The Potential of Lost Space: A New Model for Identifying, Classifying and Transforming Urban Void Space

Calen Hamelin
University of Guelph, 2016

Advisor: Professor Larry Harder

Abstract: Urban void space, or lost space, has been discussed within landscape architecture, planning and urban design for centuries, but often goes unnoticed and underutilized. With city populations growing, there is increased pressure to provide outdoor spaces for inhabitants. This study aims to identify and categorize the Downtown Guelph Urban Growth Centre’s void spaces, while highlighting their potential for possibly becoming new public space. Furthermore, various intervention strategies, pop-up, pilot or permanent (PPP), are demonstrated as a transformation framework for these challenging spaces. A gap analysis was used to identify the spaces and to highlight their potential, while the categories were formed using a morphological analysis. Finally, three case studies demonstrated the intervention strategies of the PPP Framework. The analyses showed that most void spaces have potential and that there are benefits to using a PPP Framework for transforming them into public spaces within our cities, both temporarily and permanently.

Key Words: Gap Analysis, Leftover Space, Morphological Analysis, Pilot, Pop-Up, Tactical Urbanism
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“At every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be explored. Nothing is experience by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences.”

- Kevin Lynch, 1960, pg. 1
Urban void space, or lost space, has been discussed within landscape architecture, planning and urban design for centuries, but often these spaces go unnoticed and underutilized. As the world’s population continues to grow, so do our cities and the challenges with dealing with urban void space (Lydon & Garcia, 2015). “Urban space is too valuable not to use productively” and there is an increased importance in exploring such spaces (Design Trust for Public Space et al., 2015, pg. 33). Although these spaces exist within our cities, various intervention strategies have been employed to transform them into functional, healthy, vibrant, interesting, and safe places for people.

This exploratory research will look to identify the Downtown Guelph Urban Growth Centre’s urban void spaces through a Gap Analysis, while a Morphological Analysis will be used to categorize these spaces. Furthermore, the thesis will explore their potential of becoming public space by demonstrating the various intervention strategies used to transform them through a Case Study Analysis. This analysis of three Ontario underpasses will demonstrate the intervention strategies used in the Pop-Up, Pilot, Permanent (PPP) Framework developed in New York’s elevated infrastructure study, Under the Elevated: Reclaiming Space, Connecting Communities (2015). Each case represents one of the phases of the framework and provides insight into each intervention method. Furthermore, this successive framework demonstration highlights both tactical urbanism and strategically planned approaches for transforming urban void spaces.

Therefore, the study will answer the following questions:

1) How can urban void spaces be identified?
2) How can these spaces be classified into categories?
3) What are the strategies being used to transform them?
This data inventory of Guelph, Ontario’s urban voids will provide insight into these leftover spaces by identifying and developing an identity for them. Figure 1.1 shows one of the many types of urban void spaces found throughout the Urban Growth Centre. A review of the literature associated with void spaces will help in formulation of the topic, context and ideas, while various methodological approaches will be used to answer the research questions. The various responses for dealing with these spaces, such as community driven bottom-up tactics and strategically planned approaches, have been used throughout the world to varying degrees and will also be reviewed. Although void spaces can be defined as the unwanted leftover spaces, some may have potential to be transformed into places for the public.

1.1 | Research Goals

1) To identify urban void spaces that have the potential to be transformed into outdoor public / community space.

2) To classify urban void spaces into recognizable categories.

3) To demonstrate the various intervention strategies used to transform urban void space.
1.2 | Downtown Guelph Urban Growth Centre

The Downtown Guelph Urban Growth Centre is located in the heart of Guelph, Ontario and is approximately 118.79 hectares (1.19 square kilometres). Due to its manageable size, easy accessibility and familiarity to the researcher, it was chosen as the study area for this thesis. Like many North American downtowns, Guelph has many urban features that define the fabric of the city including a railway corridor that divides the city in two, major roads that run throughout the core and the Speed River that converges with the Eramosa River southeast of the Urban Growth Centre. And like many downtowns, Guelph has leftover spaces that could have the potential to be transformed into public spaces using various intervention strategies. What distinguishes Guelph from many other North American cities is its distinctive radial street network. The radial grid pattern, a deliberate plan by Guelph’s founder John Galt, is unique to this part of the world historically and creates many irregular spaces throughout the downtown, while also providing opportunities for distinctive open space forms.

Figure 1.2 | Downtown Guelph Urban Growth Centre (Image from Google Earth 2015: Modified by Author)
1.3 | Purpose

The purpose of this study is to:

- Highlight that void spaces exist within our cities;
- Classify void spaces into recognizable categories and;
- Demonstrate that these spaces have potential.

1.4 | Expected Outcomes

- Void spaces exist within our cities due to a variety of reasons.
  a. There may be other void spaces.
- These spaces can be grouped into categories based upon their characteristics.
  a. Some spaces may fall into multiple categories.
  b. These categories could be used as a basis for further research in other cities and communities.
- Each category has subcategories.
- These spaces could have secondary and tertiary functions.
- There is a gap between community-driven initiatives (tactical urbanism) and strategically planned (planning process) approaches to transformation.
  a. The PPP Framework is a comprehensive approach.
  b. The framework could be used in transforming other urban void spaces.
“Interstices are thus imagined essentially as vacant lots, terrains vagues or decaying ruins. While this is certainly the case, we also suggest that such an image does not exhaust the whole extent of the notion of interstitiality.”

- Andrea Mubi Brighenti, 2013, pg.xvi
A review of the literature related to void space has revealed a number of important trends with regards to the topic. This review process has highlighted some of the ways these spaces are created, how they are being studied, and how they are being dealt with. Potential for these spaces and the varying terminology used throughout the literature have also been discussed.

2.1 | Void Space

Terminology

The definition of void space varies from source to source, and even the terms used for these spaces change. Abraham Akkerman’s article “Urban Void and the Deconstruction of the Neo-Platonic City-Form” (2009) states that the term ‘urban void’ has truly “never been defined” (pg. 205). Roger Trancik (1986) defines these spaces as “lost” space; Nipesh Palat Narayanan (2012) calls them ‘voids’; and Chady S. Bteich (2006) refers to them simply as ‘gaps’. Although these terms are slightly different from one another, all of the authors are referring to the same idea of ‘void space’.

According to Merriam-Webster Dictionary (2015) the word ‘void’ simply means, “containing nothing”, while ‘lost’ is defined as “ruined or destroyed physically”, “no longer visible”, “not made use of, won, or claimed”. Likewise, ‘gap’ is defined as “a separation in space” or “an incomplete or deficient area” (Merriam-Webster, 2015). In relation to these spaces, or gaps within the urban fabric, all of the terms can easily be interchanged with one another to suggest the idea of “void space”. Furthermore, for the purpose of this study the word ‘void’ will be used as a general term relating to all spaces seen as ‘gaps’, ‘leftovers’, ‘wastelands’ or ‘lost spaces’.

Void spaces are seen as the wastelands, leftover and in-between spaces within our communities; however they could also be the spaces that feel incomplete or lacking in vibrancy and functionality.
These areas within our cities tend to be the unwanted, underused or neglected areas that leave voids within the urban fabric (Trancik, 1986). Trancik (1986), figure 2.1, views these spaces as places that disrupt the urban fabric, and contribute little to their surroundings. Furthermore, most of these spaces go unnoticed and according to Claire Nelischer (2015), “they tend to be under-designed and fall off our mental map of the city”. They also “disrupt the overall continuity of the city” (Lek, 2015). Spaces such as parking lots, alleyways, underpasses and vacant lots are just a few types of void space that are present in most cities. While these places may simply be seen as “undesirable urban areas”, they may also have the potential to be much more than the leftover spaces within our communities (Narayanan, 2012).

**Creation of Void Spaces**

The formation of void space is the result of many factors such as topography, neglect, and development practices. According to Nipesh Palat Narayanan (2012), voids can be classified into three main categories: planning, functional, and geographical. Planning voids are the creation of planning practices that leave gaps within our urban fabric, leaving leftover spaces scattered throughout our cities (Narayanan, 2012; & Edensor, 2005). Land-use policies and zoning help create defined boundaries and lines within the landscape. They also form separation between uses, and divide the public and private realms (Trancik, 1986). Functional voids are defined as being spaces that have lost positive usage within the city, say for example an underutilized park or laneway that could potentially function as garden space for the adjacent landowners.
Finally, geographical voids are spaces that are the result of geographical features, such as rivers and hills (Narayanan, 2012).

There are also many extreme situations that result in the development of spatial voids, such as natural disasters or conflict. Although these are by definition ‘voids’, the response to dealing with them is much different due to varying reasons. An example of these extreme voids would be the vast amounts of vacant land found within the City of Detroit due to a decreasing population and urban decay (Gallagher, 2010). For the purpose of this study, void spaces that are primarily the result of planning practices, and a lack of functionality and vibrancy will be explored further.

2.2 | Importance

Urban voids play an important role in our cities today, both positive and negative. However, traditionally they are seen as the undesirable and unsafe spaces within our communities. Although many of these places may be seen as the unwanted or forgotten areas, they do have potential to contribute to the overall health, vibrancy and safety of our cities (Trancik, 1986; & Design Trust for Public Space et al., 2015). These spaces “offer tremendous opportunities” for cities to uncover hidden resources by transforming these spaces into unique and functional places (Trancik, 1986, pg. 4).

Three common trends discussed throughout the literature are: 1) the need to improve the perception of safety of these spaces, 2) the continued exploration into these spaces, and 3) the development of strategies that engage the community when transforming them. Without question, safety is a major issue within urban void spaces, and there is a need to respond to this need (Németh & Langhorst, 2014). Art installations and improved lighting have been a common response to the issue of safety, while cities like Ottawa have piloted projects to not only improve safety but also create vibrancy within these spaces (City of Ottawa, 2009).

Continuous exploration of these spaces has also been a recurring theme throughout the literature.
Due to increasing land values and growing urban populations, these spaces could provide additional outdoor public space, or semi-public space, for residents and visitors (Lydon & Garcia, 2015). Recently these spaces have received a great deal of “attention as spaces of possibility” (Iveson, 2013a). Numerous examples can be found throughout the literature that reflect this interest, not only in the sense of transforming these forgotten spaces but also as potential places that reflect the communities they are found in.

Finally, residents’ right to the city is mentioned throughout various sources, such as Kurt Iveson’s (2013b) “Cities within the City: Do-It-Yourself Urbanism and the Right to the City” and David Harvey’s (2003) “The Right to the City”. According to Iveson (2013b), “the city is as much ours to use as it is anyone else’s, and as much anyone else’s to use as it is ours” (pg. 946). This leads to the idea that people should be able to help in transforming the cities they live in. This ‘right to the city’ has sparked the ‘do-it-yourself’ DIY movement, which will be discussed later.

2.3 | Responses to Urban Voids

Through exploration of the ideas and concepts for transforming urban void spaces, we can see that there are a number of strategies used to transform these places. Everything from simple artistic installations to total redevelopment have been used to help transform voids into vibrant, functional spaces. This portion of the review focuses on four responses to void space:

1) Public Art
2) Temporary – Tactical Urbanism
3) Permanent – Planned Approaches
4) Comprehensive Method – Pop-Up, Pilot, Permanent Framework

Public Art

The installation of public art has been strategically used to transform urban void spaces throughout
the world. Artistic interventions have been a great way to brighten up these undesirable areas. One example of this is the work of Warren Langley in Sydney, Australia that has proven to be a pleasant addition to a highway underpass space, while also improving the perception of safety. The artwork, titled ‘Aspire’, is a forest of well-crafted tree like structures that illuminate the space at night, helping to improve pedestrian visibility and safety (McAtomney, 2014). The Heidelberg Project in Detroit’s Eastside has transformed numerous abandoned homes and vacant lots into artistic expressions, reflecting the community’s struggle with crime and illegal activities (Gallagher, 2010). Simply by drawing attention to the neglected neighbourhood, through the addition of colour and vibrancy, the work challenges the negative effects of criminal behaviour.

The works of Bill FitzGibbons have been quite remarkable in changing the appearance and experience of void spaces through the use of LED lighting effects. FitzGibbons’ works tend to use vibrant colours that enhance one’s experience, by beautifying these spaces and improving safety (Zimmer, 2013). Maria Lorena Lehman (2013), states that installations can simply add to the overall quality of a space through engagement of the public “by peeking their curiosity”. Furthermore, Belgian artist Elly Van Eeghem identifies these cracks within the urban fabric as intriguing spaces for artists due to their openness and their “undefined and layered identity” (Van Eeghem et al., 2011). Public art installations are not by any means standalones; many have been integrated into various intervention strategies that strive to enhance the quality of void spaces. Examples of this integration will be discussed further throughout the thesis.

**Temporary – Tactical Urbanism**

Tactical urbanism approaches to transforming void spaces are continuing to be seen as viable methods of intervention. Although similar, the definitions of do-it-yourself (DIY) urbanism, guerrilla gardening, and tactical urbanism are quite different from one another (Lydon & Garcia, 2015). These terms are all within the realm of bottom-up initiatives. However, according to Lydon & Garcia (2015), the authors of *Tactical Urbanism: Short-term Action for Long-term Change*, the term “DIY urbanism is the expression of the individual” whereas tactical urbanism advocates
can range from government agencies to community groups (pg. 8). With this in mind, tactical urbanism is seen as a method of transforming spaces for the common good of communities and neighbourhoods. Although these terms have been used interchangeable throughout the literature, for the purpose of this study the phrase tactical urbanism will be used as an umbrella term that encompasses pop-ups, pilots, and other temporary intervention strategies.

Numerous tactical urbanism strategies have been used throughout much of the world to help people and governments see the potential unused or underutilized spaces have to offer. Organizations, such as The Laneway Project (2015) in Toronto, New York’s Project for Public Spaces (PPS) (2015), and The Better Block Project (2015) out of Dallas, Texas all use temporary tactical methods to transform spaces. While the concept of tactical urbanism has become more mainstream in recent decades, the ideas and strategies of bottom-up initiatives have been used for centuries. Things such as food carts (now trucks), the Woonerf, and New Urbanism all have roots in tactical urbanism (Lydon & Garcia, 2015). Although temporary in nature, tactical urbanism establishes goals and objectives that could lead to larger, more permanent solutions.

Two examples of the strategic use of tactical urbanism are Ottawa’s year-long pilot project called The Underpass Pilot Project and the City of Calgary’s “Pop-Up Places” program. Located near the Rideau River in Ottawa, Ontario, The Underpass was in dire need of improvements, particular on the grounds of public safety
after a fatal incident took place within the space in 2006 (City of Ottawa, 2009). More recently, the City of Ottawa’s Transportation Committee launched a one-year pilot looking at transforming on-street parking spaces into temporary parks or ‘parklets’ (McCooey, 2015). The City of Calgary has also embraced the ‘pop-up’ enthusiasm by introducing the “Pop-Up Places” program (City of Calgary, 2015). A program that allows interested groups or individuals to apply for permits to temporarily change spaces throughout the city.

One of the strengths of tactical urbanism is the fact that these interventions are only temporary solutions, not permanent. These temporary strategies are used to generate ideas through low-cost initiatives, allowing for corrections and alterations through continuous real world testing, with little to no risk to the overall community (Lynch, 1960; & Lydon & Garcia, 2015). Although many of these projects may be small in scale, such as makeshift seating along streets and parklets, others have changed entire parking lots and roads into temporary green spaces or parkettes, providing people with an experience and vision for what is possible (Voigt, 2015). Temporary interventions have led many to believe that the ideas of tactical urbanism, “lighter, quicker, cheaper” are practical tools for producing better spaces within our cities (Project for Public Spaces, 2015). It is fair to say that these bottom-up approaches may prove to be a coordination challenge for municipalities and other agencies, but these approaches could potential coincide with long-term planned strategies.

**Permanent – Planned Approaches**

Strategically planned methods of transforming void spaces have primarily focused on enhancement projects, infill development, redevelopment and the creation of guidelines. A few examples of these planned approaches include Toronto’s Underpass Park, the City of Calgary’s *Downtown Underpass Design Guidelines* (2010), and the numerous infill projects found in many of our cities. It is worth noting that this review is not a critique of planning practices or policies, but rather an understanding of the processes, accomplishments and challenges facing the planning profession in regards to urban void spaces.
The *Downtown Underpass Design Guidelines* (2010) were developed by City of Calgary to improve the function, safety and overall appearance of the numerous underpasses found throughout the downtown. The document highlights the need to integrate these neglected spaces into the urban fabric, while continuing to function as passageways for pedestrians, cyclists and vehicles (City of Calgary, 2010). The resulting enhancement projects include the 1 Street S.W. Underpass and the 4 Street S.W. Underpass, both of which create interesting and appealing spaces within the core of the city (City of Calgary, 2010; & City of Calgary, 2016). Likewise, Toronto’s Underpass Park transformed a portion of derelict space beneath three overpasses into an interesting recreational and neighbourhood park that includes a skatepark, flexible community space and various public art installations (Waterfront Toronto, 2015). Both examples have proved to be successful in their attempts to transform these unwelcoming spaces.

Unlike tactical urbanism, budgets for permanent projects run much higher and require a longer, more tedious process. One of the most pressing challenges faced by strategically planned methods is effectively engaging the community (Voigt, 2015). Although these examples provided opportunities for public participation through meetings and design charrettes, Donovan Finn (2014) believes that enhancing and improving active public participation could prove to be a valuable addition to planned approaches. Once again, the purpose of examining planned design interventions is to gain further knowledge of the process for transforming urban void spaces permanently.

*Comprehensive Method – Pop-Up, Pilot, Permanent Framework*

Recently there have been a number of municipalities and government agencies using tactical approaches to transform urban spaces. Furthermore, a comprehensive method may prove to be a valuable asset for building better, more inclusive communities and spaces (Voigt, 2015). According to Robert Voigt (2015), this integration of strategies, from tactical urbanism to permanent redesigns, will benefit everyone that is involved with the process and affected by the outcomes.
Developed by the Design Trust for Public Space and the New York City Department of Transportation (2015), specifically for the *Under the Elevated: Reclaiming Space, Connecting Communities* study, the Pop-Up, Pilot, Permanent (PPP) Framework is a phased approach for transforming spaces beneath elevated infrastructure (figure 2.3). It encompasses both tactical urbanism and strategic planning approaches to the transformation of these spaces. Simply defined, elevated infrastructure is elevated rail lines and highways that tend to divide neighbourhoods, but create accessible and visible spaces beneath them that often go underutilized.

The PPP Framework uses a three-phased approach for transforming elevated infrastructure spaces into new public spaces and recreational areas. See Appendix A for definitions. This sequential process allows for collaboration with citizens and organizations by generating and testing new ideas and strategies for transforming these spaces through various low-cost initiatives, while providing community organizations with opportunities to create “open spaces for festivals and markets” (Design Trust for Public Space et al., 2015, pg. 33). The study and the development of the PPP Framework begin to challenge the problems created by elevated infrastructure, by recommending policies and strategies (Design Trust for Public Space et al., 2015). Furthermore, the study led to the recommendation of a dedicated program specifically for elevated infrastructure spaces, called the El-Space Program (Design Trust for Public Space et al., 2015).
2.4 | Gaps in the Literature

A review of literature related to the topic of void spaces has revealed a number of gaps. Although there are many strategies that could be taken in regards to the study of void space, three concepts stood out as opportunities for further research:

1) The identification of urban void spaces;
2) Classification and categorization of these spaces and;
3) Demonstrations of the comprehensive framework outside of the New York context.

Although there seems to be a generally understanding that void spaces exist within our communities, there is a lack of information about the characteristics and identity of these spaces. Identifying and categorizing urban void spaces could prove to be a useful starting point for further research and insight. Roger Trancik (1986) reinforces the notion and importance of identifying these gaps prior to any decision-making and design recommendations. This identification and classification system could lead to more informed decisions on how to approach such challenging spaces.

Additionally, the literature revealed a regulatory / process gap for transforming void space. Generally speaking, bottom-up approaches to transforming voids tend to echo the wants and desires of the community, while planned approaches reflect to the overall needs of a city or space. Although both are seen as appropriate methods, they each have shortcomings. While great in generating ideas and discussions, tactical urbanism sometimes does not produce long-term change, although this is not necessarily negative. Likewise, planned approaches may not reflect the communities’ needs and wishes, but create long-term permanent solutions. Whether the redesign of a space is seen as good or bad can be debated, it does often reflect the most pressing issues.

Although coordination of the use of tactical urbanism and planned approaches may still be seen
as a challenge, the PPP Framework provides a comprehensive method and a starting point for future research. This study will look at how the three phases of the PPP Framework have been implemented within an Ontario context. The framework demonstration for transforming urban void spaces is intended to showcase examples of similar work, and is not meant to be an evaluation or critique of the framework. Furthermore, the framework provides a method for transformation that includes all of the aforementioned responses to urban void spaces.

2.5 | Gap Analysis

Void space studies have been done to varying degrees and for various purposes using a variety of methods including ones similar to a gap analysis. A gap analysis is a method used to identify gaps within a given framework, context or topic (Clean Air Partnership, 2012; Lee, Hwang & Lee, 2015). Although this method is used quite often in the fields of ecological restoration and habitat conservation to identify areas of interest and places that could be enhanced or preserved for a particular species, it has also been used in a number of other applications (Chang, Li & Li, 2011).

In 2012, the Clean Air Partnership used a gap analysis to identify “the opportunities and barriers for the adoption of Complete Streets Policies” in Canada (pg. vi). “Urban Voids: The Hidden Dimension of Temporary Vacant Spaces in Rapidly Growing Cities” (2010) by Heike Rahmann and Marieluise Jonas identified vacant lots in Melbourne, Australia and highlighted their potential for temporary uses using a similar method. Rahmann and Jonas (2010) used aerial photography, qualitative and quantitative data to locate vacant spaces. And Ruolin Liu’s (2013) thesis Inhabiting the Interstitial: Design Experiments in Aviary Architecture and Habitat Creation used a similar method to identify potential urban interstitial spaces for bird habitat creation in Downtown Chicago. The thesis included the development interstitial space typologies by using an interstitial space analysis, similar to the gap and morphological analyses being used for the purpose of this study. Therefore, this study will use a gap analysis in identifying urban void space potential for the use of outdoor public space.
“As in any small pilot study, the purpose was to develop ideas and methods, rather than to prove facts in a final and determinate way.”

- Kevin Lynch, 1960, pg. 14
3 | Methodology

This exploratory thesis required a four-part methodology that included both primary and secondary research, which were used to gather qualitative and quantitative data.

Part 1 | Void Space Identification – Gap Analysis

Part 1 of the methodology used a gap analysis to identify the urban void spaces within Downtown Guelph Urban Growth Centre. The results of part 1 have helped in the development of the urban void space categories.

Part 2 | Void Space Categories – Morphological Analysis

The morphological analysis used the findings of part 1 to revisit and categorize the urban void spaces. Each category of void space is unique in terms of its form and structure; subcategories have also been identified.

Part 3 | Elevated Infrastructure Spaces – Category Analysis

The third part of the methodology required a detailed exploration of the elevated infrastructure category. This provided a better understanding of the specific sites and locations found in Guelph, while segueing into Part 4 | Framework Demonstration.

Part 4 | Framework Demonstration – Case Study Analysis

Three Ontario case studies were used to demonstrate the Pop-Up, Pilot, Permanent (PPP) Framework. Examples of each phase of the framework were explored.

3.1 | Void Space Identification – Gap Analysis

The Gap Analysis used specific criteria to identify and map urban void spaces that have potential to be transformed into public space. First, a set of criteria was developed to help in identifying the potential spaces. Although there are no existing minimum standards, or defined criteria for what
constitutes a public space, the criteria developed for this study has been loosely based on the American Planning Association’s *Characteristics and Guidelines for Great Public Spaces* (2016), see Appendix B, and the Project for Public Spaces’ *What Makes a Successful Place?* (2016), figure 3.1. In order for a space to be recognized as a potential public space, it needed to meet the established criteria:

- Accessibility
- Visibility
- Scale
- Primary Function
- Safety

![Figure 3.1 | What Makes a Great Place?](Source: Project for Public Spaces, 2016)
Using a combination of high-resolution aerial photos, CAD surveys, Google Earth referencing, photography, and site visits (urban exploration) each block within the Downtown Guelph Urban Growth Centre was examined separately. Both qualitative and quantitative data were used to identify the urban voids. An iterative process for mapping urban voids was required to determine if a space met the established criteria. This process resulted in a CAD generated Guelph Urban Void Space Map, along with Guelph Urban Void Space Statistics (quantitative data), that highlights all spaces with potential for possible intervention.

3.2 | Void Space Categories – Morphological Analysis

The Guelph Urban Void Space Map was then used to reexamine each space and to determine its morphological composition, generating a Morphological Analysis. Morphology is simply the study of the shape, form and structure of an object, place or space (Ritchey, 1998). This process answers the question of whether or not urban void spaces can be classified into recognizable categories.

This Morphological Analysis allowed for categories of urban voids to be generated based upon their spatial characteristics. Various diagrams and maps were generated to describe and help readers visualize these spaces. As previously mentioned, subcategories were also identified throughout this process. Finally, key findings such as unique spaces, groups of voids, and areas of interest were identified and highlighted by analyzing the various generated maps. Similar to the Guelph Urban Void Space Map process, both qualitative and quantitative data were used.

3.3 | Elevated Infrastructure Spaces – Category Analysis

The Category Analysis is a more detailed exploration of one urban void space category: elevated infrastructure. This methodological process highlights the different elevated infrastructure sites and locations found within the Urban Growth Centre. This process is similar to the methods used in Design Trust for Public Space and the New York City Department of Transportation’s Under the
Elevated: Reclaiming Space, Connecting Communities (2015). This required the use of qualitative data to identify the characteristics of each space, while photographs provided a visual description of the different types of spaces found within the elevated infrastructure category.

Although all of these spaces are categorized together under elevated infrastructure, the identification of the different sites and locations found in Guelph has helped in analyzing these void spaces, while developing a better understanding of their potential. Like the previous methods, the Category Analysis used a variety of high-resolution aerial imagery, Google Street View, photography and site visits to gain a better knowledge of these spaces. Furthermore, available information about the spaces was examined to help establish historical context and to demonstrate that these spaces have evolved over time. This exploration has generated a more complete understanding of these types of spaces, while highlighting more precisely their opportunities, constraints and potential (Design Trust for Public Space et al., 2015). The elevated infrastructure category was chosen for four reasons:

1) The category has a manageable number of sites within the study area;
2) It is the same category of void space identified in Under the Elevated: Reclaiming Space, Connecting Communities (2015), which has influenced this study;
3) It acts as a segue into the Framework Demonstration - Case Study Analysis that showcases various intervention strategies, and;
4) The Wilson Street Promenade Pop-Up case study is an elevated infrastructure space located within the Downtown Guelph Urban Growth Centre, which is well known to the researcher.

3.4 | Framework Demonstration – Case Study Analysis

The Framework Analysis demonstrated and examined the three phases of the Pop-Up, Pilot, Permanent (PPP) Framework, which were used in the New York City’s elevated infrastructure study.
as methods for transformation. The three Ontario case studies, The Wilson Street Promenade – Pop-Up (Guelph, ON), The Underpass – Pilot (Ottawa, ON), and Underpass Park – Permanent (Toronto, ON) were chosen due to their provincial and urban context. Both secondary research and informal discussions about the projects were used to gather information.

This portion of the research answers the questions of how urban void spaces are being transformed, while also potentially filling the regulatory and transformation gap with a comprehensive method. The case study demonstrations also gave great insight into each transformation by determining if each was able to achieve their goals and objectives, and improve the quality of the study sites. Furthermore, the demonstrations provided a conceptual evaluation of the PPP Framework and offer some insight into whether or not it could be used for transforming other void spaces.

3.5 | Summary

In summary, the thesis:

1) Identified and categorized urban voids into recognizable categories.
2) Highlighted void spaces and areas of interests.
3) Explored the elevated infrastructure category in more detail to demonstrate the various sites located throughout the Urban Growth Centre.
4) Demonstrated and evaluated each phase of the PPP Framework as an applicable comprehensive strategy for transforming urban voids.
“It is important first to identify these gaps in spatial continuity, then to fill them with a framework of buildings and interconnected open-space opportunities that will generate new investment. Identification of the gaps and overall patterns of development opportunities should be done before any site-specific architecture or landscape architecture is designed and as a key element in urban land-use planning.”

- Roger Trancik, 1986, pg. 2
4 | Void Space Identification – Gap Analysis

A Gap Analysis was used in the identification of the Downtown Guelph Urban Growth Centre’s urban void spaces. This process examined the entire study area to determine which spaces have the capability to be transformed into outdoor public space. In order to determine a space’s potential, criteria were developed to create a minimum standard for selection. According to the American Planning Association (2016):

“A public space may be a gathering spot or part of a neighborhood, downtown, special district, waterfront or other area within the public realm that helps promote social interaction and a sense of community.”

This original mapping process resulted in the creation of the Guelph Urban Void Space Map, which was then used in the Morphological and Category analyses. Furthermore, key findings and patterns were identified and discussed.

4.1 | Public and Private Land

Although similar studies have focused solely on public or private land, this thesis has looked at all land that falls within the study area. With land sharing, private-public space and the transfer of development rights becoming more common practices, this study has looked at land as being a collective resource that could be accessed and transformed by many contributors. In this sense, the study has taken the views of Walter Benjamin (1986) of blurring the division between definitive boundaries and lines, commonly found on maps and plans. While spaces such as residential front yards and driveways could possibly be transformed into urban public space, their suitability of such transformation is highly unlikely. Furthermore, front yards could be seen as semi-public spaces, areas that link the public realm and private dwellings. Although this study identifies and categorizes urban voids, their boundaries can be and are often blurred. The ideas of public and private land will continued to be discussed further in the coming chapters.
4.2 | Criteria For Identifying Void Space

To identify urban voids within the Downtown Guelph Urban Growth Centre, criteria were developed to determine if a space would meet a minimum standard for possible transformation from void space to public space. Based loosely on the American Planning Association’s *Characteristics and Guidelines for Great Public Spaces* (2016) and the Project for Public Spaces’ *What Makes a Successful Place?* (2016), the criteria helped determine a space’s accessibility, visibility, scale, primary function and perception of safety.

Figure 4.1 | Urban Void Space Identification Criteria (Credit: Author)
Accessibility

The first criterion to be met is the notion of accessibility. For a void space to be potentially transformed into a public space, it needed to be easily accessed by the general public. Although some spaces may require the removal of fences or debris piles to become accessible, these barriers were not seen as major obstacles and have not been taken into consideration for this study. Generally speaking, void spaces needed to be accessible from the public domain, such as roads or public spaces. Furthermore, these spaces were required to be accessible from ground level or by existing outdoor public stairwells. This criterion eliminated a number of spaces that could be seen as urban void space, such as rooftops, courtyards and various residential rear yards.

Visibility

A space’s visibility from an at-grade public area or space such as a street, park, or square is the second criterion required in identifying urban void spaces. Views to these spaces were necessary in determining if a void space has public space potential. Furthermore, visibility is seen as an important aspect of a space as it may create awareness by drawing the attention of users, while also providing a safety perception. While many of the spaces seem to be tucked away, on further investigation portions of these spaces were visible from the public domain. Spaces such as courtyards, rooftops and other areas not visible from the public domain were excluded from the study. Although some may have the potential to be enhanced, they are deemed incapable of becoming public space as defined by this study.
Scale

Scale was the third criterion required in identifying Guelph’s urban void spaces. It was important in determining whether or not a space would have the capability, in terms of scale, to be transformed into an outdoor public space. Although there are no minimum standards for the size of an outdoor public space, for this study it was deemed appropriate for a horizontal space to be roughly 40 square metres (2-metre width minimum), or 4 off-street parking stalls, and a vertical space to be approximately 10 metres in length and 1-storey in height (2.5 metres). The reason behind using a 40m² minimum is that it would allow approximately 10 users (4m² per person) to comfortably occupy a space. Figure 4.2 conceptually demonstrates two different 40m² public space layouts, one including a 10 metre vertical void. Furthermore, this minimum removed from the study narrow gaps between buildings that could not accommodate groups of people.

Figure 4.2 | Conceptual Scale Demonstrations (Credit: Author)
Primary Function

The fourth identification criterion required is determining a space’s primary function. This requirement needed a space’s primary function to not satisfy the pedestrian urban fabric. This means a space’s current primary function could be changed or altered for the benefit of the community, while not negatively impacting the surroundings. The possible addition of secondary and tertiary functions has also been taken into consideration as urban void spaces could be transformed both temporarily and permanently.

Spaces such as parks, squares, walkways and right-of-ways, while possibly being seen as urban voids, are already designated public spaces. Although it could be debated whether or not these spaces are functioning at their highest potential, this concern becomes a matter of design and aesthetics rather than function. Other spaces such as residential lawns, private driveways and housing complex parking lots were also excluded from the study due to the fact that their current functions satisfy the needs of the residents, and could already be seen as functional outdoor spaces.

Safety

The fifth and final criterion is the perception of safety. Generally speaking, for a space to be classified as an urban void space, it needed to be perceived as a safe area for public gathering and usage. This eliminated spaces that have steep slopes, which would be difficult for the public to navigate. Construction and excavated sites have also been excluded due to various dangerous elements found within these spaces. Unlike the other four criterion, the perception of safety was difficult to determine fully. For this study, spaces that possibly create a physically unsafe environment, such as steep slopes and excavation pits, were
4.3 | Key Findings

The identification of the urban void spaces resulted in the creation of the *Guelph Urban Void Space Map* (figure 4.3). It was determined that there are 25.09 hectares of horizontal void space and 5.58 kilometres of vertical void space found within the Downtown Guelph Urban Growth Centre. This accounts for approximately 21.12% of the total study area. The results of the *Gap Analysis* also identified a number of patterns and areas of interest. The south portion of the Urban Growth Centre contains the largest concentration of urban void spaces, while the blocks immediately north of the Metrolinx Railway Corridor have very few voids. Furthermore, there are numerous voids located at major intersections, and along major roads and the railway corridor. Vertical void spaces were commonly found adjacent to horizontal voids.
**Major Roads & Intersections**

By examining and analyzing the *Guelph Urban Void Space Map* it can be determined that a number of urban void spaces are located at major intersections and along major roads. Figure 4.4 highlights some of the most predominant urban voids found at these locations. Due to their high visibility, easy access and ideal locations, these spaces possibly have greater potential for transformation than other urban voids.

![Figure 4.4 | Urban Void Space at Major Roads & Intersections](Image from Google Earth 2015: Modified by Author)

**Railway Corridor**

While it is known that railway and highway corridors often create a division between neighbourhoods and communities, the Gap Analysis revealed that spaces within Guelph have the tremendous opportunity to reconnect the city. Seven key locations adjacent and beneath the elevated rail corridor were identified through the analysis (figure 4.5). Three of the locations currently provide
access for pedestrians and drivers by connecting the north and south portions of the city, while the four other areas adjacent to the corridor are large open spaces with tremendous potential. Finally, the Metrolinx Railway Corridor could be viewed as a barrier, due to the large amount of urban void space found south of it, which has slowed redevelopment efforts within this area (along with other possible factors) further addressing the need to explore these spaces.

4.4 | Conclusion

The results of the *Gap Analysis* have determined there to be a number of interesting locations, patterns and relationships between void spaces and Guelph’s urban fabric. Although it is not being suggested that all of the identified urban void spaces will need to be transformed into outdoor public spaces, many have great potential to contribute to the vitality of Downtown Guelph. In particular, the spaces identified adjacent to major roads, along the Metrolinx Corridor and at key intersections provide an opportunity for further exploration.
“Interstices exist – and come to exist – everywhere in the city and its territory. If so, how do we recognize them?”

- Andrea Mubi Brighenti, 2013, pg.xvi
Through the original mapping process of the *Gap Analysis* and criteria development for identifying void spaces, it was determined that the Downtown Guelph Urban Growth Centre has 25.09 hectares (250944 m$^2$) of horizontal void space and 5.58 kilometres (5580 m) of vertical void space. Once again, this accounts for nearly 21.12% of the total area of the Urban Growth Centre. By using the *Guelph Urban Void Space Map* (figure 4.3) each space was revisited to examine its form and structure to develop categories of urban void space. It was determined that the 25.09 hectares are spread across five different categories of urban void space:

- horizontal planes
- vertical planes
- enclosures
- passageways
- elevated infrastructure

Table 5.1 breaks down each category into a percentage of the total void space area and the entire Urban Growth Centre. The vertical void space calculation has also been included into the table; however it is shown in linear metres and kilometres rather than the standard square metres. This is due to limitations in the mapping process, which made it difficult to calculate the areas of vertical void spaces. Furthermore, subcategories have also been identified and will be discussed further throughout this chapter.

### 5.1 | Horizontal Planes

*Horizontal planes* are characterized as large, generally flat spaces, with little to no vertical elements defining the space. These spaces, commonly found in the forms of parking lots and vacant lots, are vast areas typically covered with concrete, asphalt, gravel or grass. They account for the largest percentage of...
void space within the Urban Growth Centre at 86.47%, approximately 21.70 hectares (figure 5.1).

Often horizontal planes are areas that extend along the XY-plane creating omnidirectional open spaces that cover a large area. Two subcategories of planes have been identified through the Morphological Analysis:

- paved planes
- unpaved planes

Although some horizontal planes may include vertical elements, such as trees within or along their edges, they are not seen as key components in defining these spaces. It was determined that these spaces have a height-to-width ratio (aspect ratio) less than 1:1. Strips of sparse vegetation or roads often bound the edges of these spaces, but buildings or dense vegetation could bound them on all sides as long as the heights of those edges do not exceed the 1:1 height-to-width ratio. These vast areas of pavement, gravel or grass are often used for servicing businesses, vehicular parking and storage. From the public domain horizontal planes are often highly visible and can easily be accessed by pedestrians and drivers. Although in most situations these spaces are accessible along an entire edge, there are a few situations when they only have one-point of entry.
**Paved Planes**

*Paved planes* are often vast areas of pavement, typically concrete or asphalt, that are no smaller than 40m$^2$ or 4 off-street parking stalls. Commonly used for business servicing, vehicular parking and storage these areas account for 63.38% (15.91 ha) of the void space in the Urban Growth Centre (figure 5.3). Occasionally *paved planes* are adjacent to buildings and/or dense vegetation; these are most common within the centre of the downtown. Although these spaces often satisfy the servicing and parking needs of the surrounding businesses, they also have the potential for secondary and tertiary functions that contribute to improving the urban fabric of Guelph.
Figure 5.3 | Paved Planes Map (Image from Google Earth 2015: Modified by Author)

Figure 5.4 | Paved Plane Photo - Taken April 23rd, 2016 (Credit: Author)
Unpaved Planes

Similar to paved planes, unpaved planes are large, vast areas of gravel or grass that account for 23.09% (5.79 ha) of void spaces found within Downtown Guelph. These spaces are commonly encountered in such forms as vacant lots, brownfields or unpaved parking lots, and may contain remnants of previous activities and/or built form. Although some unpaved planes are found within the centre of the downtown, most are found along the edges of the Urban Growth Centre where industries were once located (figure 5.6). Once again, vertical elements such as trees and built form are not defining elements of these spaces, which are used primarily for parking and are often waiting for future development. Figure 5.7 demonstrates a common unpaved plane found in Guelph’s Urban Growth Centre.
5.2 | Vertical Planes

*Vertical planes* are spaces found throughout Guelph’s Urban Growth Centre that total 5.58 kilometres in length. These spaces are typically found bordering other urban void spaces such as *horizontal planes* and *passageways*, but can also be located adjacent to road right-of-ways. Due to limitations within the identification process these spaces needed to be a minimum of 10 metres in length and approximately 1-storey (2.5 metres) in height. Vertical elements such as retaining walls and windowless architectural walls that are visible and easily accessible were included in this study. And like the other void space categories, these spaces have the potential to enhance the public realm and to improve the urban fabric of Guelph.

Spaces that fall into this void space category are simply defined as voids along the Z-axis. Often used for retaining land, these spaces are commonly seen in and
around elevated infrastructure and on steep slopes. Windowless exterior walls of buildings may be the result of the removal of adjacent structures or buildings, but could also be seen as underutilized spaces. These functions of vertical space have helped in identifying two subcategories of vertical planes:

- engineered walls
- architectural walls

**Engineered Walls**

*Engineered walls* are a common void space found throughout many metropolitan areas. They often are used to hold back land where there is substantial grade change. Within the Urban Growth Centre, *engineered walls* account for 28.31% (1.58 km) of the vertical void space and are mostly

![Vertical Planes Map](image)
found in and around the Metrolinx Railway Corridor (figure 5.10). These spaces are often much longer due to their locations and purpose, though the study only required a vertical void space to be a minimum of 10 metres in length and approximately 1-storey in height. Figure 5.11 shows a typical engineered wall found throughout the Downtown Guelph Urban Growth Centre.

Figure 5.9 | Engineered Wall (Image from Google Earth 2015: Modified by Author)

Figure 5.10 | Engineered Walls Map (Image from Google Earth 2015: Modified by Author)
spaces are often the result of removed buildings that once created continuous rows of built form.

Figure 5.14 demonstrates the common **architectural wall** found within the study area.

**Architectural Walls**

Like *engineered walls*, *architectural walls* possibly have the potential to be enhanced to improve the public realm of Downtown Guelph. These spaces are the windowless exterior walls of buildings and are typically adjacent to public areas or other void spaces. In Guelph, they account for 71.69% (4.00 km) of the total vertical void space and can be found throughout Downtown Guelph. As previously mentioned, these spaces are often the result of removed buildings that once created continuous rows of built form. Figure 5.14 demonstrates the common *architectural wall* found within the study area.
Figure 5.13 | Architectural Walls Map (Image from Google Earth 2015: Modified by Author)

Figure 5.14 | Architectural Wall Photo - Taken April 23rd, 2016 (Credit: Author)
5.3 | Enclosures

Enclosures are simply characterized as the areas that have vertical elements that enclose the space along three sides. These spaces account for 3.33% (0.84 ha) of the void space in the Downtown Guelph Urban Growth Centre and are mostly found within the core of the downtown (figure 5.15). While similar to horizontal planes, enclosures include elements such as built form and/or dense vegetation that help define edges of the space. These spaces found within Downtown Guelph are mostly paved spaces, although this is not a defining characteristic and may not be the case in other areas of Guelph or in other cities. Furthermore, two subcategories of enclosures were identified:

- bays
- rear lots

For a space to be categorized as an enclosure, it was required to have vertical elements on at-least three sides, with a minimum aspect ratio of 1:1, that frame the space. In some cases, spaces were enclosed on three sides, but had a height-to-width ratio less than 1:1 placing them in the horizontal planes category. Due to the radial grid pattern found in Downtown Guelph many of the enclosure spaces take on a more organic shape, rather than a well-defined geometric form. Furthermore, more often than not these spaces are visible from adjacent residential dwellings, offices and the public realm. Enclosures within the Urban Growth Centre are commonly used for parking, servicing and waste receptacle storage. And unlike courtyards, which have no direct access for the general public, enclosures are often connected to a passageway and/or are directly adjacent road right-of-ways.
another urban void space or the public domain, typically a road right-of-way, and provides access
to the space. However, in many cases there are secondary points of entry to space. Although

**Bays**

*Bays* are the first subcategory of the *enclosures* void space category. There are 17 *bays* found within the Downtown Guelph Urban Growth Centre, which total 0.31 hectares (1.25%) of urban void space. These spaces are characterized as highly accessible and visible from the public domain, while being enclosed along three sides by built form or dense vegetation. The fourth side of the space is directly adjacent to another urban void space or the public domain, typically a road right-of-way, and provides access to the space. Although
*bays* are enclosed spaces, this open edge can sometimes create the sense that these spaces are extensions of the adjacent right-of-ways or void space, rather than being separate. Figure 5.18 shows a typical bay found in Downtown Guelph.
Rear Lots

Unlike bays, rear lots are often less visible from the public domain but are easily accessible by passageways or horizontal planes. These spaces are found primarily within the historic centre of Downtown Guelph (figure 5.20) and account for 2.08% (0.52 ha) of urban void space. Rear lots tend to have a greater sense of enclosure due to the fact that they are often found at the rear of parcels, which creates a partial vertical component along the fourth edge. Furthermore, these spaces often have only one entry-point into the space, making them the least visible of all of the urban void space subcategories. Due to the fact these spaces are connected to other urban voids and often only have one point of entry, these spaces often create an element of surprise as users move from the narrower void space into the larger rear lot.
Passageways, features such as laneways and alleyways, account for 8.81% (2.21 ha) of the total void space. Typically defined as having an elongated XY-plane, these spaces are often framed by buildings or dense vegetation along the Z-plane and are no wider than 20 metres. The long, framed configuration tends to lead the user through the space, indicating directionality, visual orientation and movement. For a space to be categorized as a passageway, it was required to have a minimum height-to-width ratio of 1:1. Generally speaking, it can be said that passageways are long, narrow and open ended spaces with a clear beginning and end.

Most commonly used by drivers, cyclists and pedestrians for accessing parking and entrances at the rear of buildings, passageways often also function as a space for servicing businesses and provide additional storage for vehicles and
waste receptacles. These spaces are often the link to other urban void spaces, such as horizontal planes and enclosures. Vertical planes are regularly found flanking these spaces, creating an even greater sense of voidness. Furthermore, it can be said that passageways function as transitional spaces between the public and semi-private realms. Two passageway subcategories where identified through the Morphological Analysis:

- laneways
- alleyways

Figure 5.22 | Passageways Map (Image from Google Earth 2015: Modified by Author)

Laneways

Laneways are typically the larger of the two passageway spaces and tend to have a sense of openness to them. Unlike alleyways that are defined by their rectilinear form, laneways are often
irregular in their shape and can have breaks within their Z-planes. These breaks often lead to other urban void spaces and/or act as secondary entry points to the space. Figure 5.24 maps out the 1.73 hectares (6.89%) of laneway within the Urban Growth Centre; it can be noted that many of them are located on the peripheral of the study area. The common characteristics of laneways are being wider and more open than alleyways, allowing for higher volumes of traffic through the space and having an irregular rectilinear shape.

Although these spaces are wider than alleyways, they tend to feel more private and are narrower than the typical road right-of-way found within the Urban Growth Centre.
often narrower than their counterpart. Furthermore, these spaces have a strong rectilinear form and are often much shorter in length than laneways. In Guelph, these spaces are mostly found within the core of the Urban Growth Centre (figure 5.27) and account for 1.93% (0.48 ha) of urban void space. Although their primary function is to provide access to users, their smaller and enclosed characteristic often creates human-scale spaces ideal for urban public space. Figure 5.28 shows the typical alleyway found within the Downtown Guelph Urban Growth Centre.
Figure 5.27 | Alleyways Map (Image from Google Earth 2015: Modified by Author)

Figure 5.28 | Alleyway Photo - Taken April 23rd, 2016 (Credit: Author)
5.5 | Elevated Infrastructure

_Elevated infrastructure_ is the fifth and final urban void space category identified within the Downtown Guelph Urban Growth Centre. These spaces are commonly found in the forms of bridges, underpasses and overpasses, and account for 1.38% (0.35 ha) of Guelph’s void spaces. Within the study area _elevated infrastructure_ is most often found along the Metrolinx Railway Corridor, which runs through the centre of the study area, and the Speed River, a type of geographical void (figure 5.29). Two subcategories of _elevated infrastructure_ were identified through the _Morphological Analysis_:

- elevated pedestrian infrastructure
- elevated railway infrastructure

These spaces are primarily used as corridors for vehicles, trains and pedestrians above or beneath physical barriers. Although _elevated infrastructure_ is similar to _passageway_ spaces, narrowly framed spaces with a clear beginning and end, the addition of a secondary XY-plane or bridge creates a uniquely different space. What makes these spaces quite different from the other urban void space categories is fact that they can be experienced from below and/or above the elevated structure. While many of these spaces are situated along road right-of-ways, the addition of vertical elements, such as abutments and retaining walls, and the elevated plane create a clear distinction between the street and _elevated infrastructure_ space. Furthermore, street designs often bypass such spaces, producing a break within streetscape elements and further distinguishing the separation between the roads and these void spaces.
Elevated Pedestrian Infrastructure

In the Downtown Guelph Urban Growth Centre elevated pedestrian infrastructure has been identified in two locations, one along the Speed River and the other bridging Norfolk Street (figure 5.31). These spaces account for the smallest percentage of urban void space at 0.21% (0.05 ha). Unlike the other elevated infrastructure subcategory, elevated pedestrian infrastructure is used solely for pedestrians and cyclists. Figure 5.32 demonstrates the visual characteristics of one of these spaces found within the Urban Growth Centre. It is worth noting that the pedestrian bridge over the Speed River, which runs parallel to Macdonell Street and is directly beneath a railway viaduct in the eastern portion of
the study area, has no current function. These spaces will be discussed further in the next chapter, Chapter 6 | Elevated Infrastructure Spaces – Category Analysis.

Figure 5.31 | Elevated Pedestrian Infrastructure Map (Image from Google Earth 2015: Modified by Author)

Figure 5.32 | Elevated Pedestrian Infrastructure Photo - Taken April 23rd, 2016 (Credit: Author)
Elevated Railway Infrastructure

Finally, elevated railway infrastructure is found scattered across the middle of the Downtown Guelph Urban Growth Centre, along the Metrolinx Railway Corridor. These spaces total 0.29 hectares and account for 1.17% of the void space found within the study area. Unlike the other elevated infrastructure subcategory, these spaces are characterized by the privately owned railway land/corridor above, with publicly accessed spaces beneath it at key junctions. The Morphological Analysis has identified four separate spaces across Downtown Guelph, which will be explored in more detail in with following chapter. Traditionally, the spaces below railway corridors have been and are still used to move people, cyclists and drivers without obstructing rail traffic. Figure 5.35 shows an example of a common elevated railway infrastructure space.
5.6 | Key Findings

After the completion of the Gap Analysis, the Morphological Analysis reexamined all the spaces to determine their morphological composition. Through this analysis, five separate categories of urban void space were identified, each of which has 2 subcategories capability of being transformed into public open space. Table 5.2 shows the statistical break down of these subcategories. The creation of the Guelph Urban Void Space Composite Map (figure 5.36) is a composition of each category map that visually depicts the urban void space categories in relation to each other. By analyzing this map a number of areas of interest and patterns were identified, including the observation that the majority of the urban void spaces were horizontal planes, the clustering of various void spaces, and the possibility of void space hybrids.
Table 5.2 | Guelph Urban Void Space Subcategory Statistics (Credit: Author)

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<tr>
<th>Category</th>
<th>Subcategory</th>
<th>sq. m</th>
<th>ha.</th>
<th>% of Void</th>
<th>% of UGC</th>
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<tr>
<td>Horizontal Planes</td>
<td>Paved Planes</td>
<td>159052</td>
<td>15.91</td>
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<td>13.39%</td>
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<td></td>
<td>Unpaved Planes</td>
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<td>1.45%</td>
</tr>
<tr>
<td></td>
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<td>71.69%</td>
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<td></td>
<td></td>
<td>5580</td>
<td>5.58</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total Horizontal Voids | 250944 | 25.09 ha. | 21.12% |
| Total Vertical Voids  | 5580   | 5.58 km.   |

Total Area of Urban Growth Centre 1187933 118.79 ha.
Horizontal Planes

At first glance of the *Guelph Urban Void Space Composite Map* it is easy to identify the numerous *horizontal planes* found within the study area (figure 5.37). These spaces account for over 86% of the urban void space, and indicate various social norms of the city. Since a majority of these spaces are used for parking, or automobile related activities, it could be said that the City of Guelph is a highly automobile dependent community. While this can be debated as a positive or negative attribute, it does represent an urban fabric that has vast amounts of empty space. These spaces do serve a purpose for surrounding businesses but do not contribute to the overall quality of the Downtown Guelph urban fabric.

Figure 5.37 | Horizontal Planes (Image from Google Earth 2015: Modified by Author)
Clusters

One of the more striking findings of the *Morphological Analysis* is the clustering of different urban void spaces within a specific location. While the *Gap Analysis* identified key locations and spaces within the Downtown Guelph Urban Growth Centre, the *Morphological Analysis* has highlighted the grouping together of various urban voids within close proximity to each other and/or overlapping one another (figure 5.38). Although urban void spaces do occur as individual instances, quite often they are found grouped together furthering the perception of these spaces as being the neglected or forgotten places within our communities.

Figure 5.38 | Major Clusters (Image from Google Earth 2015: Modified by Author)
Hybrids

The final finding of the Morphological Analysis has reinforced the notion of possible hybrid spaces, or spaces that could be classified within multiple categories. While the study of each space’s form and structure has lead to the creation of five distinctive urban void categories, many of these spaces could potentially be categorized into multiple groups. Furthermore, void spaces could simply be seen as extensions of other spaces rather than being spaces on their own. This leads to the ideas of spatial dynamism, spaces that could be classified into two or more categories and/or change seasonally, and transitional spaces, the areas between two spaces. Simply stated, urban void spaces are often not limited to one category of urban void. Although this study was able to classify each potential public space, further exploration could lead to other categories and subcategories of void space.

5.7 | Conclusion

It has been determined that within the Downtown Guelph Urban Growth Centre, there are five categories of urban void space. These categories, which could be found within other cities and neighbourhoods, could provide a basis for further research in regards to identifying, classifying and transforming urban voids. This future research could possibly highlight and identify other categories and subcategories of void space. One known example of this are elevated vehicular infrastructure spaces, often found in the forms of elevated highways and roads. Although similar to other elevated infrastructure subcategories, these spaces have an elevated plane used primarily for vehicular traffic. While the purpose of this study was to identify and categorize void spaces, it is not intended to lead to the belief that each of these spaces need to be transformed into outdoor public space. However, the creation of the urban void space categories could prove influential in studying urban void spaces further.
“Spaces that can accommodate mixed or integrated uses have much greater richness and vitality than single-use spaces, which are often static and remain lifeless for substantial periods of time. Design must respond to the dynamics of social uses in its physical form.”

- Roger Trancik, 1986, pg. 219
The *Elevated Infrastructure Spaces - Category Analysis* provides us with an in-depth look at the different *elevated infrastructure* spaces found within Guelph’s Urban Growth Centre. This analysis showcases the various spaces and locations found within the study area. Quite often these spaces are highly visible and easily accessible due to their large size and prominent location within the city. While the previous chapters are seen as methods to identify and categorize urban void spaces, this chapter gives us a context-specific look at each space found within this particular category. Furthermore, this exploration of the *elevated infrastructure* category has helped in visually communicating the design, materiality, configuration and context of each space. While these spaces are specific to Downtown Guelph, they may also be found within other municipalities.

For the purpose of this study and due to the extensive amount of time, research and urban exploration required to be able to identify every urban void space site, only the *elevated infrastructure* category will be examined in this chapter. This category of urban void space was chosen due to the manageable number (6) of identified spaces within the Urban Growth Centre. Furthermore, this chapter acts as a *segue* into the *Framework Demonstration - Case Study Analysis*, which has looked at the transformation of *elevated infrastructure* spaces using the three phases of the Pop-Up, Pilot, Permanent Framework.

### 6.1 | Elevated Railway Infrastructure

As described in the previous chapter, *elevated railway infrastructure* is found along the Metrolinx Railway Corridor that divides the Downtown Guelph Urban Growth Centre. The railway corridor within the study area lies on ground higher than much of the surrounding area. Due to this division of function and grade, the corridor includes four separate occurrences of *elevated railway infrastructure* spaces where vehicular and pedestrian traffic can move freely to and from the northern and southern portions of the downtown. These four cases of *elevated railway infrastructure* in Guelph: 1 | *Norfolk Street Underpass*, 2 | *Wilson Street Underpass*, 3 | *Wyndham*
Street Underpass, and 4 | Railway Viaduct, are located in figure 6.1.

Norfolk Street Underpass

The Norfolk Street Underpass is a space used primarily by motorists, cyclists and pedestrians to navigate beneath the Metrolinx Railway Corridor. This underpass allows for four lanes of vehicular traffic, two bike lanes and two sidewalks, one of which is closed to pedestrians. Being close in proximity to Market Square and the Guelph Farmers’ Market, and allowing for high volumes of traffic this underpass is a highly utilized space. The overhead bridges, which allow for two separate tracks of rail traffic, are supported by abutments on either side. Due to the gradient change within the area, retaining walls (engineered walls) create a type of transitional space between the road right-of-way and the underpass space. Furthermore, the bridges span a distance of 22 metres, making them highly visible through the Gordon/Norfolk Corridor.
Although the *Norfolk Street Underpass* is a highly used vehicular space, it only accommodates pedestrians along one side. While the space does have two bike lanes, the combination of the underpass space and transitional spaces, which are over 150 metres in length, creates a highly undesirable area for cyclists and pedestrians. Furthermore, the space is characterized by poor lighting and the sterile environment created by the vast amounts of concrete.

Nevertheless the *Norfolk Street Underpass*, along with the adjacent *vertical planes*, has the potential to be enhanced to improve pedestrian and cyclist experiences.
2 | Wilson Street Underpass

The Wilson Street Underpass is a one-way vehicular traffic route that provides pedestrians with wide sidewalks on either side. Located directly east of the Norfolk Street Underpass, this space acts as a pedestrian connection between City Hall and the Guelph Farmers’ Market. Twinned steel bridges rest upon concrete abutments with retaining walls extending into the adjacent intersection and down Wilson Street. Like the Norfolk Street Underpass, the spans above Wilson Street are apart of the Metrolinx Railway Corridor and are not legally accessible by the public. Each bridge spans a distance of approximately 16 metres, allowing for the accommodation a one-way traffic lane, bike lane and two pedestrian sidewalks beneath.

While all forms of transportation utilize the underpass, the space is simply characterized by its deteriorating bridges, poor lighting, and unpleasant pedestrian environment. The Wilson Street Underpass space, along with the adjacent vertical planes and abutments, have the potential to be transformed into enhanced pedestrian and cyclist experiences. This space will be discussed in more detail in the following chapter, Framework Demonstration - Case Study Analysis, as it is one of the case studies used to demonstrate the possible intervention strategies utilized in transforming elevated infrastructure spaces.
3 | Wyndham Street Underpass

The most recently redesigned overpass is the Wyndham Street Underpass located on Wyndham Street North, which provides access for vehicles, cyclists and pedestrians travelling north-south. Located next to Guelph City Hall, Guelph Central Station and the Guelph Armoury, this once narrow, dark underpass has been reconstructed into a modern underpass space (Shelley, 2013). Construction of the new bridge and underpass space was completed in 2012; this included the widening of Wyndham Street to roughly 20 metres to allow for two drive lanes, two bike lanes and two sidewalks (City of Guelph, 2013). Additionally, the underpass space now provides access to the Guelph Central Station’s two platforms via staircases along the west abutment. Uniquely, this creates a second level of pedestrian movement along the elevated bridge, though it is seen as an extension of the railway corridor.

The Wyndham Street Underpass is primarily concrete with steel guardrails along the edges of the two passenger platforms. The abutments and retaining walls beneath and around the underpass space are of a textured concrete wall system, rather than the smooth poured concrete commonly used in similar spaces. These texture walls also create an historical aesthetic that is also found throughout the Railway Viaduct space. Finally, horizontal steel crash beams on both sides of the concrete bridge protect it from potential damage from a possible vehicular collision (City of Guelph, 2013). In short, this space is characterized as a single concrete bridge that provides drivers and cyclists the means to move freely under the Metrolinx Railway Corridor, while also allowing pedestrians and train travellers to move about above. This reconstructed space demonstrates how underpasses are often redesigned and reconceptualized to improve safety and access, although they can still be defined as urban void spaces.
The *Railway Viaduct*, formerly known as the CNR Railway Viaduct, is a multi-span bridge that has a vast area beneath it that accommodates two streets, the Speed River, pathways, a single-track railway line and green space. Located along the eastern boundary of the Urban Growth Centre this site is the largest of the *elevated infrastructure* spaces at approximately 2100m². Spanning a distance of nearly 170 metres, the *Viaduct* uses multiple stone piers to support the steel girder, single-track bridge (Heritage Resources Centre, 2013). Although the previously mentioned bridges allow for a double-track railway line, the *Viaduct* currently is used for a single-track. By exploring the site further it is unknown if the piers once supported a second track and bridge; although it appears they may have. Furthermore, the *Viaduct* site is of cultural and historical significance as it is the location where the first tree was cut down in the formation of the City of...
Guelph (Heritage Resources Centre, 2013). Today, a plaque commemorating this historical event can be found on the *Railway Viaduct’s* west abutment.

Characteristically, the *Railway Viaduct* site is much different than the other *elevated infrastructure* spaces found within the Urban Growth Centre. Its expansive size and greater clearance, roughly 6 metres in height, provide the experience of a large open space underneath. While other underpasses tend to funnel traffic through a highly confined space using retaining walls, the *Viaduct*’s openness provides greater placemaking opportunities, such as expansive park space and path systems. The rows of limestone piers are spaced evenly apart creating gaps between them, which are connected above by a large steel support beam. Crossing the Speed River beneath the *Viaduct* is the abandoned *Old Speed River Bridge*, which is currently closed to both pedestrians and vehicular traffic. Overall, the mix of steel and limestone creates a distinctive rustic aesthetic to this underpass space that provides a unique opportunity for enhancement.
6.2 | Elevated Pedestrian Infrastructure

_Elevated pedestrian infrastructure_ is commonly found spanning the Speed River and along Norfolk Street located within the Urban Growth Centre. Historically, the Speed River that creates a geographical void required the creation of footbridges that allowed for the movement of pedestrians in and out of Downtown Guelph. In this instance, one _elevated pedestrian infrastructure_ space has been identified: 1 | _Old Speed River Bridge_. While along Norfolk Street, where the road creates a kind of physical barrier for pedestrians, another _elevated pedestrian infrastructure_ has been identified: 2 | _Pedestrian Overpass_.

![Figure 6.10 | Elevated Pedestrian Infrastructure Spaces Key Map](Image from Google Earth 2015: Modified by Author)

**1 | Old Speed River Bridge**

The first of the _elevated pedestrian infrastructure_ spaces found within the Urban Growth Centre is the _Old Speed River Bridge_. While this space could be seen simply as an extension of the ground
plane that spans over the Speed River, it has been identified as an urban void space since it is no longer used. As previously mentioned, the bridge is located directly beneath the *Railway Viaduct* and is currently closed to pedestrian and vehicular traffic. Formerly Old Allan’s River Bridge, the *Old Speed River Bridge* currently serves no function for the community but is seen as a historical relic for being the initial Macdonell Street vehicular bridge (Heritage Resources Centre, 2013). Due to the fact that it once was used for vehicular traffic, it is nearly 6 metres wide, roughly twice the width of the *Pedestrian Overpass*. Furthermore, the *Old Speed River Bridge* could possibly provide pedestrian access to the downtown, while also potentially serving as a lookout space over the Speed River.
The final elevated pedestrian infrastructure space identified is the Pedestrian Overpass, which provides pedestrians an option for travelling over Norfolk Street. This single span bridge is located close to major nodes within Guelph’s Downtown, such as Market Square, City Hall and the Guelph Farmers’ Market. Opened to the public in 1966, the bridge is roughly 3 metres wide by 22 metres long and connects the residential neighbourhood west of City Hall and Market Square to the heart of the Urban Growth Centre (Archives Association of Ontario, 2013). The concrete retaining walls, which run along each side of Norfolk Street, support the steel span. And although the design of the space is similar to the Wilson Street and Norfolk Street rail bridges in terms of materiality and form, their functions differ greatly as this span is used solely for pedestrian traffic. While the space above is already seen as public space, it is the area below that is of interest.
6.3 | Key Findings

_Transitional Hybrid Spaces_

One of the findings of the Category Analysis was the identification of transitional spaces, a type of hybrid space, that is commonly found around elevated infrastructure. These spaces are found between the standard road right-of-ways and the underpass space, and are often framed by engineered retaining walls, a type of vertical plane (figure 6.15). Although they can be simply defined as vertical planes, their relation and proximity to elevated infrastructure creates the impression that they are apart of the underpass space. This analysis, while focused directly on the elevated infrastructure space, has highlighted these hybrid spaces; ones that could be categorized as extensions of the elevated infrastructure space or vertical planes flanking road right-of-ways.

Figure 6.15 | Transitional Hybrid Space Photo - Taken April 23rd, 2016 (Credit: Author)
6.4 | Conclusion

The *Category Analysis* has provided a more in-depth exploration to the *elevated infrastructure* category, just one of the five void space categories identified in this study. It can be seen that each space has its own unique character and could potentially be transformed and enhanced to improve urban connectivity. While this chapter simply explored these spaces further, it also leads the thesis into the *Case Study Analysis* that examines the phases of the Pop-Up, Pilot, Permanent Framework for transforming *elevated infrastructure* spaces.
“The best way for a designer to retain the basic concept while allowing for modifications is to develop a range of alternative intervention strategies within an overriding structure that covers various contingencies, offers choices, and is flexible to change.”

- Roger Trancik, 1986, pg. 231
Developed by the New York City Department of Transportation and Design Trust for Public Space, the Pop-Up, Pilot, Permanent (PPP) Framework is a phased approach to transforming spaces beneath elevated infrastructure into usable public space. This framework provides a method of transforming urban void spaces using a variety of strategies from tactical pop-ups to permanent redesigns. In this chapter, three case studies will be explored to demonstrate how the stages of framework have been implemented elsewhere.

Three Ontario case studies were chosen due to their similar planning context and considerable amounts of available information. Each case represents a stage within the framework, pop-up, pilot and permanent. The Wilson Street Promenade in Guelph represents the pop-up, The Underpass Pilot Project in Ottawa demonstrates the second phase of the framework, and Underpass Park in Toronto showcases the final phase, permanent intervention. All of these spaces are categorized as elevated infrastructure, which strengthens the connection between the Category Analysis and the framework.

7.1 Pop-Up – The Wilson Street Promenade

One example of a pop-up within an Ontario context is The Wilson Street Promenade, which took place on August 1st, 2015 in Downtown Guelph. As a pop-up, the project transformed an underpass space temporarily by engaging the public, generating ideas and capturing the imagination of the community with a budgeted, student-run project. The Promenade signifies the first phase of the Pop-Up, Pilot, Permanent Framework.

Background

Located in the heart of Downtown Guelph, the Wilson Street Underpass provides a pedestrian and vehicular linkage between Market Square and the Guelph Farmers’ Market, two popular
destinations. The street provides pedestrians, cyclists and drivers a means of navigating the Metrolinx Railway Corridor that divides the downtown. Furthermore, the transformed portion of Wilson Street only allows for one-way vehicular traffic and is “curiously under-animated, with bare retaining walls and no significant pedestrian amenities” (Nelischer, 2015, pg. 21).

The pop-up initially began as an independent research study by University of Guelph student Cyrille Viola and myself. The research looked at various intervention strategies for the underpass space, from minor aesthetic modifications to total redevelopment of the area. It also allowed us to go out into the community and speak with local stakeholders to gather further information and ideas, and to get their views on transforming the space. Although not intended to be a pop-up event, various stakeholders discussed how such an intervention could be possible and beneficial to the future of the Wilson Street Underpass.
**Intervention**

In the summer of 2015, the City of Guelph offered to leverage some of the additional costs, such as road closure fees and insurance, by incorporating the pop-up with an existing event, John Galt Day (E. Pauls, & J. Rafter, personal communication, February 17, 2016). This one-day event, branded *The Wilson Street Promenade* included various temporary programmed elements, both passive and active, that allowed the space to be transformed into a vibrant destination.

For the day, the temporary intervention included
various elements that not only enhanced the space aesthetically but also engaged the public. Sod, trees and various plants formed the park space, while Farmers’ Market food vendors lined the other half of the street northwest of the underpass (Nelischer, 2015). At the north entry to the site a small beach with umbrellas and chairs welcomed visitors, while the south entry provided café tables and seating for people to enjoy their purchases (Nelischer, 2015). The space beneath the underpass, was transformed into an art gallery with four temporary art installations created by Arijit Debnath – “Ripples”, Luc Palmer – “Speed Eramosa”, Natalie Schiabel – “4380”, and Adrienne Hall and Owen McCabe – “The Colour of Stone”, which stayed anchored to the abutments until November 2015. The blank retaining walls that are common in and around the space became chalk murals, allowing children and adults to draw and leave messages. And sheets of painted plywood, called Community Boards, lined Wilson Street giving visitors the opportunity to leave their thoughts and opinions about the temporary intervention and to answer questions about Guelph.
**Results**

Although *The Wilson Street Promenade* was only a one-day pop-up event, it was deemed a success by vendors, city officials, and local residents (Warren, 2015; Nelischer, 2015; E. Pauls, & J. Rafter, personal communication, February 17, 2016). The project not only allowed users to reimagine the space and look at the area differently, it sparked conversation and provided a local precedent for other void space interventions in Guelph (Warren, 2015; & Nelischer, 2015). According to Jen Rafter, Cultural Program and Event Coordinator, and Ella Pauls, Manager of Cultural Development for the City of Guelph, the event created a “tangible experience” for visitors and has influenced the theming of the 2016 Artist in Residence program by encouraging artists to reimagine “the way in which we view and experience” public space (personal communication, February 17, 2016).

As for the *Wilson Street Underpass*, the City is currently looking into a possible pilot project that would build off the ideas generated at *The Promenade*. One of those ideas is to expand the Guelph
Farmers’ Market onto Wilson Street on long weekends, by temporarily closing it to vehicular traffic (E. Pauls, & J. Rafter, personal communication, February 17, 2016). According to Rafter and Pauls, the City has looked at an “optimal layout” for such an event to occur (personal communication, February 17, 2016). Another idea being discussed is using the space as a food truck destination (E. Pauls, & J. Rafter, personal communication, February 17, 2016). With the City recently passing a by-law allowing food trucks to actively operate within the city, Wilson Street could be an ideal location.

*The Wilson Street Promenade* pop-up successfully transformed and activated an underpass in Downtown Guelph. This “connecting piece” was able to physically link two popular destinations within the core of the city, while providing visitors with a unique experience (E. Pauls, & J. Rafter, personal communication, February 17, 2016). As a temporary intervention, the event was able to generate ideas for the underpass, gave residents an opportunity to interact with the space and experience something different, while providing the city with a successful local pop-up precedent.

### 7.2 | Pilot – The Underpass

The *Underpass Pilot Project* in Ottawa, Ontario is just one of the many examples of how pilots have been used in transforming urban void space. Located at the corner of Rideau Street and Colonel By Drive, the space is at the centre of Downtown Ottawa. As previously stated, the Design Trust for Public Space and the New York City Department of Transportation (2015) have defined a pilot project as a one- to three-year installation that tests and monitors the programmatic elements of a temporary redesign.

*Background*

Constructed in 1983, the underpass is the by-product of an urban renewal project that saw road right-of-ways expanded and Mackenzie Avenue extended to Colonel By Drive (Bulthuis, 2011). Ultimately, this led to a leftover space between and beneath the roads that disrupted the urban
fabric and unintentionally created pedestrian disconnect. The underpass links the Government Conference Centre, formerly Union Station, to the Rideau Centre across Colonel By Drive, and was once home to the Terry Fox Memorial Statue until 1998 when it was moved to its current location across from Parliament Hill (Bulthuis, 2011). Although seen as a “pedestrian no-man’s land” according to Mike Bulthuis (2011), the space became a popular area for street vendors throughout the 1980s. Unfortunately over time the underpass space became known as an unsafe and unwanted space in Downtown Ottawa.

Over time the underpass became known as a gathering space for street youth and criminal activity (Schepers, 2009; Rotondo, 2008). In 2006, a fatal stabbing took place in the underpass that resulted in the Downtown Rideau Business Improvement Area (BIA) examining ways to improve the safety and public perception of the space (Bulthuis, 2011; Puddicombe, 2009; DuCharme, 2009; Rotondo, 2008; Schepers, 2009). In the following years, the wedge shaped space, which often sheltered the homeless in inclement weather, was fenced off, and cameras and additional lighting installed (Bulthuis, 2011; Schepers, 2009). According to Mike Bulthuis (2011), the erection of the

Figure 7.6 | The Underpass - Aerial (Source: DuCharme, 2009)
appeal of the space (Schepers, 2009). Other temporary installations and events, such as film showings, occurred throughout the year furthering the activation of the space. It also gave “opportunities for Ottawa’s marginalized citizens to obtain vending access to the site” (Schepers, 2009). The pilot ran from July to October and was able to generate a new image for the space and provide visitors with a different and unique experience (DuCharme, 2009).

**Intervention**

In the spring of 2008, the Downtown Rideau BIA launched a one-year pilot project that would transform the space into a venue for art and vendors. One of the main objectives was to transform the space temporarily, knowing redevelopment would occur in the near future. Although a permanent transformation of the underpass would be impractical at the time, temporary interventions would allow for the testing of ideas to improve safety and the public’s perception of the space (Schepers, 2009; DuCharme, 2009).

During weekdays vendors would occupy the space selling merchandise, while local artists would “perform, exhibit and animate” the space, further improving the image and safety of the underpass (Schepers, 2009). Additional enhancements were included, such as landscaping and the installation of public art that improved the quality and aesthetic appeal of the space (Schepers, 2009). Other temporary installations and events, such as film showings, occurred throughout the year furthering the activation of the space. It also gave "opportunities for Ottawa’s marginalized citizens to obtain vending access to the site" (Schepers, 2009). The pilot ran from July to October and was able to generate a new image for the space and provide visitors with a different and unique experience (DuCharme, 2009).
**Results**

After its initial one-year test, *The Underpass* pilot was deemed a success by organizers, residents and the media. According to Schepers (2009), the space saw nearly “1,920 hours of combined activity”, greatly exceeding expectations. More importantly, crime and illegal activity in and around the space were reduced dramatically (Schepers, 2009). Furthermore, the pilot highlighted areas for further improvement, such as the need for additional lighting, signage, hours of operation, and vendor loading/unloading areas (Schepers, 2009). In 2009, Downtown Rideau BIA was granted a one-year extension for the pilot that would continue to build on its first-year success (Schepers, 2009; & DuCharme, 2009). Additionally, this extension allowed the BIA to extend hours, enhance the programming of the space and to fully manage scheduling of events and vendors.

As of 2014, *The Underpass* project was in its seventh-year of operation and could be seen as a semi-permanent fixture within Ottawa. What started as a safety and public perception initiative has gone on to win multiple awards, create a welcoming atmosphere and provide local artists with an outdoor venue to perform and sell their work (Downtown Rideau, 2015). The pilot has also
demonstrates how local groups and citizens, even if not purposefully trying to, can change the dynamics of a void space simply by their presence. Even though the project may have concluded, the initial pilot provided temporary solutions to issues and concerns by testing ideas and strategies.

provided initial testing of what could become a new public space at the same location (DuCharme, 2009). Unfortunately the following year saw the discontinuation of the project due to construction in the surrounding area (Downtown Rideau, 2015). With plans for the Rideau LRT station and a new public plaza currently proposing to eliminate the underpass, it is unknown if the space will continue as a venue for artists and local vendors (Bulthuis, 2011).

At this moment, it is uncertain if The Underpass will return. However, it is certain to live on in legacy as an initiative that brought people together and transformed what was deemed and perceived as an unsafe, unpleasant underpass space. One of the highlighted successes of the pilot demonstrates how local groups and citizens, even if not purposefully trying to, can change the dynamics of a void space simply by their presence. Even though the project may have concluded, the initial pilot provided temporary solutions to issues and concerns by testing ideas and strategies.
7.3 | Permanent – Underpass Park

Underpass Park in Toronto, Ontario is one of Canada’s largest parks to be built beneath elevated infrastructure and is “the first of its kind in the City of Toronto” (The Planning Partnership, 2015). As a permanent development, the park has transformed a dark and unpleasant space beneath three sections of elevated road in Toronto’s Eastside. Being only one example of a permanent design of an urban void, the project represents the final phase of the Pop-Up, Pilot, Permanent (PPP) Framework and demonstrates how such a transformation may occur.

**Intervention**

Spearheaded by Waterfront Toronto, an organization focused on waterfront revitalization, Underpass Park centres on providing public space for the adjacent communities, while improving connectivity and safety. Located beneath the Adelaide Street, Richmond Street and Eastern Avenue overpasses, this public space is part of a larger redevelopment plan for the West Don Lands. At ground level, lying between Eastern Avenue Diversion and Bayview Avenue, the park is roughly 1.05 hectares (2.5 acres) in size (Waterfront Toronto, 2015). It provides a variety of

![Figure 7.11 | Underpass Park Site Plan](Source: White, 2010)
programmable elements and like many modern urban parks, *Underpass Park* creates a unique experience for visitors by its various creatively designed features and spaces.

Designed by The Planning Partnership and Phillips Farevaag Smallenberg, the park includes a number of programmed elements, such as playgrounds, basketball courts, flexible community spaces, a skatepark, public art and various softscape features (The Planning Partnership, 2015; Novakovic, 2015; Waterfront Toronto, 2015). These elements allow for both passive and active recreational uses by taking advantage of the *elevated infrastructure* to create unique and intriguing spaces. Furthermore, the park’s design caters to multiple user groups.

The two-phased design first opened in 2013 at cost of nearly $10-million, which was primarily funded by the Federal Government, to rave reviews for its unique transformation of the underpass space (Alcoba, 2012). Phase 1 included most of the park’s active recreational spaces, like the skatepark, basketball courts, play structures and flexible community spaces east of St. Lawrence
Street (Waterfront Toronto, 2015). Some of the most interesting elements of the park are the community spaces that were designed to accommodate temporary events and vendors, such as farmers’ markets and festivals (Toronto Star, 2012; & Waterfront Toronto, 2015). Additionally, this feature reflects the community’s needs and wants by allowing it to be transformed by the community into temporary usable public space.

The second phase of the park, which lies west of St. Lawrence Street, includes the park’s more passive spaces. Completed in 2015, phase 2 includes numerous planting beds and informal seating walls that create a plaza like atmosphere along the western edge of the park (Waterfront Toronto, 2015). In the summer of 2015, the Live Arts Festival allowed street artists to paint the concrete pillars that hold-up the elevated road sections (DeClerq, 2015). Accompanied by recessed ground lighting, the murals help add colour and vibrancy to the park’s numerous columns. The event also marked the finishing touches to the reclaimed space and further demonstrated the diversity of artwork found within the City of Toronto (Novakovic, 2015).
Results

Although Underpass Park is a permanent design it includes a number of flexible spaces that allow for community gatherings, events and festivals. Like the other case study demonstrations, the park highlights the importance of community by creating a place for residents. This intervention demonstrates some the possibilities for permanently transforming void spaces from being perceived as dangerous wastelands into safe and inviting places within our communities (Waterfront Toronto, 2015). Uniquely enough, what makes this possible is the “urban structure of the city” itself, by using what was seen as a barrier and transforming it into an attractive public space (Toronto Star, 2012).

Underpass Park, along with the surrounding redevelopment, has helped in rejuvenating an undesirable portion of Toronto (Hume, 2011; & Toronto Star, 2012). Although the elevated roadway provides drivers with easy navigation of the Don River, it also creates voids along the ground level. The creation of the park has helped in transforming this void space into a destination, repairing the urban fabric and connecting neighbourhoods (Hume, 2011; & Toronto Star, 2012). According to the Toronto Star (2012), Underpass Park is a great example of urban void space transformation and “reminds us that we shouldn’t overlook the innovative things that can be done with less traditional spaces.”
7.4 | Conclusion

Once again, it is worth noting that each of the case studies presented are just one of the many possible examples of design intervention in urban void spaces. This framework demonstration represents the three phases of the process outside of the New York City context where it was generated. Like any good design, each project takes on a life of its own, and understanding the context and unique challenges are highly important to each specific space and location. The PPP Framework provides us with an opportunity to reclaim urban void spaces, while engaging communities and enhancing the quality of our cities.

Similar projects, whether pop-ups, pilots or permanent redesigns, are happening within our cities and within other types of urban void spaces. The PPP Framework in this study was only used to demonstrate the various forms of transformation of urban void spaces in a holistic phased approach. It also provides insight into a possible framework that could be adopted to include the
various levels of design intervention. Furthermore, this framework could help in filling regulatory process gaps identified within the literature, while connecting tactical urbanism interventions and permanent redesigns.
“Temporary use serves many purposes: increasing livability, management and security, experiment, and to gain visibility. Temporary use should become part of policy and vision in order to be ahead on long-term plans. In this way temporary use will become a way to cherish and maintain the soul of property or even give it new meaning.”

- Willenjim de Boer, 2012, pg. 149
This chapter will summarize the results of the four analyses, while highlighting the key findings of this study. Furthermore, its relevance to the landscape architecture profession and limitations will also be discussed within the following chapter.

8.1 | Results & Key Findings

The four-part methodology required to complete this study has revealed a number of interesting results and findings. In this chapter, we will review each of these methods and their results, while continuously discussing the key findings. In short, the Gap Analysis identified the urban void spaces within the Downtown Guelph Urban Growth Centre, the Morphological Analysis classified them into recognizable categories, a Category Analysis examined each of the elevated infrastructure spaces located within the study area, while a Case Study Analysis demonstrated the three-phases of the Pop-Up, Pilot, Permanent Framework for transforming them.

**Void Space Identification – Gap Analysis**

This study found that there are approximately 25.09 hectares (62 acres) of horizontal void space and 5.58 kilometres (3.47 miles) of vertical void space located within the Downtown Guelph Urban Growth Centre capable of becoming public open space. The development of the *Guelph Urban Void Space Map* (figure 4.3) has revealed that a vast majority of these spaces can be found in the southeast portion of the study area, south of the Metrolinx Railway Corridor. Furthermore, numerous void spaces are located along major roads and at major intersections. These void spaces stand out as places of great opportunity and potential due to their locations, high visibility and easy access. It could be said that temporary and/or permanent transform at these key locations could lead to an improved urban fabric.
**Void Space Categories – Morphological Analysis**

It has been determined that the 25.09 hectares and 5.58 kilometres of urban void space are spread across five categories: 1 | horizontal planes, 2 | vertical planes, 3 | enclosures, 4 | passageways and 5 | elevated infrastructure. Of these categories, approximately 86.5% of the total urban void space are that of horizontal planes. This may reflect an automobile oriented community as these spaces are often used for parking. Whether or not this is the case, the large amounts of space allocated for vehicular activities could be revisited in the near future. Creation of the Guelph Urban Void Space Categories Map (figure 5.36) has also revealed the clustering of different void spaces. Most of the clustering in the southern portions of the study area are horizontal planes, while to the north the clusters are of various categories. This in itself shows how the urban fabric of Guelph takes on two different forms, openness and lack of structural development in the south, and more compact urban form in the north. Also, this analysis has highlighted the notion of hybrid spaces that could be classified into multiple categories.

**Elevated Infrastructure Spaces – Category Analysis**

The in-depth exploration into the 6 elevated infrastructure spaces revealed that each has the potential to be enhanced and to improve the public realm of Guelph. Although the exact methods of doing so are not presented in this study, the literature and the case studies provide examples of how these spaces could be transformed. These void spaces were found along or near the railway corridor that divides the Urban Growth Centre. Once again, these spaces could be seen as highly important in the creation of a well-connected city core. Interestingly, the examination of these spaces has discovered a new type of space, or void: the transitional spaces (hybrid space) between the public right-of-ways and the elevated infrastructure spaces. Although within Guelph these spaces consist solely of retaining walls, vertical planes, there could be other such transitional spaces found in relation to other urban voids.
Finally, the Pop-Up, Pilot, Permanent (PPP) Framework provides us with a successive method for intervening with these challenging spaces. The three Ontario case studies have each demonstrated a phase of the framework, while proving that these methods for intervention and testing do occur throughout our cities. These strategies further highlight the range of techniques used to transform urban void space, both temporarily and permanently, furthering the ideas of tactical urbanism that low-cost, short-term initiatives can provide valuable feedback and inform future design decision-making. Finally this framework, or one similar to it, could be useful in not only transforming voids, but also engaging the community, testing of new ideas and filling a regulatory gap by encompassing a range of design tactics. Although not all pop-ups and pilots will lead to permanent redesigns, they can leave lasting legacies by capturing the imaginations of communities, bringing attention to forgotten spaces and demonstrating some of the potential that urban void spaces have to offer.

8.2 | Limitations

While the research and methods were able to answer the questions set forth at the commencement of this study, various limitations have also been identified. These limits range from the ability to map out both horizontal and vertical void spaces accurately to the different perceptions people may have of a space.

Mapping Urban Void Space

The identification of urban void spaces using a Gap Analysis resulted in there being over 25 hectares of horizontal void space and over 5.5 kilometres of vertical void space within the Downtown Guelph Urban Growth Centre. While the total area of void space was easier to calculate, due to the use of aerial imagery, identifying the vertical voids required further exploration. The inability to accurately calculate the vertical void space areas was the result of the resources
and strategies used to gather data. These included Google Earth Maps, Google Street View, CAD surveys, and urban exploration, all of which proved useful but limited the researcher's ability to identify and calculate vertical void space areas. While Google Earth allows users to orbit around spaces in 3D, and was highly utilized in this study, it is limited in visually depicting the materiality of vertical structures. This leads to a vertical planes calculation that can only be described as an approximation.

**Perception of Space**

Another limitation to this study was the perception of space. Simply stated, the spaces identified as urban void space, may not be viewed by others as void space but rather important and functional areas within Guelph. While the methods used helped in the identification and categorization of urban voids, users of these spaces may have a different perception in terms of their function, safety and morphology.

While the Urban Growth Centre has variety of land uses and functions, the ability to accurately identify all functions and uses of a space was limited. One example of this is the inability to identify users of surface parking lots. Since the study excluded residential parking, spaces which may be perceived as commercial parking lots could actually be used for residential tenant parking and vice-versa. This is also the case for mixed-use buildings that have both commercial and residential units. Furthermore, a space being seen as safe or dangerous is also a matter of a user’s perception. Particular individuals may view a space with gradual slopes as safe, while others may feel there is an element of danger.

Finally, the morphological composition of Downtown Guelph’s urban void spaces may also be perceived differently. While the *Morphological Analysis* has helped in the creation of an identity for these spaces, others may view them as being part of a different category. This further adds to the idea of void spaces being dynamic places and/or being classified as the grey areas within our cities. Furthermore, the time of year in which these places are experienced can also create a
different perception of the space. An example of this would be an enclosure space that is framed by dense deciduous vegetation. While in the summer months it may feel enclosed and sheltered from its surroundings, during the winter months users may feel that it is open to the elements due to sparse vegetation.

8.3 | Relevance

As a basis for continued research, the study serves as a possible starting point for both academia and professionals interested in exploring these spaces further. It has been stated that urban land is too highly a valuable resource to let go unused or underutilized (Design Trust for Public Space et al., 2015). Although these spaces exist within our cities in various forms, intervention strategies have been developed to help in transforming them. Roger Trancik (1986) believes that “leftover lost spaces between buildings, districts, and neighborhoods will become desirable properties as land and resources grow scarcer” (pg. 234). These spaces could be key components in the redevelopment and recreation of our urban areas by enhancing the fabric of our communities and improving the overall quality of our cities for their inhabitants and for the environment. Furthermore, “the greening of downtown by adding trees and creating small parks will continue to be a key feature of these revitalization attempts.” (Carr, Francis, Rivlin & Stone, 1992, pg. 352). As researchers, designers, and policymakers, we need to continue to critically think about and creatively reimagine these spaces. Furthermore, we have the necessary means, and a variety of tools and strategies for transforming these leftover and forgotten spaces, both temporarily and permanently.
“Experiencing other people represents a particularly colorful and attractive opportunity for stimulation. Compared with experiencing buildings and other inanimate objects, experiencing people, who speak and move about, offers a wealth of sensual variation.”

- Jan Gehl, 2011, pg. 21
9 | Conclusion

As cities and populations continue to grow, urban void spaces demonstrate the potential to be transformed from their current states into vibrant places within communities. This study and the methods used were developed for the use of landscape architects and urban designers to identify, classify and transform these leftover spaces, but have the ability to be applied by architects, planners and ecologists for other purposes. Although many of the identified and categorized spaces are often functioning urban areas, there is an underlying notion that their potential has yet to be fully realized. Furthermore, these spaces could contribute to the dynamic quality of urban life by continuously evolving and adapting to improve the public realm, and by creating a new layer in the city’s urban fabric. This chapter will conclude this thesis with a discussion of potential future research and final remarks about the study of urban void spaces.

9.1 | Future Research

This study has only meant to be a starting point for ideas regarding the identification, classification and transformation of urban void spaces. However, the methods and strategies prove to be valuable techniques in the study of urban voids, while also possibly being implemented in other fields interested in studying these spaces. While only a handful of final conclusions can be drawn from this research, the study has more importantly developed a methodological approach for exploring void space that could lead to further research into the identification and transformation of these forgotten spaces.

Gap & Morphological Analyses

1 - Use of the Gap and Morphological Analyses to identify urban void spaces in other cities and communities.

2 - Use of the void space categories to identify and classify areas within other urban environments.

3 - Altering the criteria to identify spaces for specific purpose, function or usage.
4 - By studying other cities to determine if there are other categories of urban void space and comparing it to the findings of this thesis.
5 - Identifying specific spaces that could be transformed to improve the urban fabric of Guelph.

**Category Analysis & Pop-Up, Pilot, Permanent Framework**

1 - Use of the Pop-Up, Pilot, Permanent (PPP) Framework in transforming other categories of urban void space.
2 - Possible use of the PPP Framework to transform privately owned land for public or semi-public usage.
3 - Suitability of adopting a successive framework, similar to the PPP Framework, within a specific context.
4 - Possible integration of the PPP Framework into existing planning and design processes.
5 - Determining the most appropriate intervention strategy for specific spaces.

**Conclusion**

While many urban voids may be forever void space, this thesis could lead to future research that would help in transforming these spaces and improve the public realm. By working through this process, the idea of transforming private-owned spaces for public usage, such as patios and private-public spaces could also be explored further in future research. Although not all of the voids found within this study need to be transformed, many could be investigated further as possible new public spaces.

**9.2 | Final Remarks**

Urban voids are often the spaces within our cities, communities and neighbourhoods that do not come to mind when discussing enhancements to the urban fabric. Often these places do not stand out to us as areas in need of attention or improvement, but this study has shown that within the
Downtown Guelph Urban Growth Centre alone there are over 25 hectares of void space that have the potential to be transformed into functional outdoor public spaces. With this vast amount of space, we can improve and repair the urban fabric by modifying and reusing these spaces (Trancik, 1986). The use of both temporary and permanent design interventions could possibly lead to a new dynamic layer of open space, by transforming space and creating new unique experiences for residents and visitors. Finally these spaces and the transformation methods demonstrated could possibly fill in the gaps left behind by design and planning policies, and could help in reversing the trends of urban heat islands and the lack of urban green space.

This data inventory study of Guelph’s void spaces has created a new model for identifying, classifying and transforming urban voids. While similar studies have focused on specific types of void spaces or intervention strategies, this thesis has developed a new method and criteria for identifying, classifying and transforming them that did not exist. This new methodological process could be seen as a basis for further research on urban void spaces by allowing researchers to adapt and transform the criteria and classification system for specific functions or usages. In short, this study has developed a method for identifying and categorizing void spaces that did not exist, while also demonstrating the various intervention strategies of the Pop-Up, Pilot, Permanent Framework as a possible valued addition to the planning and design processes. Although Guelph is seen as having a unique urban form, the established categories of void space could be transferable and adapted to a specific city or context. All of this further strengthens the thought of this thesis as being a base for further research.

As designers, city planners, policymakers and decision makers we are known to be problem solvers, but we are also problem identifiers. Looking at spaces differently, identifying what the challenges and needs are, and employing strategies to create the best possible solutions, we, as creative thinkers, can change and improve entire communities. With modern technology, new strategies, and avenues for financing projects, we have “opportunities for reclaiming neglected areas and transforming them into exciting new public realms” (Brown, Dixon & Gillham, 2009, pg. 251). We need not only to rely on finding permanent solutions, but rather using the tools of the
profession to test ideas and challenge the *status quo* to create more effective spaces, that reflect our cities and communities. The processes in which we transform our cities can be adjusted and altered to become more creative, engaging and informative. And as professionals, being flexible and open-minded to the ideas of temporary test solutions, and realizing the potential of void spaces, can be of value not only to our cities but also our professions. It is this critical thinking that will continue to progress these professions and enhance our urban communities, socially, economically, and environmentally.
References


Appendix A - Pop-Up, Pilot, Permanent Definitions

POP-UP

“The first phase, Pop-Up, employs a lower-cost, small scale, temporary installation—a duration of eleven months or less—to spark community and public sector interest in transforming a specific site, and to test design strategies. Ideally, this phase uses on-site workshops and stakeholder interviews to inform the development of an installation, and employs a variety of methods to gather data and document its use and durability. The commission of a work of art or creation of a design by the community and public sector provides an opportunity to establish a common understanding and develop working relationships. The pop-ups may also underscore changes required to standard operational and maintenance systems of various public agencies.”

PILOT

“The second phase, Pilot, builds on the lessons learned from a given Pop-Up in the form of a short-term—one- to three-year—installation. More in-depth and potentially broader in scale than a Pop-Up, a Pilot provides a means to test significant spatial, programmatic, and operational changes under elevated infrastructure, prior to investment of high-cost permanent enhancements. A pilot project requires a firm commitment and partnership between the public sector and a community organization to maintain and, in some cases, program a site. Ideally a Pilot is completed within one electoral cycle. When well monitored, Pilots may provide the data required to ultimately create thoughtful, evidence-based permanent designs. Depending on the project, a Pilot can become a permanent installation that is assimilated into a larger plan for a site, or it can be modified for longevity and performance. Oftentimes, quick, lower-cost strategies, such as changes in surface treatment, have the potential to be easily integrated into long-term solutions for a site.”

PERMANENT

“The third phase, Permanent, continues to develop and adapt a site to its context and the needs of the community on a long-term basis. Successful, well-used permanent improvements may also inform future policy and budgetary decisions. These projects typically are more comprehensive and costly, involve interagency coordination, require detailed design and construction documents, and engage a strong community partner, such as a business improvement district (BID), local institution, or merchants’ association to maintain these improvements. Permanent changes to a site may include upgrades to material treatments and environmental systems, such as lighting and acoustics, or elements that were not included in a Pilot. Designs for these long-term enhancements need to be flexible and built to last.”

(Design Trust for Public Space et al., 2015, pg. 42)
Appendix B - Characteristics and Guidelines for Great Public Spaces

Description of the Public Space

It is important to identify the geographic, demographic, and social characteristics of the public space. Tell us about its location (i.e. urban, suburban, rural, etc.), layout and connectivity; economic, social, and ethnic diversity; and functionality. We also want to know whether a plan or specific planning efforts contributed to or sustained the character of the public space, or if the space formed more organically and not through a formal planning process.

Public Space Features and Elements

How does the public space...

- Capitalize on building design, scale, architecture, and proportionality to create interesting visual experiences, vistas, or other qualities?
- Accommodate multiple uses?
- Accommodate multiple users? It is accessible via walking, biking, or public transit?
- Use, protect, and enhance the environment and natural features?

Public Space Activities and Sociability

How does the public space...

- Reflect the community’s local character and personality?
- Foster social interaction and create a sense of community and neighborliness?
- Provide a sense of comfort or safety to people gathering and using the space?
- Encourage use and interaction among a diverse cross section of the public?

Great Public Spaces — Characteristics and Guidelines for Designation

A public space may be a gathering spot or part of a neighborhood, downtown, special district, waterfront, or other area within the public realm that helps promote social interaction and a sense of community. Examples include spaces such as plazas, town squares, parks, marketplaces, public commons and malls, public greens, piers, special areas within convention centers or grounds, sites within public buildings, lobbies, concourses, or public spaces within private buildings. As with all categories of Great Places, it is important to identify what sets a space apart from others spaces to qualify it for a Great Spaces designation. Public Spaces must be at least 10 years old.
Characteristics of a Great Public Space include:

Promotes human contact and social activities.
Is safe, welcoming, and accommodating for all users.
Has design and architectural features that are visually interesting.
Promotes community involvement.
Reflects the local culture or history.
Relates well to bordering uses.
Is well maintained.
Has a unique or special character.

Description of the Public Space

Where is the space located, and what is its setting? (Downtown, neighborhood, waterfront, city center, business or entertainment districts, historic area, parks, etc.)
What role, if any, did plans and planning contribute to the creation of the space? Is there special zoning or ordinances that allowed for the creation of the space?
How large is the area?
When was the space created?

Guidelines for Great Public Spaces

1.0 Features and Elements (not all may apply)

1.1 What landscape and hardscape features are present? How do they contribute to the unique or special nature of the space?

1.2 How does the space accommodate pedestrians or others whose access to the space is by transit, bicycles, or other means? Is the space welcoming to those with physical disabilities or others with special needs?

1.3 Does the space accommodate multiple activities?

1.4 What purpose does it serve for the surrounding community?

1.5 How does the space utilize existing topography, vistas, or geography? Does it provide interesting visual experiences, vistas, or other qualities?

1.6 How are murals or other public art incorporated into the space?
2.0 Activities and Sociability

2.1 What activities make the space attractive to people and encourage social interaction? (Commerce, entertainment or performances, recreational or sporting, cultural, markets or vending, exhibits, fairs, festivals, special events, etc.)

2.2 Does the space provide a sense of comfort and safety to people gathering and using the space? Does the space provide a friendly and welcoming atmosphere?

2.3 How do people interact with one another? Does the space encourage communication or interaction between strangers?

2.4 How does this place encourage use by a diverse cross section of the public?

3.0 Unique Qualities, Traits, and Characteristics

3.1 What makes this public space stand out? What makes it extraordinary or memorable?

3.2 Is there variety, a sense of whimsy, or an atmosphere of discovery or pleasant surprise?

3.3 Is there commitment to maintain the space and to keep it a usable space over time? Does the public have a sense of ownership about the space? How has it changed over time?

3.4 Is there a sense of importance about the space? What characteristics or qualities contribute to this?

3.5 What is the history of the space, and how is it remembered or passed on from one generation to the next?

3.6 Does the space serve as a place of inspiration or contemplation, or is it considered sacred?

3.7 What is it about the space that contributes to a sense of community?

3.8 What makes this space special and worthy of designation as a Great Space?

(American Planning Association, 2016)