig. 64 Example of permeable paving with a soil cell system.

Firstly, permeable pavement is a LID technique which could be implemented within both public spaces. Permeable pavements allow rainwater to pass through the surface into a reservoir where the runoff is temporarily stored and infiltrated. As depicted in our concept, this technique can be used to capture stormwater runoff and to reduce peak flows in the City’s storm system.

Structural soil cells can be incorporated into a LID system to provide tree root growth zones as well as stormwater management quality and quantity control.

A structural soil cell system could be installed below the permeable pavements areas, allowing for the majority of granulars to be replaced with planting soils. Stormwater can be directed below the permeable paving surface where the soils act as they do in a bioretention system, capturing pollutants, and additionally providing a gateway for evapotranspiration.

Alternatively, stormwater runoff could be directed to the subgrade system via trench drains or bioretention planting beds. The soil cell system also provides a significant quantity of high-quality un-compacted soil that enables large trees to survive and thrive for the long term despite being planted in an unnatural, urban environment.

The suitability of each technique will be judged as we move along in the design process on the basis of environmental, economic and social impacts. Together with the City, we will choose a strategy that exemplifies the best sustainable practices and inspires pride in the people who use it. It’s important to note, some of these LIDs will only be viable if the use of salt is reduced.

Active Transportation



Fig. 65 Example of a Community Access Bike Share station in Kitchener.

Considerations should be made toward providing pedestrian and cyclist links to the GRT and LRT connections. Cycling infrastructure within both spaces should also be part of the implementation of the master plan, including bike racks, lockers, rental stations and repair stands.

Urban Tree Canopy

The city’s urban forest needs to include a high diversity of native and non-invasive species to improve the survival rate of trees against various stressors such as salt spray, high winds, drought, air pollution, and poor soil conditions. Non-native or hybrid species will be recommended to achieve this. Along with plant species, improved growing environments need to be addressed, such as soil condition / type, compaction and volume.

Other Sustainable Features

In addition to LID techniques, elements like solar charging stations, additional bike parking and rental stations, use of recycled materials within the hardscape, electric car parking stations, and community car share parking stalls should be considered.

Carl Zehr Square

The design scenarios for Carl Zehr Square keep the plaza space as a primarily hardscaped area, but add an urban tree canopy along the southeast side. The canopy will help clean the air, produce oxygen and cool the area by providing shade.

Trees offer exceptional value as green infrastructure. They not only benefit the environment, they will also help develop a sense of place by providing shade, defining the edges of the plaza, providing a sense of scale within the square, and offering respite for pedestrians, nearby workers and visitor alike.



Fig. 66 Example of a ‘Soofa’ solar charging station for mobile devices.

From a hardscape perspective, all proposed natural paving materials should be quarried within a 800km radius to City Hall. Where possible, existing materials should be reused or recycled materials specified.

During the cold winter months, recommendations have been made to reduce harmful surface runoff and the use of salts or chemicals for snow and ice removal by recycling hot water from the building’s heating system to provide a geothermal snow-melt system for the Square. Geothermal is an underground electricity generation technology that utilizes the heat of the Earth to heat and cool buildings. While some geothermal systems go deep below the surface, sometimes several kilometres down, shallow ground roughly three metres below the surface is also a sustainable source of heat, with consistent temperatures of 10C to 16C. Geothermal pumps tap into this heat, and air delivery ductwork and a heat exchanger transfer it to buildings, or pump heat out of buildings. During the cold season, heat is removed from the exchanger and pumped indoors. In summer, it’s a reverse process with heat removed from indoors. A secondary alternative would be to heat recycled water through a cistern system by installing a series of solar panels on the roofs of both wings of City Hall and reuse that capture energy for the cistern boilers. The City of Guelph Courthouse and Guelph’s Church of Our Lady are examples where a geothermal system has been installed to help reduce maintenance and operations costs during the winter months for ice and snow removal.

Duke Street Entrance

The design scenarios for the Duke Street Plaza make the space into a multi-modal transportation hub with bicycle and pedestrian connections to future LRT and GRT stops, and a largely accessible space to those with disabilities. Green infrastructure will help treat rain where it falls and keep dirty stormwater from entering and overwhelming the City sewer systems. Slowing down, treating or reusing even a small percentage of the stormwater on the plaza will have a significant effect on the overall environmental performance of the plaza and relieve the burden on the City’s sewer system.

The Duke Street Plaza could also relieve the maintenance and programming burden of softscaped public spaces in the city, such as Vogelsang Green, by accommodating additional events at City Hall. Increased transportation options and programming, together with stormwater management strategies and increased tree canopy, will help develop a more livable, vibrant community around City Hall.

8. Next Steps

The master plan for the outdoor spaces at Kitchener’s City Hall is intended to serve as a catalyst for the implementation of improvements to both civic spaces; Carl Zehr Square and the Duke Street Entrance. Following approval of the master plan and associated budgets for implementation, the conceptual design for both spaces should be developed into a functional plan. Based on the functional plan, detailed design drawings with associated costing would be developed in order to tender the projects.

As the City embarks on this process, consideration should also be given to the long-term maintenance of the plaza, both in terms of materials and the design, and also in how the plaza will be cared for and programmed in the future.

8.1 Implementation of Carl Zehr Square

As discussed throughout this document, we have come to the understanding that there are two immediate needs for Carl Zehr Square: upgrades and renovations to the existing infrastructure, including the existing paving materials, and improvements to meet the future needs of the City and its residents.

For the purposes of this study, we have broken down the implementation strategy for Carl Zehr Square to meet the most immediate needs and allow for Council direction for future improvements per the master plan concept. The primary focus is to implement the most immediate needs first:

- Replace the existing waterproofing membrane for the below grade parking garage because of its current condition and need for replacement;
- Replace the existing paving materials due to cracking and broken pieces;
- Replace the existing ice plant because of its current life expectancy and upgrade the brine lines with more innovative and sustainable technology for the skating rink;
- Redesign the existing fountain including interactive jets in order to enhance programming, flexibility and animation of the plaza;
- Replace and update the existing lighting infrastructure due to its current condition with more sustainable LED light fixtures;
- Remove and replace the existing stage in a new location to meet the needs of accessibility, programming and events;
- Upgrade the existing power distribution and audio / visual components for programs and events; and
- Introduce shade elements to increase user comfort and protection.

Future development could then include relocation of the current restaurant patio space to beneath the existing building overhand and the perimeter raised planter construction. Additional site furnishings would also be added to the site.

Costing associated to each of the elements can be found in Section 10.

8.2 Implementation of the Duke Street Entrance

For the Duke Street plaza, the proposed design is more passive so a phased approach for implementation can be achieved for this space. However, infrastructure requirements do impact a signification portion of this area. Immediate infrastructure needs are:

- Replace the existing paving materials and related drainage;
- Replace the existing waterproofing membrane for the parking garage; and
- Replace the existing lighting and electrical infrastructure.

From a redevelopment perspective, the central area of the plaza and the northeast corner (upper terrace) should be considered first, due to the timing of the LRT and GRT transit stops. By opening up the central area, we have allowed ease of access to City Hall and provided a space for future programming. Facing Duke Street, the master plan proposes that a portion of the green wall be lowered in order to open sight lines for transit users and increase people’s sense of safety and security. Along the Duke Street streetscape, a long linear bench is proposed with a custom bus shelter incorporating local artist’s work in the acrylic panel.

Secondary to the development of the centre and east side of the plaza are the proposed improvements to the western edge of the site. As with the upper terrace, the master plan proposes a long planting bed to extend from the building face in order to provide screening and privacy to those office spaces that face out toward Duke Street.

The upper terrace is to be reconfigured into a social space, with long seating platforms and tables to allow for outdoor co-working, the installation of charging stations for mobile devices and laptops, the relocation of public art, rain gardens along the perimeter and a open seating space with cafe tables, chairs and umbrellas. Additional space has also been programmed into the upper terrace to allow for future art installations.

Along Duke Street, improvements have been made in order to open up the pedestrian corridor and also add additional sustainable practices to the master plan. Structural soil cells can be incorporated into a LID system to provide tree root growth zones as well as stormwater management quality and quantity control. A structural soil cell system could be installed below the permeable pavements areas (if implemented), allowing for the majority of granulars to be replaced with planting soils. Stormwater can be directed below the permeable paving surface where the soils act as they do in a bioretention system, capturing pollutants, and additionally providing a gateway for evapotranspiration.

Costing associated to each of the elements can be found in Section 10.

9. Civic Space Management

The development, or redevelopment of a public space is often celebrated as an important placemaking project. Although design and programming are essential to the creation of vibrant public spaces, the importance of ongoing planning, operations and maintenance cannot be overlooked.

The successful management of Carl Zehr Square and the Duke Street Entrance require a co-ordinated effort among many City business units - Special Events, Operations, Facilities Management and Sport, to name a few. The best managed public spaces incorporate partnerships with key stakeholders in the community and the public spaces at Kitchener’s City Hall are no different.

As the use of the public spaces at City Hall continues to grow and evolve, a management plan recognizing both short and long term needs should be developed. A sound management plan balances the needs of maintaining and utilizing the space and emphasizes the importance of clean and safe, as well as lively and attractive spaces. As stated in the previous section, the feasibility of some of options listed above is dependent on the ability to reduce salt use.

Recognizing the patterns of use and promoting the space to both existing and potential users will help maintain existing patrons while attracting new visitors. According to Project for Public Spaces, the best public square managers become so familiar with the patterns of use and behavior, “that waste receptacles get emptied just at the right time and refreshment stands are open when people most want them.” To achieve this level of intuitiveness, both Carl Zehr Square and the Duke Street Entrance must be in a constant state of adaption and maintenance.

10. Costing

Carl Zehr Square Cost Summary

SECTION 1.0	SITE PREPARATIONS & MEMBRANE REPLACEMENT	\$ 481,900
SECTION 2.0	PAVING	\$ 1,306,260
SECTION 3.0	FOUNTAIN	\$ 714,075
SECTION 4.0	SITE FEATURES	\$ 738,925
SECTION 5.0	SITE FURNISHINGS	\$ 357,950
SECTION 6.0	PLANTING	\$ 17,910
SECTION 7.0	STORM WATER	\$ 252,200
SECTION 8.0	ELECTRICAL SERVICES	\$ 664,300
SECTION 9.0	GENERAL ITEMS	\$ 470,176
	Subtotal	\$ 5,003,696
	Non Recoverable portion of HST (1.76%)	\$ 88,065
	Public Art (1% of subtotal)	\$ 50,037
	Design Development Approvals (20% of subtotal)	\$ 1,000,739
	Contingency (20% of subtotal)	\$ 1,000,739
	Grand Total	\$ 7,143,276

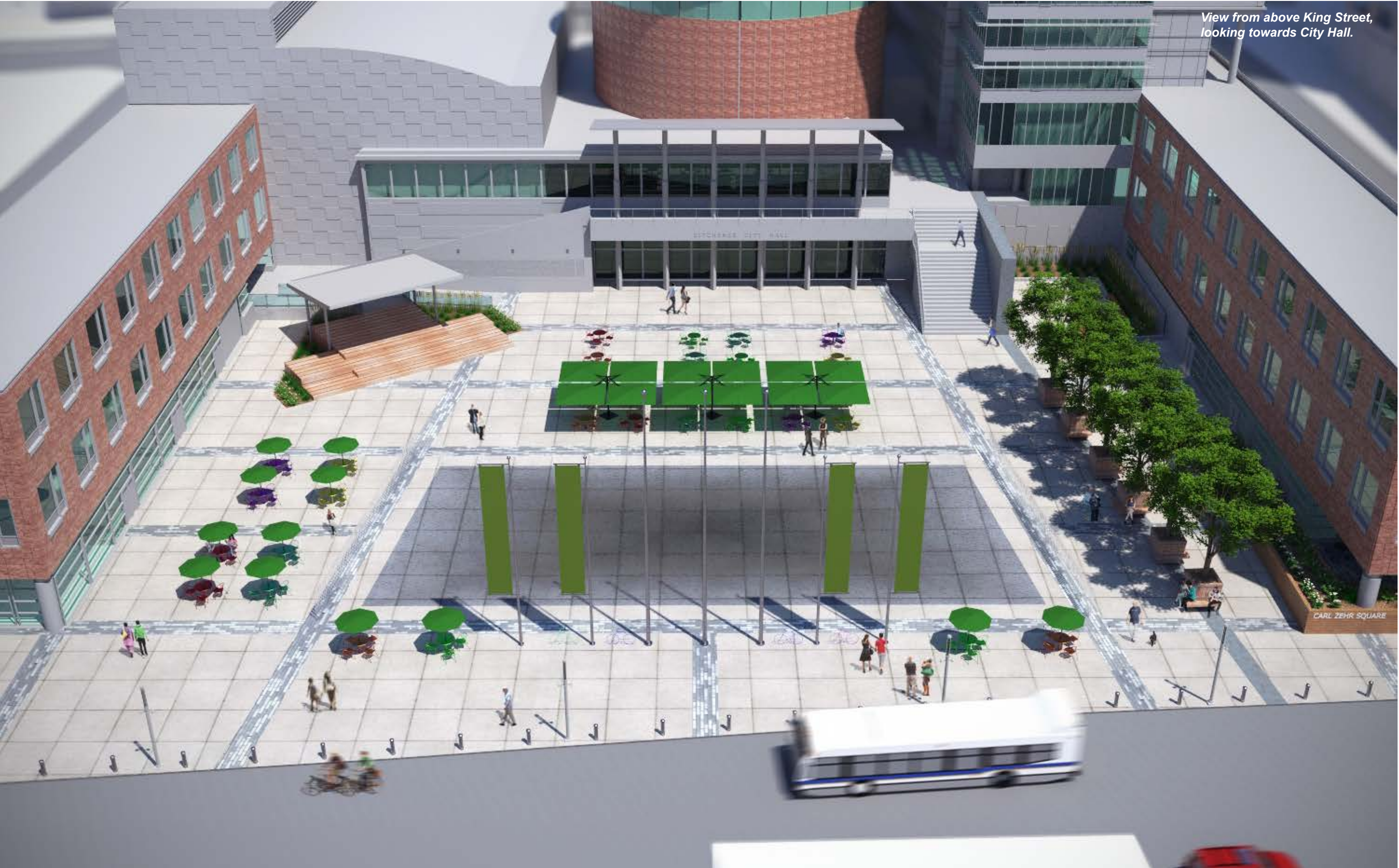
Duke Street Entrance Cost Summary

SECTION 1.0	SITE PREPARATIONS & MEMBRANE REPLACEMENT	\$ 401,580
SECTION 2.0	PAVING	\$ 206,715
SECTION 3.0	SITE FEATURES	\$ 419,525
SECTION 4.0	SITE FURNISHINGS	\$ 52,800
SECTION 5.0	CONCRETE WALLS	\$ 47,396
SECTION 6.0	PLANTING	\$ 52,190
SECTION 7.0	STORM WATER	\$ 230,200
SECTION 8.0	ELECTRICAL SERVICES	\$ 345,200
SECTION 9.0	GENERAL ITEMS	\$ 235,088
	Subtotal	\$ 1,990,694
	Non Recoverable portion of HST (1.76%)	\$ 35,036
	Public Art (1% of subtotal)	\$ 19,907
	Design Development Approvals (20% of subtotal)	\$ 398,139
	Contingency (20% of subtotal)	\$ 398,139
	Grand Total	\$ 2,841,915

Appendix

Master Plan Illustrations







Adaptability of the reflecting pool during small scale events.



Adaptability of the reflecting pool during large events.



The stage and seating platform using during a small event.



Carl Zehr Square during the winter months.



Cool winter night in Downtown Kitchener with skating and accent lighting.



*View from across King Street
towards the linear tree alignment
and cafe seating area.*



The stage and seating platform during the winter months with seating options and exterior heat lamps.

Cafe tables and chairs underneath the building overhang.



The edge of the reflection pool is anchored with interactive jets and seating.





Aerial view from across Duke Street looking down towards City Hall.



The great lawn during a small programmed concert series over the lunch hour.

The proposed GRT stop with activated upper terrace celebrating Kitchener's history and art scene.





The proposed upper terrace with seating and art.

