Reinstating Play Grounds:
Reintroducing Children to their Urban Environment through the Repossession of the Street

by

Nathan Merrithew

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CONTENTS

ABSTRACT

For children around the world, patterns in their daily lives are solidifying their relationships with their environment and society. This thesis reimagines the role of the street as a medium for children to engage with their communities. A human-scaled approach to community design that focuses on children's independent mobility and street-based community life allows children to play an active role in the developing character of a community. A fractured community in the North End of Halifax, Nova Scotia that has been demolished by a car dealership provides a testing ground, allowing children to reclaim the street and giving them the mobility needed to use the community as play grounds. Design principles provided within can be applied at the community scale, building scale, and child scale and all contribute to the street's potential to be a place for movement, daily life, play, and event.

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CHAPTER 1: INTRODUCTION

More than a billion children globally are living an increasingly urban existence. Nearly half of all children live in urban centers, and it is projected that by 2050, cities will house over 70% of the world's population.[1] Due to the influential role public space plays in the development of the urban child, the World Health Organization, UNICEF, United Nations, and urbanists globally agree that children must be considered a key stakeholder in our built environment. However, we are still witnessing the development of social and physical structures within our cities that have negative effects on children's cultural, social and physical needs.

A noticeable absence of children on residential streets begs the question: what happened to the age-old expression of "Go outside and play?"[2] Traffic, fears about kidnapping by strangers, and many other perceived and actual dangers have left children with many restrictions and resulted in less independent mobility within their communities.[3,4] As a result, children today are spending less time outside than ever before, despite the fact that the World Health Organization recommends at least an hour of outdoor activity daily for children.[5] Yet, with only 10% of children achieving this goal, child obesity rates have tripled since 1980.[6] Spontaneous outdoor play enables children to build their immune sys-

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1 United Nations Children's Fund, *The State Of The World's Children*, 2012, www.unicef.org/sowc2012, 62.

2 Marlys Harris, *Kids stay indoors: What happened to, 'Go outside and play'?,* last modified January 1, 2017, https://www.minnpost.com/cityscape/2013/08/kids-stay-indoors-what-happened-go-outside-and-play.

3 Claire Freeman and Paul J. Tranter, *Children and Their Urban Environment: Changing Worlds* (London: Earthscan, 2011), 23.

4 Christopher Spencer and Mark Blades, *Children and Their Environments: Learning, Using, and Designing Spaces (*Cambridge, UK: Cambridge University Press, 2006), 76.

5 United Nations Children's Fund, *The State Of The World's Children,* 62.

6 John D. Anderson, et al, "Taking Steps Together: A Family- and Community-Based Obesity Intervention for Urban, Multiethnic Children*," Health Education & Behavior* (2015): 42(2), 194.

tem and absorb vitamin D, stimulate their imagination, promote problem-solving skills, engage in informal play with peers, and develop motor skills and physical health.[7] Even though children are less likely to be found outdoors, pedestrian-related accidents are still the primary cause of mortalities worldwide for children aged 10-19 years, with 30 deaths and over 2,400 injuries in Canada alone each year.[8] This unfortunate fact ensures that urban children are being conditioned to associate the street as a dangerous corridor, where pedestrians and pedestrian activity must yield to traffic or suffer serious consequences.

The street, however, is the urban fabric that connects us to our community, and is one of the many tools that can be used to strengthen an urbanized child's connection with their environment. The use of the term "streets" throughout this document will refer to those found within developed Western cities. The lessons learned from cities globally will then be applied to a neighbourhood in Halifax, Nova Scotia, Canada. This thesis will study past and present places to explore how the street can become a public resource for urban children again, giving them the independent mobility to experience street-based community events.

Our streets, both urban and residential, are undergoing change, and we can look to the past to better understand how children can use the street to participate in their urban communities today. In the past, the street provided a vibrant community space that connected children to their environment. Reclaim the Streets movements through the 1990s illustrated global concern for the social trajectory of public streets. Marshall Berman reminds us, "the young students' relation to the street was their relation to the

7 Marketta Kyttä "The Extent of Children's Independent Mobility and the Number of Actualized Affordances as Criteria for Child-Friendly Environments." *Environmental Psychology* 24 (2004): 180.

8 Safe Kids Canada, Child Pedestrian Injuries Report, 2007 - 2008, http://www.parachutecanada.org/downloads/injurytopics/ChildPed_Report_07:08.pdf

world."[9] This is corroborated by the work of Kevin Lynch, who captured the sentiment of that same generation twenty years prior:

> When asked about what they choose to do, the places they are interested in, how they spend their time, or how they would like to, the children do not talk much about school, the playground, or even their own private yards. They talk about the street.[10]

It is not hard to imagine that the children whom Lynch researched in the 1960s and 1970s were the activists fighting for their civic rights two decades later, as adults. The dehumanization of streets was threatening to take away the lens through which they had once interpreted the world. Children of past generations may nostalgically conjure images of taking ownership and inhabiting the street through playing street hockey, bicycling, sliding, hopscotch, and countless other activities. In contrast, when the children of today are adults, they will likely have an entirely different recollection of their past. With today's children becoming increasingly disconnected from community, peers, and urban life, one has to wonder what the children of today will be protesting for 20 years from now.

This thesis will be sensitive to the biases of the aforementioned nostalgia. Design strategies will be aimed at retaining aspects of the long-standing urban tradition of using urban infrastructure as public space. By considering children in urban settings, we can test the accessibility of our public spaces, as we respond appropriately to the changing nature of cities, technology and family dynamics. Research will consider the past, present and future possibilities of the street and how they can be better integrated into a network. Streets must allow children to become active participants so that they can understand how society influences

9 Marshall Berman, *All That is Solid Melts Into Air* (Harmondsworth: Penguin, 1988), 166.

10 Kevin Lynch and Tridib Banerjee, *Growing up in Cities: Studies of the Spatial Environment of Adolescence in Cracow, Melbourne, Mexico City, Salta, Toluca, and Warszawa* (Cambridge, MA: MIT Press, 1977), 15.

them, and ultimately, how they can influence society.[11]

Attempts have been made to create isolated child-oriented urban places, such as playgrounds, schools and parks. What this research calls for instead is the integration of urban elements to create streets that reinstate the presence of children in the urban environment. For example, in addition to addressing the physical nature of our cities, such as minimum square foot dimensions per child and quality of play places, the United Nations Convention on the Rights of the Child called for a full participation of children in cultural and artistic life.[12] However, as Edmund Fowler, a Canadian urbanist, suggests, our cities discourage the mingling of adults and children in everyday life by placing them in urban incubators such as playgrounds and backyards.[13] Some urbanists suggest this indicates the failure of an urban environment.[14] To overcome this situation, children cannot be objectified as something outside society. For example, when adults use roads, they are simply going from one place to another. We could consider children in a similar way: what are the places children frequent, how far apart are they, and how can children use the street to go between them? To understand their role in the city, their daily lives can be thought of within a larger set of urban processes. These social and cultural interventions, together with physical considerations, give children an environmental understanding, competence, and affective relationships with their community: a "sense of place."[15]

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11 Sven De Visscher, Maria Bouverne-De Bie, and Griet Verschelden, "Urban Public Space and the Construction of Social Life: a social- pedagogical perspective," *International Journal of Lifelong Education 31, no. 1* (2012) 4.

12 United Nations Children's Fund, *The State Of The World's Children,* 63.

13 Edmund P. Fowler, *Building Cities That Work* (Montreal:McGill-Queen's UP, 1992), 99.

14 Colin Ward in Claire Freeman and Paul J. Tranter, *Children and Their Urban Environment: Changing Worlds* (London: Earthscan, 2011), 115.

15 Miyoun Lim and Angela Calabrese Barton, *"*Exploring insideness in urban children's sense of place,*" Environmental Psychology* 3 (2010): 328.

Motivated by pathological concerns for children, Fowler explains that many young families are moving to the suburbs. He sets a scene of the resulting isolation for children:

> It is hard to drive through suburban subdivision without noticing in almost each (or every second) backyard a private swing, sandbox, splash pool, picnic table, or other such amenity. In contrast, what is less evident are areas such as multi-party lanes, accessible front lawns, empty lots, small equipped play areas, commercial sidewalk space for common forms of casual play and activity by children.[16]

Karl Vinge describes this as a "child-exodus," where families are moving outside the city to have children.[17] There is a desire to give them big yards and homes to play in. One of the main problems with this exodus is described by Jack Diamond. He suggests that, within urban centers, municipalities will consider capital investment in schools and community infrastructure as wasteful because the same resources must be duplicated at the fringes where the families have moved.[18] Of course, these resources are not nearly as effective at these fringes, where density drops to less than 8 units per acre for detached houses. This way of thinking contributes to the transformation of the city as a place for adults only and the idea that children are better off outside urban environments.

At the same time, however, there is a general trend of urbanization around the world and cities continue to become more dense, evidenced by the fact that already more than half the world's population is living in an urban center.[19] Therefore, the paradox is: we're taking the future city-dwellers out of the places where they will eventually live. In the process, children miss out on a chance to

16 Fowler, *Building Cities that Work*, 106

17 Karl Vinge, "Reawakening the Urban Child: Repair of Halifax, Nova Scotia's urban Environment through Playful Infill Development," Master of Architecture Thesis, Dalhousie University, 2011, 10.

18 Jack Diamond, "Residential Density & Housing Form," *Architectural Education 29*, no. 3 (1976): 15.

19 United Nations Children's Fund, The State Of The World's Children, 1.

engage their urban environment, and urban communities miss out on the positive effects of having children around them.

Many of the global trends described above are applicable in Halifax, making it an ideal place to consider children's role in the city. Halifax is striving to become more dense, yet much of the capital investment in school and child-related infrastructure is being pushed to the edges of the city; public transit is underused and inadequate; and pedestrian infrastructure is always tacked onto traffic infrastructure. However, the research presented here will aim to supplement current ambitions of the municipality and draw on the positive aspects of what exists, with special emphasis to incorporate children into the picture. In the North End of Halifax there are currently 6 schools, 5 of which are below 60% capacity and another which has been condemned. This thesis will demonstrate how streets in Halifax can become a place for children, allowing them to experience independent mobility and take part in street-based community events that foster a culture of pride and sense of belonging.

Thesis Question

How can the street become a civic place for children to connect to, learn from, and influence their communities?

Thesis Visions

Problems within the urban built environment that affect children are numerous, and this thesis will represent one small step in a positive direction. As a way to focus efforts, I will address two visions that are nested within two larger goals. The diagram shows how the scope of this project encompasses these visions.

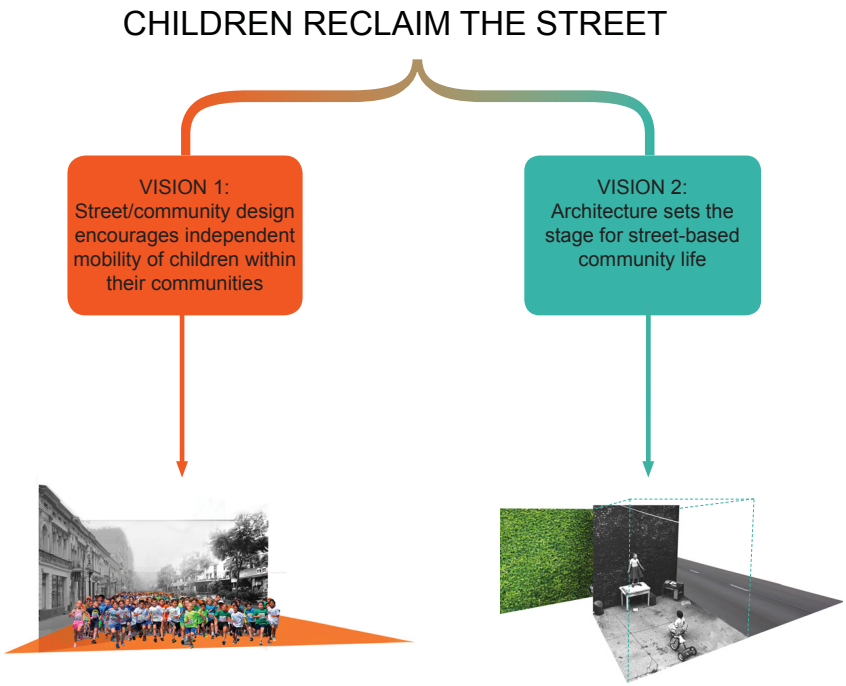

Figure 1: Thesis vision diagram

Vision 1: Reimagining the Street Use

Using the street solely for vehicle transportation is a problem that is widespread. Intensive urbanization worldwide has put pressures on society to create roads that are efficient at moving vehicles from one place to another. Although part of this problem's solution is about addressing the role of children in our city streets, I understand and acknowledge that it is not the whole solution. Therefore, this thesis will represent a slice of the solution, to be used in partnership with others who similarly focus on aspects of the street while keeping the holistic goal above in mind.

This goal will be addressed in Chapter 2: Encouraging Independent Mobility of Children, and will focus on community and urban design strategies to allow the movement of children through their communities.

Vision 2: Revitalizing a Fractured Community

This problem is specific to the thesis site, but represents com-

munities throughout North America. Globalization has resulted in community resources that are prioritized to benefit economic gains. Large retailers force the closure of local shops, butchers, and corner stores, having a negative impact on a community's livelihood and scale. Program adjacencies happen in an ad-hoc way, pedestrian life takes the back burner, public engagement is fictitious, and public infrastructure resources are dispersed to the fringes of urban areas where urban sprawl continues.

The revitalization of a whole neighbourhood whose economic and social health have failed is about more than addressing space for children, but is certainly part of the problem. Undoubtedly, children are affected by the environments they live in, but those same environments are shaped by the presence of children within them. This goal is addressed in Chapter 3: Setting the Stage for Street-based Community Life, and will focus on how architectural scale, material, and detail can encourage children to build meaningful community traditions of using the street as a public place.

CHAPTER 2: ENCOURAGING INDEPENDENT MOBILITY OF CHILDREN

> The young students' relation to the street was their relation to the world: it was--at least it seemed to be--open to them, theirs to move through, at a pace that could accommodate both argument and song; men, animals and vehicles could coexist peaceably in a kind of urban Eden; Haussmann's enormous vistas spread out before them all, leading to the Arc de Triomphe. But now the idyll is over, the streets belong to the traffic, and the vision must flee for its life.[20]

Piaget outlined the need for play in children's lives, as a means to exercise their brains, develop their identity, and help them transition from imagination to reality.[21] Over the years, this "play" has manifested in playgrounds within the city. However, the first goal of this thesis is to explode the word "playground" into "play" and "grounds", or grounds for play. By doing this, we can reimagine their function in the city. Play grounds cannot be described by a noun because they are not objects. Instead, they represent a resource, opportunities, experience, festivals, parades, refuge and all the places and times in between. Play grounds cannot be static solutions, but must be dynamic--physically changing and manipulated by the children who need and use them. Therefore, as this thesis refers to play grounds, think not about a fenced-in slide, but instead, all the nooks and crannies of the city that represent the discovery of something new. Upon hearing the words play grounds, think instead of children actively deciding to go somewhere they have never been before, seeing something they have never seen, and discovering their community in their own way.

Children name independent mobility as one of the most important aspects of their communities[22] and Freeman and Tranter suggest

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20 Berman, *All That is Solid Melts Into Air*, 166.

21 Jean Piaget, *Play, Dreams, and Imitation in Childhood* (New York: Routledge, 2013), 2.

22 Colin Ward in Freeman and Tranter, *Children and Their Urban Environment,*

that the level of mobility can also serve as an indicator of the success and resilience of a city.[23] Despite this, in most modern cities urban children do not have freedom or independent mobility. This is particularly true for students who live in high density areas because density reduces their license to move around.[24] A study of inner-city London illustrated this unfortunate truth: 90% of children could not name a favourite place.[25] Unfortunately, children are too often placed in urban incubators that do not encourage, or even allow, their mobility. This is not only important for children, but for cities in general because their mobility forecasts the physical, social and cultural health of future generations.[26]

Children with more independence and mobility play more often with peers, both indoors and outdoors,[27] and have a broader repertoire of play activities.[28] Additionally, children who experience their communities on their own have higher emotional bonds with their natural environment.[29] They also become community members who are spatially and emotionally connected to a place.

Rehumanization of the Street

The reduction in independent mobility has led to an overall dehumanization of the street.[30,31] This problem, while broad in scale, is the result of one simple phenomenon: people are no longer the focus of our streets.

182.

23 Ward in Freeman and Tranter, *Children and Their Urban Environment,*182.

24 Kyttä, *The Extent of Children's Independent Mobility,* 180.

25 Ibid., 180-181.

26 Freeman and Tranter, *Children and Their Urban Environment,* 182.

27 Kyttä, *The Extent of Children's Independent Mobility,* 180.

28 Ibid.,181.

29 Ibid.,180-181.

30 Freeman and Tranter*, Children and Their Urban Environment,* 23.

31 Spencer and Blades, *Children and Their Environments,* 76.

There was a time when the street seamlessly accommodated traffic, children, adults, bicycles, trams, socialization and commercial activity. Stills from a 1906 film in San Francisco[32] demonstrate this collective ownership:

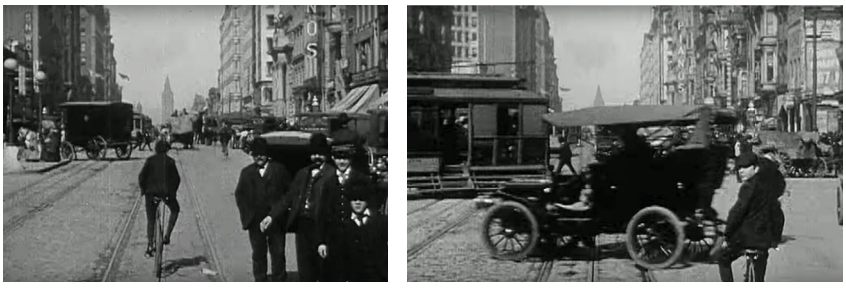

Figure 2: Market Street in San Francisco, 1906. “San Francisco Dashcam: A Trip Down Market Street - 1906 Archive Footage” - (WDTVLIVE42)

These images illustrate the street as a stage for public life. Today’s streets are intensely concerned with efficiency and right-of-way. Cars stop, people cross. People stop, cars go. Cross here, not there, you have 15 seconds. The rules ensure that today’s public stage (discussed in chapter 3) is not a place for improvisation; it is highly scripted.

Undoubtedly, things are not as they were in 1906, nor will they ever be again. However, the scenes above remind us that the city can be a diverse and exciting place. The very definition of being urban, Lars Gemzoe states, is being able to cope with the meeting of strangers.[33] Therefore, we should expect urban environments to facilitate and celebrate these meetings. Gemzoe, a co-author of many of Jan Gehl’s publications, describes these exciting places in a short film titled *The Human Scale*:

> If we can have places where we feel invited, so you’re not in ‘their space,’ or they’re coming in ‘your space’ but you’re in ‘our space.’ Then we have the opportunity to meet people across the different layers of society, different user groups, different lifestyles.[34]

32 WDTVLive42, “San Francisco Dashcam: A Trip Down Market Street - 1906” Archive Footage, Accessed January 15, 2017, https://www.youtube.com/watch?v=5jy_ifgU-io.

33 Lars Gemzoe in Andreas Dalsgaard, *The Human Scale*, 2012, (Denmark: Final Cut For Real), 18:00m.

34 Gemzoe in Dalsgaard, *The Human Scale*, 18:30m.

Contributing to the dehumanization of streets are vehicles, which have resulted in “fear culture, increased traffic volumes, [and] on-street parking,” all of which degrade of streets for children.[35,36,37] Spencer and Blade write:

> Urban planners and environmental psychologists have highlighted the increase in traffic, the reduced number of public spaces and the declining sense of community which make our cities increasingly more difficult to live in. This progressive dehumanization of urban space has affected in particular children, who have seen their freedom of movement compromised.[38]

In addition, streets are increasingly understood as being owned by a government or corporation instead of being inhabited by neighbours, strangers, and friends. Character, maintenance, and upkeep have become the responsibility of municipal departments. Today, we rarely see shopkeepers taking ownership of the street by sweeping in front of their store or planting flowers.

Figure 3: Storefront in Halifax, Nova Scotia, adjacent to design site (Google Street View).

Unfortunately, vehicles require durable surfaces. However, Singapore for example is experimenting with materials in an effort to break the monotonous black asphalt which is highly abrasive and can become unbearably hot in the sun. Brick, concrete, dirt, pavers and greenery are materials that have associations with

35 Freeman and Tranter, *Children and Their Urban Environment,* 23.

36 Brendan Gleeson and Neil G. Sipe, *Creating Child Friendly Cities: Reinstating Kids in the City* (London: Routledge, 2006).

37 Kytta, *The Extent of Children’s Independent Mobility,* 180.

38 Spencer and Blades, *Children and Their Environments,* 76.

special places in the city. By introducing these elements on residential and commercial streets, they can organize program and movement, while improving the street's aesthetic quality, ambiance, and haptic elements.

Lastly, the chances of a particular building finding an appropriate street location will depend on how many different types of streets there are. Despite their varying scales, programs, forms, and characters, all businesses and homes in Halifax are found on only a few types of streets. A wide variety of street types, with different dimensions and characteristics, would be better able to accommodate the city's diverse built form.

Overcoming Age Bias

Adults cannot put themselves in the shoes of children, so how can we expect to design for them? Ernest Schachtel reminds us that we are not only incapable of experiencing what a child experiences, we are incapable of even imagining it.[39] This is why, Ward suggests, that "when we revisit childhood play spaces they seem dull and lifeless."[40] Children are naturally imaginative, spontaneous and active[41] in a way that is unburdened with biases about the environment, class, or culture. For example, children may be intensely curious about, and enjoy watching, a dumpster being unloaded, or engage fully in a performance by a homeless street performer.

Some urban planners are responding by calling for an "un-planning of space for children."[42] Communities can attempt to over-

39 Ernest Schachtel in Ward, *The Child in the City* (London: The Architectural Press Ltd, 1978), 2.

40 Ibid.

41 Randy White and Vicki Stoecklin, *Children's Outdoor Play & Learning Environments: Returning to Nature,* 1998, https://www.whitehutchinson.com/children/articles/outdoor.shtml.

42 Freeman and Tranter, *Children and Their Urban Environment,* 118.

come the age bias by not labeling places for children. Instead of choreographing the lives of children, designers can strive to create environments with diverse paths, nooks, and niches, and with emphasis on actualizing children's desire for independent mobility.

CHAPTER 3: SETTING THE STAGE FOR STREET-BASED COMMUNITY LIFE

> 'Bullerby' can be literally translated as a noisy village. It is used by the famous Swedish writer Astrid Lindgren in a number of her children's novels where she describes the life of a group of children living in this Swedish village... Bullerby offers children possibilities to take part in all everyday activities of a village and it provides children important tasks and roles in the community. I also wanted to stress that a 'normal' environment will do. We do not necessarily have to design special places or activities for children.[43]

It is widely accepted that natural places are important for children. However, a study done in rural UK found that social places are even more important.[44] Therefore, architecture has an important role in providing settings for a community to host, enjoy, and dwell in their streets as a communal space. By setting the stage for the drama of daily life and for special events that include children, communities can build traditions.

For community life to be successful children must be aware of it, be able to watch, and participate. Parades, block parties, festivals, markets, birthday parties, school fundraisers, daily commutes, haircuts, shopping, and community celebrations can help build the identity of a community. Architectural design can consider how buildings work together to create outdoor spaces that are for more than just movement.

Traffic on streets typically bisects the daily life on each side, interfering with street-based community life. This thesis asks how architecture can promote activity and interaction. This vision of street life is illustrated by Herman Hertzberger's description of a new school corridor: "originally a space for passing through is now a place to stay."[45]

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43 Kyttä, *The Extent of Children's Independent Mobility,* 182.

44 Ibid.,180-181.

45 Herman Hertzberger, *Lessons for Students in Architecture* (Rotterdam: Uitgeverij 010, 1991), 113.

The post-war generation pushed the hardest against the urban privatization of civic spaces and devaluation of the street.[46] They believed that the street should be, as it once was, a communal living room.[47] In his book *Lessons for Students of Architecture,* Hertzberger explores the problems of urban privatization that contribute to unpleasant civic spaces, such as: priority of motor traffic, barren routes that lead to dwellings disconnected from the street, decreased density of housing and people, and erasure of the street as a communal space.[48]

Many of these problems are inherently physical, making them easier to solve through architectonic means. For example, traffic can be reduced by making streets narrower, and by differentiating types of streets and their purposes. Barren routes can be avoided by not building apartments with double loaded corridors, which have no view to the street and usually no daylight. Density can be increased by considering spatial organization within units and site organization beyond. However, erasure of the street as a communal space is both physical and social in nature.

Assuming that Kytta's "busy village" is an ideal place for a child, designers and planners could to ask how one would create such a village. I believe that "setting the stage" for street-based life is a useful concept to help measure success. It invokes theatrical elements:

- The story: What is the story, if any? Is there a single storyline or multiple? Who gets to be the playwright?

- The physical stage: How can scale, material, proportions, and lighting have a positive impact on street activity?

46 Ibid., 49.

47 Ibid., 48.

48 Ibid., 49.

- The props: How can the props be manipulated by those involved? These may include furniture, signage, and plantings. They may be temporary, fixed, or somewhere in between.

- The actors: Who is invited to join the street stage?

- The audience: Who can view the stage, and how much participation can the audience have?

By systematically considering these elements, as a director would, an ideal streetscape can be formed. When applying these ideals to an existing site, with existing buildings, families, traditions, and much more, the elements become enriched.

The Story

The story of a community is not something that an architect, designer, or urban planner could fabricate, but rather something innate that is observed or experienced. Street-based community life can be thought of as a spectrum, ranging from special events (parades, festivals, markets, weddings, and concerts) to mundane everyday occurrences (pick-up soccer game, a walk in the rain, sitting on a restaurant's street patio, and people-watching). Over time, events big and small build traditions that give a community identity and enable children to form lasting memories. The character of these events comes from within the community; the designer's role is to create physical settings that support a variety of activities.

The Stage

Surfaces

Designing a stage for public life requires thinking in two dimensions (surfaces) as well as three dimensions (volume). Surface

qualities in an outdoor room can engage the actors. They also negotiate relationships between indoors and outdoors. Architects and designers commonly glaze entire ground-level storefronts in an attempt to connect them to the street. However, Richard Sennett considers glazing ironically as the cause of “dead public space.” His book, *The Fall of Public Man*, explains the “paradox of isolation in the midst of visibility.”[49] Glazing and increased visual connection make people feel revealed, exposed and isolated. He says that “human beings need to have some distance from intimate observation by others in order to feel sociable.”[50] On the other hand, Mehta and Gehl both show that a visual connection to the interior increased the length of time people lingered on the street.[51] To illustrate the transition from street to interior, architect Peter Zumthor presents carefully chosen images of public spaces in his book *Atmospheres* (see figure 5).[52] Unlike the quintessential transparent Apple store, the interface in Zumthor’s image incorporates different layers of engagement, including scale, light, furniture, views to and from, and the company present.

Figure 4: Complete transparency of Applestore, photograph by Marlith

49 Richard Sennett, The *Fall of Public Man* (London: Penguin, 2002), 13-14.

50 Ibid., 15.

51 Robert Mantho, *The Urban Section: An Analytical Tool for Cities and Streets* (London: Routledge, 2015), 68.

52 Peter Zumthor, *Atmospheres* (Barcelona: Gustavo Gili, 2006).

Figure 5: Light in cafe, men in conversation. (Cover of *Atmospheres* by Peter Zumthor)

The ground surface of the street stage is less critical than the vertical layers between inside and out, but it plays an important role. Colin Ward's research shows that ground material has a lasting impact on how children see the city. He writes: "When adults were asked about elements they remembered from their childhood, they named particularly the floor of their environment, the tactile rather than the visual qualities of their surroundings."[53] Ground material not only gives cues about how to navigate, but also about the program, use, and importance of a place. Important plazas, like the one pictured below in Copenhagen, have nonlinear patterns of elaborate paving materials. This suggests that the environment is meant to be lingered in, and that the city has invested in the space because it is important. Asphalt paving in a parking lot, on the other hand, aims for durability, not beauty. Markings also suggest a strict use of the space.

53 Ward, *The Child in the City*, 22.

Figure 6: The square Amagertorv in Indre By in Copenhagen. 2012. Photograph by Leif Jørgensen.

Figure 7: Empty parking lot. Photograph by Joe Shlabotnik

The curb between a sidewalk and a vehicular route helps protect pedestrians, but also facilitates on-street parking, which is one reason why streets are too dangerous for children.[54] Parked cars that are higher than a child's field of vision block views of traffic and result in children not being fully aware of traffic. Curbs demarcate the space within which only the car belongs. Some European cities are removing curbs to reduce the sense of ownership vehicles feel over the road.

54 Freeman and Tranter, *Children and Their Urban Environments,* 23.

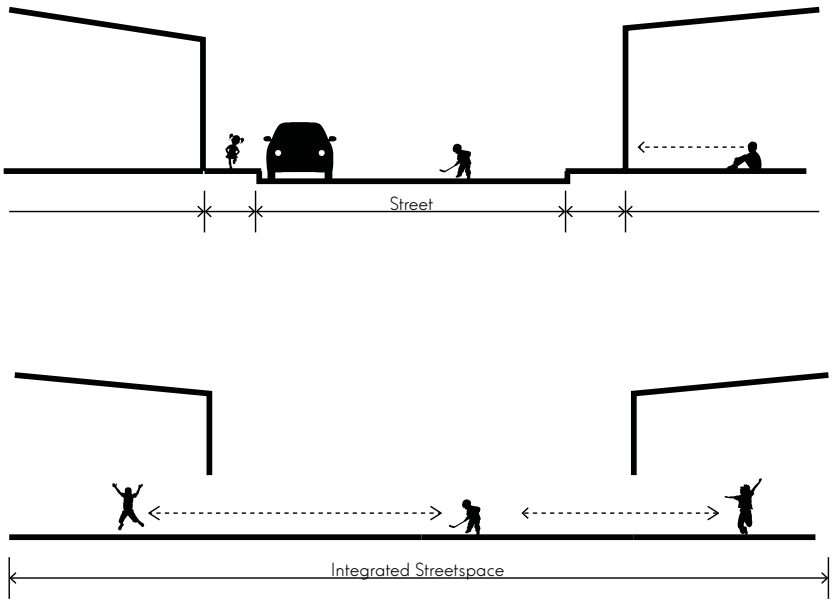

Figure 8: Integrated streetspace

Above a city street is the ceiling or canopy. Studio Gang's illustrated document, which describes how cities can make "civic commons," suggests adding a "dynamic room canopy to provide shade and shelter."[55] This is an opportunity to introduce rhythm and utility into the street. A canopy can provide shade during the day and a sense of enclosure at night.[56]

Figure 9: Daytime street canopy, row housing design, Studio Gang Architects, *Civic Commons*

Figure 10:Night time street canopy, row housing design, Studio Gang Architects, *Civic Commons*

55 Studio Gang Architects, *Civic Commons: Reimagining our Cities' Assets,* 2016, 29.

56 Ibid., 68-69.

Volume

The size of an outdoor room will encourage particular activities, but the ratio in section (width to height) should always be 1:1.1 to 1:1.25, according to Allen Jacobs.[57] The diagrams below all have the 1:1.25 ratio that Jacobs suggests, yet their scale is varied. Similarly, the ratio in plan of width to length affects the quality of a street.

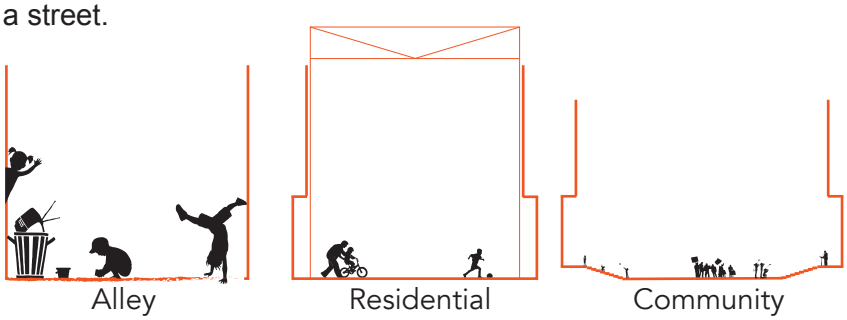

Figure 11: Scale changes of outdoor spaces

The three-dimensional quality of a street depends on how elements of floor, wall, and ceiling are put together. There are four potential combinations of these elements: floor + walls, floor + ceiling, walls + ceiling, floor + walls + ceiling.

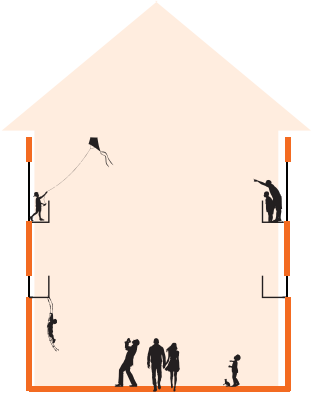

Figure 12: Floor-wall condition

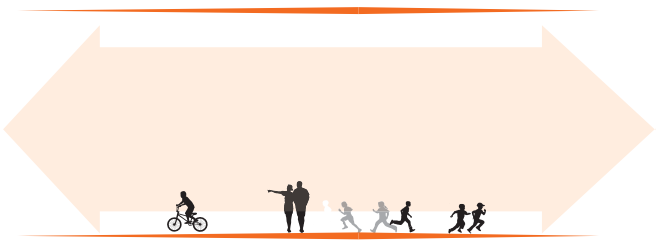

Figure 13: Ceiling-floor condition

57 Jacobs in Mantho, *The Urban Section*, 71.

These examples demonstrate how different volumes and surfaces can change the focus of street life. A parade is well suited to figure 12, whereas physical activities are better suited to figure 13.

The Props

Props in the street provide friction and support for daily life. Benches, planters, and operable elements encourage one to stop and engage with other people or with the environment. Too often, props are an afterthought. The image below illustrates a project by Herman Hertzberger that shows housing, street, and sidewalk elements in harmony. The props allow both children and adults to occupy the same space in everyday life.

Figure 14: Housing project in Berlin by Herman Hertzberger, Photograph by Uwe Rau.

Aldo van Eyck's urban play spaces in Amsterdam are iconic examples of how minimal and effective these props can be.[58] The minimalism of these playgrounds were often their strength. The abstract forms seen in the photo below encourage different types of engagement from all user-types. Additionally, it is borderless

58 Liane Lefaivre, et al. *Aldo van Eyck: The Playgrounds and the City.* (Amsterdam: Stedelijk Museum, 2002).

and blends with the urban fabric that surrounds it. His project in Buskenblasserstraat, Bos en Lommer, Amsterdam from the 1950s illustrates the role of the street in the activities of children. They were centrally located to draw community together and provide urban furniture for adults, too. Similarly, a piano in a public space is a minimal gesture that speaks a thousand words about the city's intention for activity, play, entertainment, and participation.

Figure 15: A 1956 playground in Buskenblasserstraat, Bos en Lommer, Amsterdam by Aldo van Eyck. Photograph from *The Playgrounds and the City*

A more modern example is Superkilen park in Nørrebro, Copenhagen, designed by BIG Architects.[59] This arrangement of urban play structures is most likely inspired by Van Eyck's work and demonstrates the same elements of differentiated ground surfaces, abstracted metal climbing structures, dynamic urban landscape, and seating -- all of which can be used in multiple ways.

Figure 16: Abstract climbing structure, Superkilen Park, Photograph, BIG Architects, *Archdaily*

59 *Archdaily*, "*Superkilen / Topotek 1 + BIG Architects + Superflex.*"

Figure 17: Seating that invites play and differentiates ground surfaces, Superkilen Park
BIG Architects, *Archdaily*

Figure 18: Dynamic urban landscape, Superkilen park, BIG Architects, *Archdaily*

"Before I die I want to…." walls are another modern intervention that have been created around the world. They encourage artists and building owners to work together to reimagine social norms. The result is a push against the status quo, challenging how society thinks about graffiti, art, and public displays of emotion.

Figure 19: "Before I die..." public project, Photograph by Dave Bonta, *Flickr*

Props on the street also provide places to sit, lie down, lean, squat, or stand. Providing furniture that allows people to sit back and observe street life is a crucial part of making streets a safe place for children to roam independently. Gehl emphasizes this point in his book *Cities for People*, stating that “seeing and hearing” are “unpretentious and nonobligating” types of contact that act as a catalyst for other types of social interaction.[60] Again, Van Eyck provides great examples with his work in Amsterdam. His urban interventions focus activity nodes for children to run and play, but also include sidelines for less active participants.

Figure 20: van Eyck Playground in Mendes da Costahof, Geuzenveld, Amsterdam, 1957, Photograph from Aldo van Eyck et al, *Playgrounds and the City.*

Figure 21: Seating area in large open town square. Photograph by Fabrizio Sciami.

60 Jan Gehl, *Cities for People* (Washington: Island Press, 2010), 148.

The Actors

As the African proverb reminds us, it takes a village to raise a child. Recognizing children to be one of the actors contributing to daily street life is not only crucial for the health of the community, but also the health of the children. Children's development depends on personal experiences with their environment. The National Research Council Institute of Medicine states that "virtually every aspect of early human development, from the brain's evolving circuitry to the child's capacity for empathy, is affected by the environments and experiences that are encountered in a cumulative fashion."[61] Children must be active participants in this environmental development, reflecting our intrinsic drive to master our environment.[62]

As this thesis is concerned with children and how the street can connect them to their urban environment, a brief analysis of children's development is warranted. Three ages and stages of children will be considered, based on Erikson's stages of psychosocial development:[63]

- Preschoolers: age 3-5 years
- Grade schoolers: age 5-12 years
- Teenagers: age 13-18 years

Preschool

Although most interventions to improve peer interaction are aimed at school-aged children, there is evidence that they would be beneficial years before.[64] Preschool children's social skills ex-

61 Jack P. Shonkoff and Deborah A. Phillips, *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Seattle: National Academies Press, 2000), 6.

62 Ibid., 4.

63 Doug Davis and Alan Clifton, *Psychsocial Theory: Erickson*, 1995, http://ww3.haverford.edu/psychology/ddavis/p109g/erikson.stages.html.

64 Ibid., 168.

pand at an exponential rate. Even at this age, play can involve pretense, requiring very few props for play.[65] The goal in the community would be to provide children with diverse urban landscape features, relatively close to their residences. Van Eyck's interventions above provide an excellent example due to their simple, abstract designs and proximity to dense residential fabric.

A street designed for preschool children may also satisfy their newfound curiosity about time, its division, and its effect on the environment. Children of this age become increasingly concerned with time as they begin to understand how days are divided, and differences between night and day, week and weekend, and the seasons.[66] To address this curiosity, urban street infrastructure could accommodate events that happen in the morning, mid-day, nighttime, spring, summer, winter, weekday and weekend.[67] Studio Gang's attention to time in their renderings above (figures 9 and 10) are an example of how designers can think about street-based life temporally. Federico Fellini's film *Amarcord*, about daily life in 1930s fascist Italy, gives more clues about community events on a more subtle level. The opening scene shows young boys chasing "puff balls" falling from the trees, each trying to catch the largest one. One of the town's characters narrates, "They bring us close... closer to spring." The trees in Fellini's childhood village, pictured below, provided shade, shelter, aesthetics, and also a reminder of passing time. It gave children and adults alike something to chat about and something to note year after year. The scene is a gentle reminder that architectural and landscape design is not meant to capture a snapshot in time, but the continuation of it through a community's evolution.

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60 Healthy Children, *Cognitive Development In Preschool Children*, Last modified 11/21/2015, https://www.healthychildren.org/English/ages-stages/preschool/Pages/Cognitive-Development-In-Preschool-Children.aspx.

66 Ibid.

Figure 22: Cotton tree close-up and still-shot from Federico Fellini, *Amarcord*

Grade School

For obvious reasons, school becomes a large part in the development and daily life of children aged 5-12 years. This affords them an excuse to leave home, in a search for other children and the forming of relationships. This is one of the major developmental tasks of early childhood.[68] Children of this age also strive to carry out simple tasks on their own, developing a sense of accomplishment and independence through doing.[69] Streets for school-aged children should promote independent mobility and encourage exploration to gain confidence in themselves and their environment.

The placement of a school in its community is a factor. The illustration below analyzes local schools on a continuum, from most isolated to most integrated. Implicit in this analysis is whether children are likely to see other members of the community while at school.

Schools on the left, such as Sir Charles Tupper and Oxford School, are almost completely sealed off, with boundaries defined by chain link fences. Schools on the right have looser boundaries with breaks in the fence, smaller fences, and finally no fence at all. Gorsebrook School is situated within a public park, while Citadel High School is situated adjacent to a public park. In the case of Citadel High this not only enables children the to engage with the public, but encourages them to travel through the city to get

68 Shonkoff Phillips, *From Neurons to Neighborhoods,* 163.

69 Davis and Clifton, *Psychosocial Theory: Erickson*.

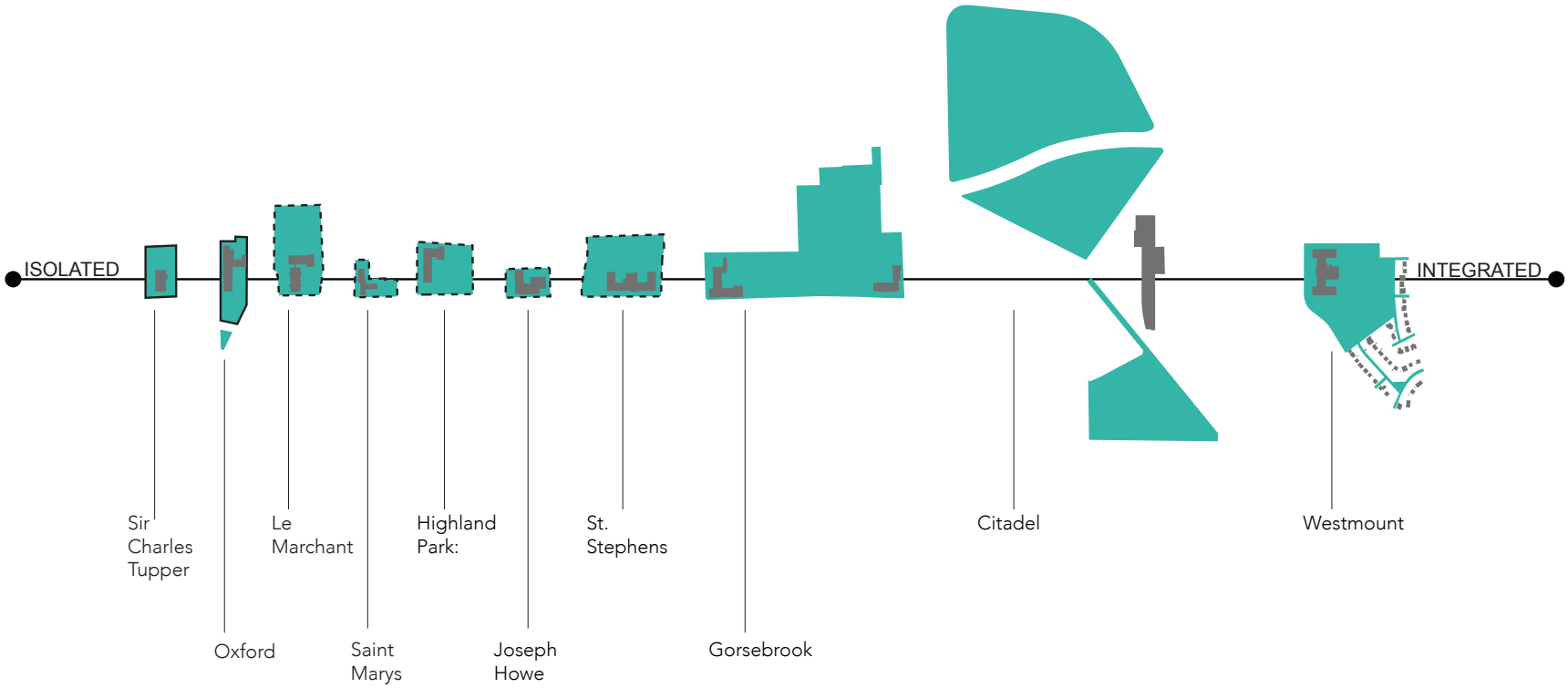


Figure 23: Continuum of schools on the Halifax peninsula, from isolated to integrated

there. On the far right is Westmount Elementary, which is situated within a park with tendrils that stretch into the community. Although this integration is minimal, it makes a positive statement about the relationship between school and home, and is a great example of how a community can think about both boundaries and movement for grade school children.

The second metric of success for grade school children is their perception of institutions and public spaces. Although school, home, and public spaces tend to be conceived separately by children of this age, this thesis design will aim to group to them into a larger whole: a community. Freeman and Tranter state that there is a need for school life to foster relationships with home and public space, encouraging children to use the street in their daily lives. Although this relationship is complex programmatically, socially, economically, and physically, this thesis will consider how to use streets to engage and connect these institutions.

The urban environment should aim to include children of this age in community events and physical community transformations, as demonstrated in figure 24, in which children can deploy large canopies for special events.[70] The image is a vignette from the proposed design. It illustrates, in isolation, structural frames that cover the street. These frames can be transformed by deploying tensile fabric that would act as sun or rain protection, controlled by a mechanism at ground level. Because each section of the fabric has two sides, it must be cranked by two people, working together.

70 White and Stoecklin, *Children's Outdoor Play & Learning Environments.*

Figure 24: Community/street infrastructure being operated by children

Teenage

Adolescence, from the Latin word *adolescentem* meaning “growing toward maturity,” is a unique transitional period when children are becoming adults. During this time, children can benefit most from mentors, role models and other adult interactions.[71] The design of this thesis will aim to provide opportunities for children to find employment in their community. Live/work initiatives and small shops in the community give children the opportunity to work closely with a business owner, developing a respect for hard work and serving the community.

Teenagers spend a great deal of their time outside the family home: not just within their community, but often moving throughout the city. As a means to develop good urban transit habits, community design must incorporate means to travel outside it. The accommodation of urban transit nodes within school or community buildings normalizes this type of travel, and fosters an inevitable adeptness for this sustainable means of traveling. By integrating public transit within other community resources (police station, coffee shop, barber and transit hub), a community hub

71 Shonkoff and Phillips, *From Neurons to Neighborhoods,* 331.

is created, allowing developing adults to easily move throughout their city and find places that they can identify with.

Figure 25: Teenage wood-worker, photograph by Matthew Lotz, *Wikimedia Commons*

The Audience

The audience of street-based community life refers to those whose houses face the street: providing “eyes on the street.” This audience strengthens social cohesion (amount of trust between neighbours) and social control (how much neighbours can depend on one another).[72,73]

Permeability

Meaningful interaction of an indoor audience with outdoor activity requires facade permeability, as Mehta describes below. Permeability permits visual connection, sound transmission, and sometimes olfactory transmission. Promoting contact between residents and the street is the objective.

> Mehta’s research showed that permeability increased social activity and pedestrian interest, particularly for children. The concept of permeability and Mehta’s research which shows the effect of the level of permeability on social behavior and interest is significant for a central argument of this book: that interior spaces adjacent to the street form a part of the street space and

72 Ibid., 333.

73 Freeman and Tranter, *Children and Their Urban Environment,* 79.

that analyzing the permeability of streets is essential to understanding how streets function.[74]

Units with on-grade access enable residents to engage directly with the street, often having only one door between them and their living spaces. Illustrated below are entrances of existing houses on the site, with very little physical separation. In comparison, a residential tower a few blocks away features an empty hallway (figure 27) with no direct engagement with the street.

Figure 26: Photograph of existing entrances on design site

Viewing

Residents above three stories no longer have the street in their peripheral vision, but this could be overcome with attention to window placement and height. High-density residential towers often have a dehumanizing circulation system that places residents' front doors in an artificially lit corridor with no social potential. Fowler states that these places "rob three-year-olds of playmates by insulating each unit from the next."[75] However, the Cité Napo-

74 Mantho, *The Urban Section,* 58.

75 Fowler, *Building Cities that Work*, 107.

leon housing in Paris from 1849 attempts to solve this problem by creating an inhabitable interior street. The photo below shows the top floor of this housing project, its character, and views to the sky. Views to the sky are appreciated, but do not engage the street. If children were in this space they would be unable to see what's going on outside.

Figure 27: Apartment building hallway, photo by James Colin Campbell.

Figure 28: Cité Napoleon, photograph by Jurrien van Duijkeren

CHAPTER 4: SITE

A site in Halifax, Nova Scotia will be the test subject for this thesis. It is located in the city's North End. Its larger context, for considering schools and urban infrastructure, is the Halifax Peninsula, the center of the city.

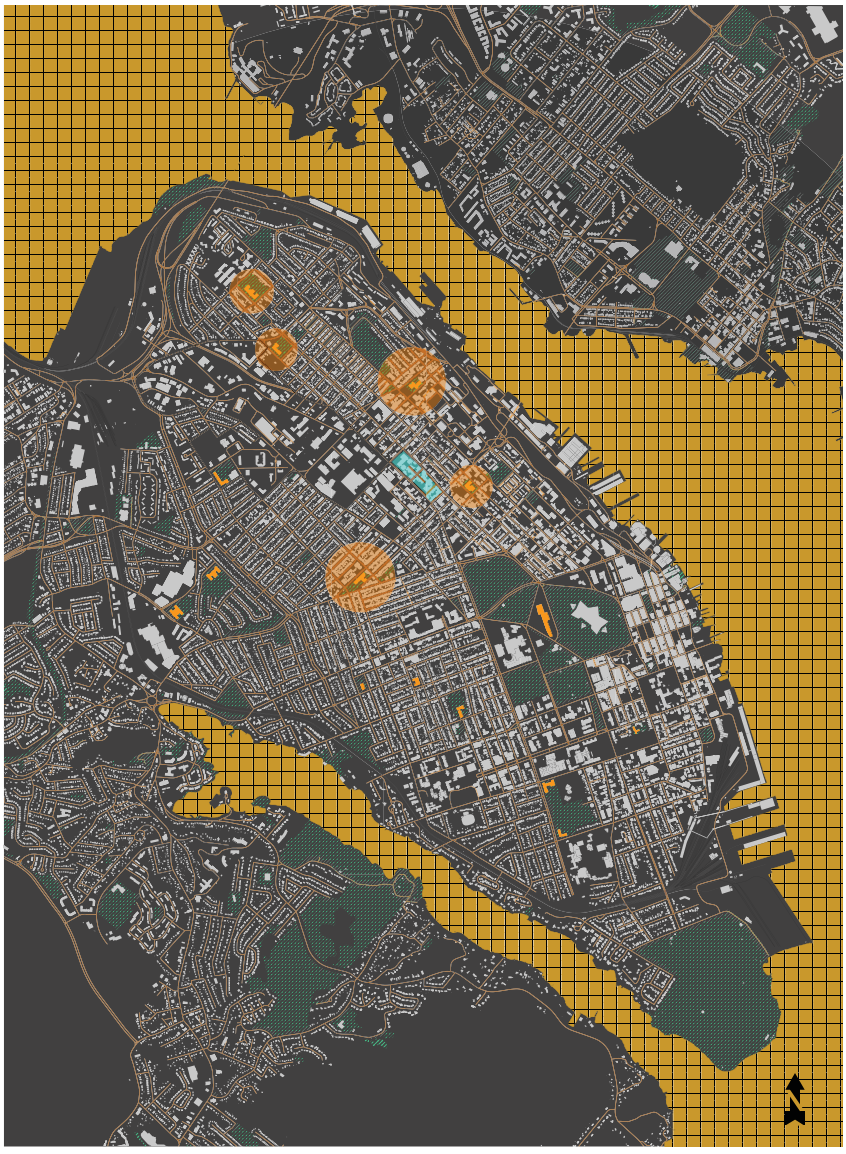


Figure 29: Map of Halifax. Data from Geographic Information Systems Centre at Dalhousie.

The site has two notable social issues. The first is a set of condemned schools that sit on the northern end of the site. The second is the recent demolition of many homes on the site by a car dealership. This may seem like an unlikely place for the

design of streets with children in mind, but just as Van Eyck designed iconic playgrounds in what is now the red light district of Amsterdam,[76] progressive interventions must not be pushed to affluent fringes of cities, but placed where they are needed most, and can have the largest impact.

Figure 30: Design site: Bloomfield Schools and Colonial Honda, *Bing Maps*

Condemned Bloomfield Schools

The three Bloomfield schools have been a major part of the Peninsula's North End for decades: first, as schools, and most recently as rentable community spaces. However, all three currently sit unused, while the province decides what should be done with

76 Nicolas Stutzin, *The Politics of the Playground: The Spaces of Play of Robert Moses and Aldo van Eyck* (Santiago: Chile Universidad Diego Portales, 2013): 39.

them.[77] The physical stature of these buildings once contributed to the image of this community, but now they seem detrimental due to their closure, especially for children. In *Urban Schools as Urban Places* Hollingworth and Archer state that, although the media may portray youth as apathetic towards the built environment (e.g., schools, community centers, and stores), the neglect of these buildings triggers a range of emotion within children, including concern and disgust.[78] This is coupled with the "general disappearance of safe public space, including streets, squares, parks and other areas where people can feel secure."[79] Studio Gang Architects, in their study of the civic commons, address the importance of these spaces in creating a vibrant community:

> Civic assets like parks, libraries, and schools are more than physical spaces—they are democratizing places and forces that foster inclusion and opportunity. But today the key, unique contributions they bring to their cities are at risk due to decay, inattention, and even abandonment that undermines their abilities as community anchors.[80]

In Halifax, the Bloomfield school is falling into decay, which reflects poorly on the city. While plenty of development is happening elsewhere, improving community-related infrastructure here is not a priority, either economically or socially.

Colonial Honda

Colonial Honda's impact on the community has been significant. Over the course of several months, the company bought dozens of properties surrounding the dealership, and announced sudden-

77 *Local Xpress*, "Province's decision on Bloomfield site redevelopment soon to be revealed," Accessed on November 30, 2017, https://www.localxpress.ca/local-news/provinces-decision-on-bloomfield-site-redevelopment-soon-to-be-revealed-298662.

78 Sumi Hollingworth and Louise Archer, "Urban Schools as Urban Places: School Reputation, Children's Identities and Engagement with Education in London," *Urban Studies* 47(3) (2010): 598.

79 bid., 588.

80 Studio Gang Architects*, Civic Commons,* 7.

ly that it planned to demolish them all.[81] Grassroots movements grew immediately to halt these ambitions. Community members gathered to protest on the site for weeks, with signs reading: “Homes Not Hondas,” “Save This Home,” and “Stop Wrecking This Town.” Ultimately, the protests did not stop the dealership continuing with their plans, but the protesters’ efforts certainly did not go unnoticed. A poll from *The Coast*, a local newspaper established in 1993, shows that Haligonians believed that the “Homes Not Hondas” topic was among the most important issues in the community, along with transit and affordable housing.[82]

Figure 31: Photograph of protest signs in homes of window on site, Photograph by Rebecca Lau.

Site Visit Observations

Initial site visits led to two observations: unsuccessful collision of programs and a lack of spatial street definition. The site is situated between residential urban fabric to the southeast and an industrial and commercial fabric to the northwest. Figure 32 shows a collision of programs, with residential homes shown in orange, and the industrial or commercial buildings in black.

Awkward adjacencies (service garages and homes, and a condemned school and a small diner) indicate that this set of blocks is confused. However, this shortcoming could be its strength, by mediating between the two.

81 *CBC News*, “Steele Auto Group to bulldoze north-end Halifax neighbourhood,” Last modifed Apr. 29, 2016, http://www.cbc.ca/news/canada/nova-scotia/north-end-halifax-honda-steele-auto-group-expansion-1.3558767.

82 *The Coast*, “Most Important Local Issue,” Accessed March 1 2017, http://www.thecoast.ca/halifax/most-important-local-issue/BestOf?oid=5772046.

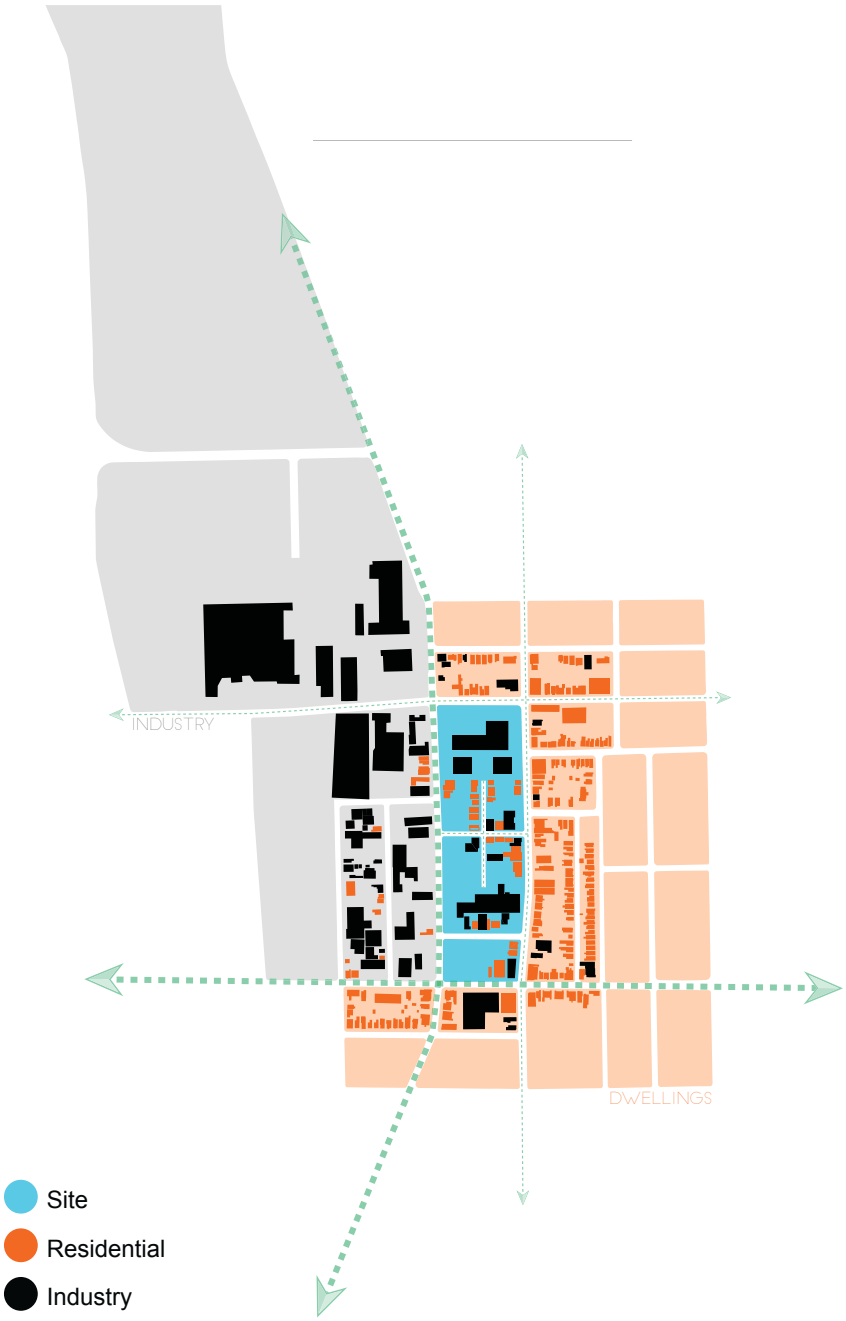


Figure 32: Residential versus industrial fabric

There is a lack of spatial definition on most of its streets. Figure 33 shows the space between the buildings demonstrating the irregularity of the street wall. In most parts of the street this space is more than four times wider than the height of the facing buildings, leaving it devoid of spatial quality.[83] In all its dimensions, the site is scaled up. The roads, parking lots, turning radii, and facade details are at an industrial scale: what Gehl describes as “tiring length perspective.”[84] He argues that pedestrians on a straight and endless path are tired “before the walk has even begun,”[85] as there are no curious interruptions along the way. To overcome the industrial scale of the community, design can reduce the scale of both the street and the elements with which pedestrians engage. Introducing more human scale streets to the site will avoid Gehl’s tiring length perspective and discourage excessive vehicle and parking lot coverage.

83 Jacobs in Mantho, *The Urban Section*, 71.

84 Ibid.

85 Gehl and Lord, *Cities for People*, 127.

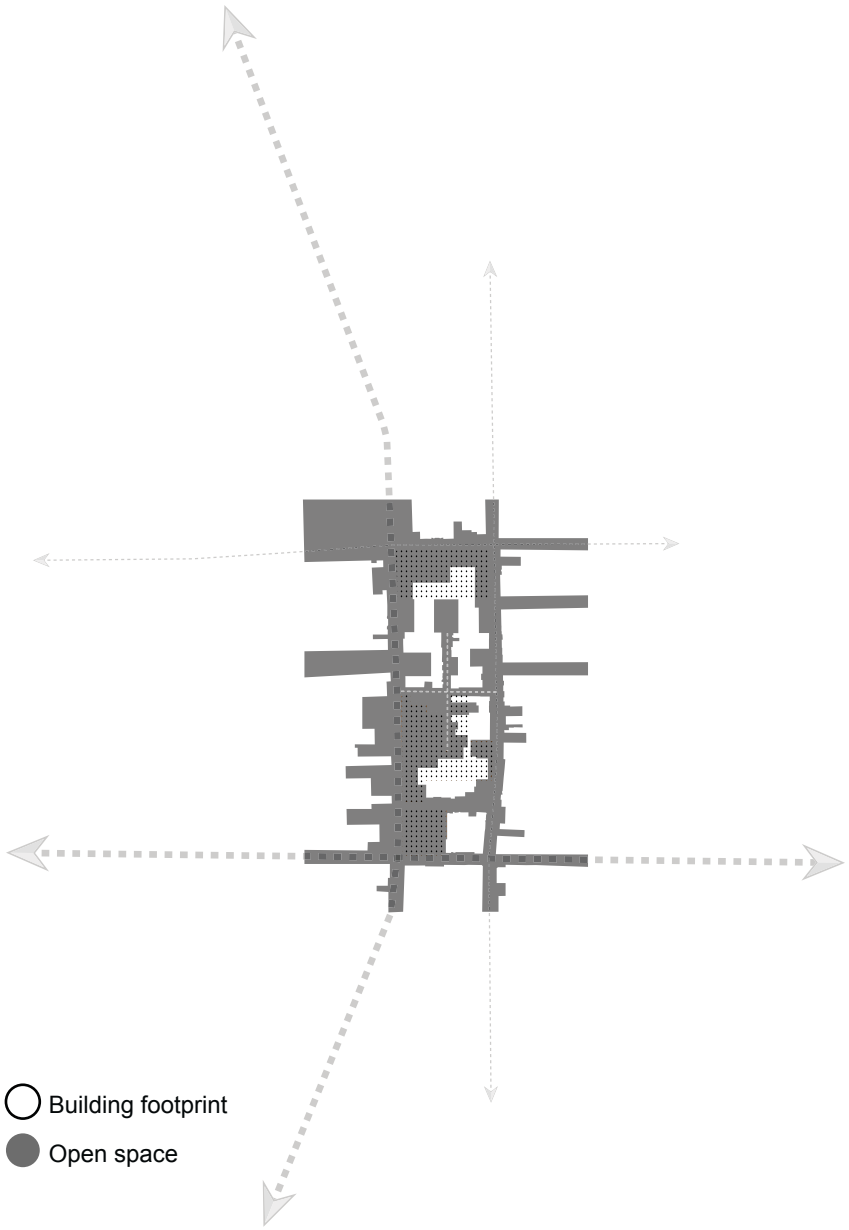


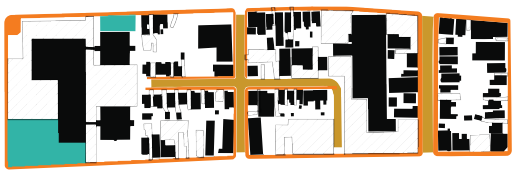
Figure 33: Street wall

Design for independent mobility is largely about the organization of urban elements and their relationship to each other. Street elements, pedestrian paths, green space, buildings, vehicles, and private space can be combined in many ways. As a way to take stock of the current site, its elements were separated from one another and compared to other analogous urban structures. Each layer can then be compared to others elsewhere that are similar. Below are two analyses of the site: before and after the demolitions in 2016.

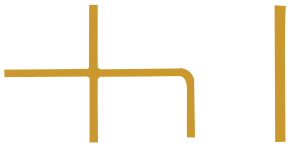
Both the parking and the building footprint layers demonstrate a mixing of scales. The dramatic shifts in scales is a problem because the industrial sections of the lot are not traversable for children or even adults, making them an overly dominant feature.

Figure 35 shows the current site's layers and the thinning of the building footprints. The street area is decreased even further, with the dealership cannibalizing part of the road for its own private parking lot, decreasing pedestrian mobility even further.

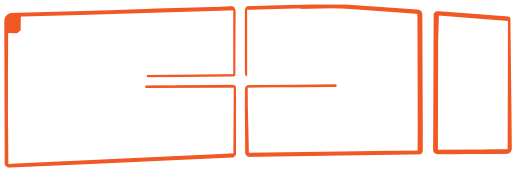
Total area : 52,000 m2
Total units: 38
Total people: 95
Businesses: 17



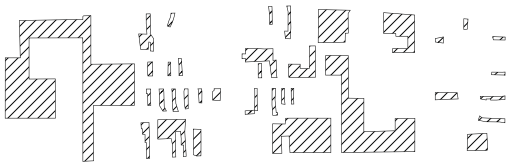
Road surface: 3,900 m2



Sidewalk surface: 2,370 m2



Parking surface: 11,600 m2

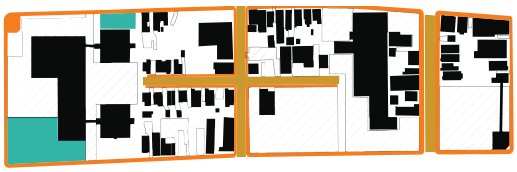


Greenspace: 2,300 m2

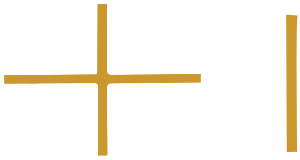
Building footprint: 16,600 m2

Figure 34: Bloomfield site, circa 2015

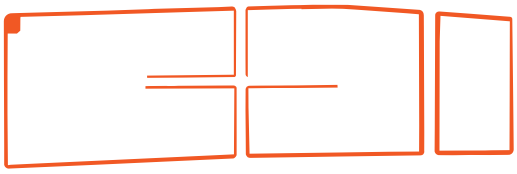
Total area: 52,000m2
Total units: 21
Total people: 52
Businesses:17



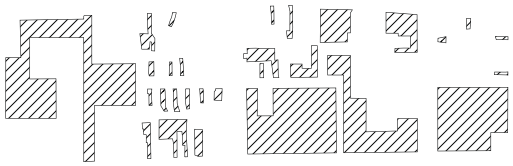
Road surface: 3,100m2



Sidewalk surface: 2,370 m2



Parking surface: 16,200 m2



Greenspace: 2,300 m2

Building footprint: 14,700 m2

Figure 35: Bloomfield site, 2017

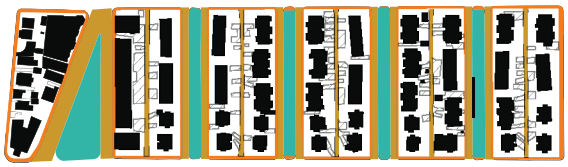
CHAPTER 5: CASE STUDIES

This thesis attempts to provide answers to the following: What do children need from their urban environment? What are the consequences of getting it wrong? What are the benefits of getting it right? And how will we know when we have? The sections below will explore local and global examples of street design that emphasize community engagement with the street, paying particular attention to projects that benefit children. This will inform the designs in Chapters 6 and 7. The case studies will provide initial benchmarks for planning and will serve as metrics for success. By identifying which elements are prioritized we can understand what was driving the community's design.

Halifax's Hydrostone: Rhythmic Green Space

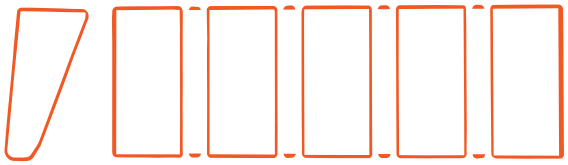
The Hydrostone community was planned by Thomas Adams following the 1917 Halifax Explosion. Figure 36 shows the rigorous planning and emphasis on green space that gives this community a unique character in Halifax. The plan has wide green boulevards faced by houses with one-way streets on either side. The central green space is repeated, setting an urban spatial organizational rhythm for all other elements, including one-way lanes for garbage, power, parking, and storage. The biggest lesson learned from this community design is how rewarding a clear organization of streets and green space can be. The pie chart below compares how much space is allocated for each element. This part of Halifax is widely praised for its density, pedestrian activity, neighbourliness, and low traffic noise.

Total area: 57,900 m^2
Total units: 102
Total people: 255
Businesses: 12

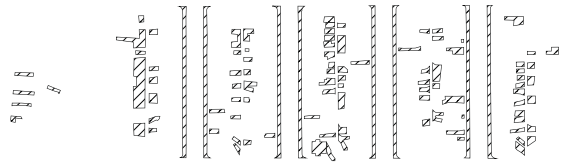


Road surface: 9,650 m^2

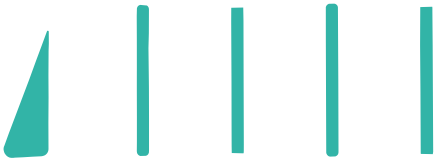
Sidewalk surface: 5650 m



Parking surface: 7,400 m^2



Greenspace: 7,100 m^2



Building footprint: 13,000 m^2

Figure 36: Hydrostone community

Figure 37: Hydrostone community boulevard

The Many Streets of Venice: Polysemy

It is hard to think about pedestrian street experience without thinking about Venice. Venice has an extensive vocabulary for the street. The different street types and their definitions are outlined below, recognizing their importance and the diverse roles they play in the city. Venice's numerous names for streets can make reading a tourist map difficult, but this is actually one of the means by which life is most enjoyable in Venice. The city's streets are known for their liveliness. Tourists flock to Venice each year, for better or for worse, to experience a true urban experience of dwelling in the city as a pedestrian. These different types of street elements create atmospheres conducive to certain types of activities, demographics, and events.

Venice's urban design not only results in a great tourist destination for adults, but an embracing place for children to grow up. The nature of streets, its patterns, and its pedestrian-centered life has resulted in few playgrounds in the formal sense, yet a very fertile ground for play. Urbanist Gehl writes:

> The city of Venice has essentially no playgrounds: the city is a playground in itself. Children crawl on monuments and stairs, play along the canals, and if they don't have a playmate nearby they can always kick a soccer ball to one of the passing pedestrians. If a child kicks a ball into the middle of a stream of pedestrians, there is always at least one who will attempt some fast footwork and a return of the ball, a game that can go on for hours.[86]

In most neighbourhoods, streets are the only true public resource. While some parks, community centers, and other public assets close at night or on weekends, streets are always open. The lesson learned from Venice is that streets designed with a fine-grained approach, in proportions and function, are more satisfying, as they are human-scaled and built to accommodate human life. A comparable design approach in Halifax would consider how streets can accommodate the small moments in our lives: sitting, watching, reading, listening, and conversing, commuting, and shopping. Thus, creating different types of streets and celebrating their different uses could reduce conflict with traffic and bring urban communities together.

Figure 38: Canale. photograph by Paste

86 Gehl and Lord, *Cities for People,* 158.

Figure 39: Rio - a narrower canal. Photograph by Artur Staszewski.

Figure 40: Rio terra - was once a canal but now a path, Photograph by Dan Macy.

Figure 41: Ramo - is a small street connecting two larger streets or canals. Photo by Hermes from Mars

Figure 42: Calle - a street. Photograph by Filius Humanitas

Figure 43: Fondamenta - a path alongside a canal. Photograph by Sailko

Figure 44: Ruga - is a street with workshops each side. Photograph by Dimitris Kamaras.

Figure 45: Salizzada - a main paved thoroughfare. Photograph by Wolfgang Moroder.

Figure 46: Sottoportego - a path that goes under a building.

Mazzorbo Housing: Street Scale and Porosity

Mazzorbo island in northern Italy is an example of how we can reimagine street use and ownership of streets based on scale. Using Google's Street View to explore Mazzorbo by way of a cursor, these images show a clear sense of pride and ownership, coupled with an astounding publicness. What is particularly noteworthy beyond the obvious maintenance and beauty is the scale of the "street." No wider than four feet, the streets seen on Google's Street View seem like a very intimate place.

Figure 47: Google Street View of Mazzorbo street and resident

Mazzorbo community's paths also teach us about the importance of porosity in a community for children. The following series of photographs show a path from one community to the next, demonstrating the focus on pedestrian travel suited to the size and scale of the place. The well-worn pedestrian paths are desire lines carved into grass that pedestrians take rather than a set pre-set route. Although the formal routes are inadequate, they are a testament to the porosity of the island. Of course, there are no cars here, so a direct comparison to Halifax cannot be made. Still, this invites us to reconsider what we think is normal or necessary.

Because Mazzorbo is small, its planning addresses the human-scaled aspects of daily life. Similar planning techniques could be applied within a larger urban center as islands of pedestrian mobility, especially for children.

Figure 48: Path through Mazzorbo island, Venice. Photos from Google Maps

Walking School Bus: Re-legitimizing Children's Street Presence

Parents and school boards in Auckland, New Zealand are addressing children's mobility and combatting the chauffeuring culture of shuttling children around in automobiles. In Auckland, there is a car for every two people, and car numbers are rising faster than population. Alarmingly, pedestrian-related accidents here are the leading cause of death of children.87 To address these problems, low activity levels and increased obesity in children, a walking school bus was implemented.88 Led by parents and teachers, students are guided from one end of the community to the other, with predetermined stops where children may embark or disembark. Along the way, the parent "driver" points out things to watch for, dangers, and other valuable lessons. Of course, this social movement has its limitations. As Collins point out, agency-based solutions such as the walking school bus unfairly expect children to adapt to an urban environment that has alienated them.89 Additionally, the program increases children's dependency on adults and adds to the adult surveillance of modern children. Despite its shortcomings, however, the walking school bus has 1700 children walking the streets to school everyday in Auckland alone, saving over 5000 car trips each week.

Learning from New Zealand, Canada has also introduced walking school bus programs. Survey results from elementary schools in Ottawa, Ontario consistently indicated that more parents would allow their child to walk to school if they did not walk alone.[90] In light of this, the Ottawa Walking School Bus Pilot

87 Gleeson and Sipe, *Creating Child Friendly Cities*: 108.

88 Ibid.,106.

89 Ibid.,110.

90 *Safe Routes to School*, "Walking School Bus," Accessed January 11, 2017, http://www.saferoutestoschool.ca/walking-school-bus.

Project, established by Green Communities Canada in 2010, has been introduced for dozens of elementary schools across the city of Ottawa.[91]

A walking school bus program teaches children how to move through their city safely. Navigating modern cities can be a daunting experience, especially for children. The walking school bus builds skills and confidence incrementally. Ultimately, movements such as this re-legitimize children's presence on the street through environmental awareness, social cohesion and physical well-being.

91 Ibid.

CHAPTER 6: DESIGN PRINCIPLES

The design of the proposed Halifax North End play ground can be thought of at three different scales: community, building, and child scale. The community scale will address the overall layout of streets, greenspace, and building footprints, and how they tie into the existing urban fabric. The building scale will demonstrate how building facades, their program and internal organization can engage with street life. Finally, the child scale will involve props that encourage children to get outside and interact with their environment. These interventions are not designed specifically for children, but fulfill each group of children's specific needs and interests.

Community Scale

The community scale is inspired by Halifax's Hydrostone community design, illustrated above (figure 36). The driving design force was considering how children could use the streets similar to how adults might use it: to get from one place to another. School, home and community space are the most influential institutions in a child's life. By separating these buildings, a theme of mobility arises, encouraging children to travel throughout their community independently. The axonometric masterplan drawing below (figure 49) calls out these three key institutions and their relationship to one another. The pages to follow will illustrate design principles in isolation while referring back to the axonometric masterplan.

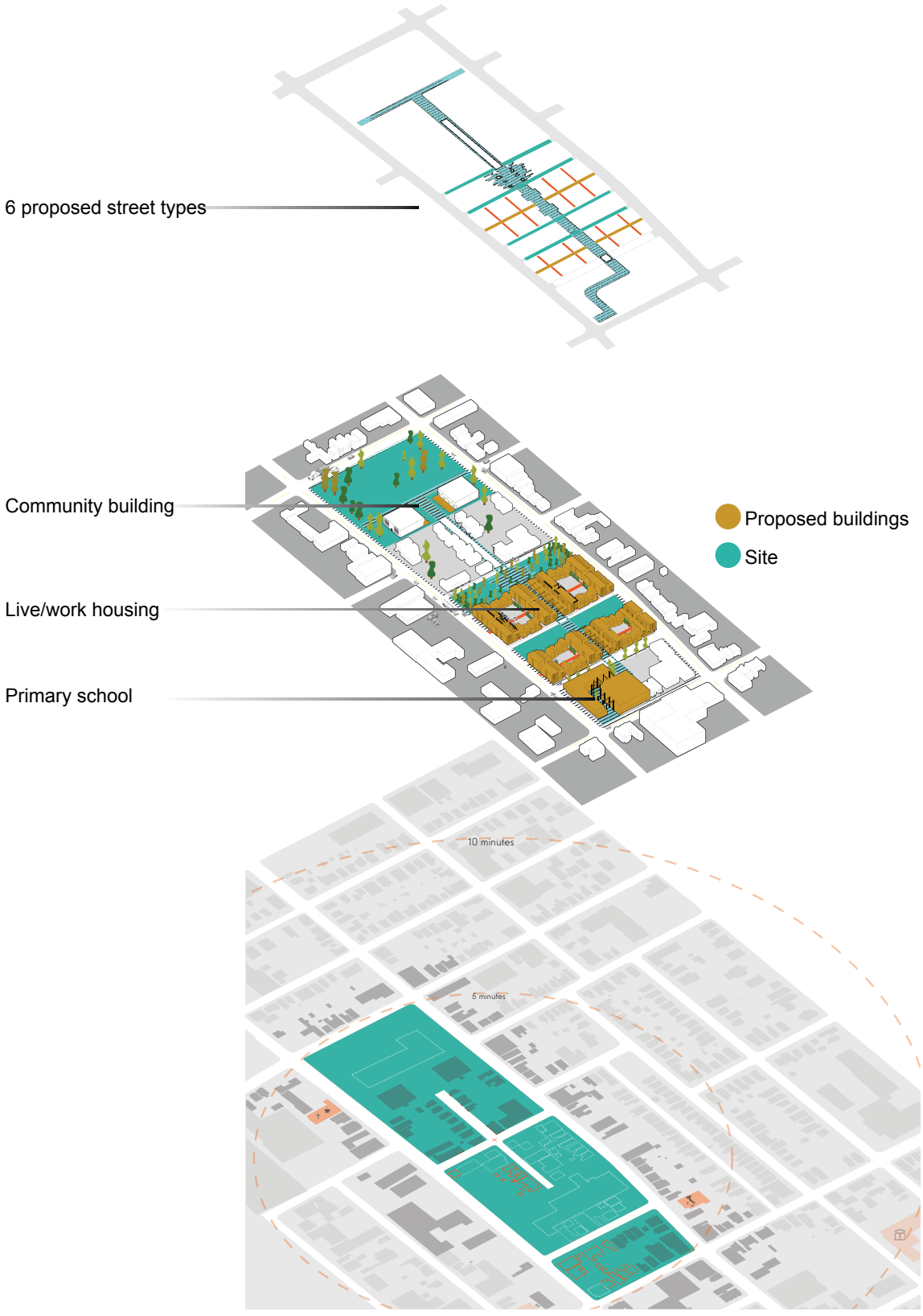


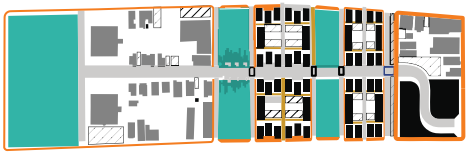
Figure 49: Existing site and proposed masterplan + streets

Community Scale Principle #1: Public Space

Base the pattern of streets and buildings on green or public spaces, allowing the latter to set the rhythm for the rest of the design.

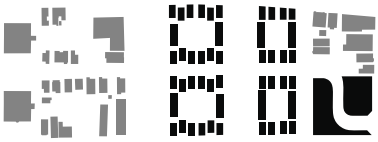
● Existing

● Proposed



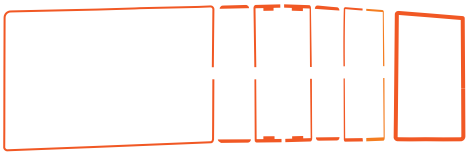
7,100 m2 of greenspace sets rhythm for other elements

13,000 m2 of building footprints are organized around green spaces

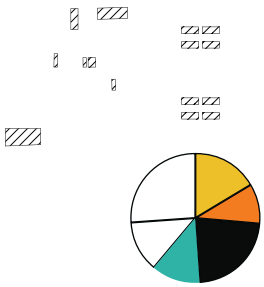


9,650 m2 of street surface is most dense around live/work housing, allowing children opportunities to explore from home

5650 m2 of sidewalk surface serves primary as a means to travel around site, as streets within are pedestrian safe



7,400 m2 parking is consolidated but not into barren parking lots.



The proportion of these elements is balanced, in order for each to play its role in the community's design.

Figure 50: Proposed community design

Community Scale Principle #2: Schools

If a community is to have a school, integrate it into the community by separating the school's play grounds from the school. This encourages the independent mobility of children and allows the street to link home, school, and community.

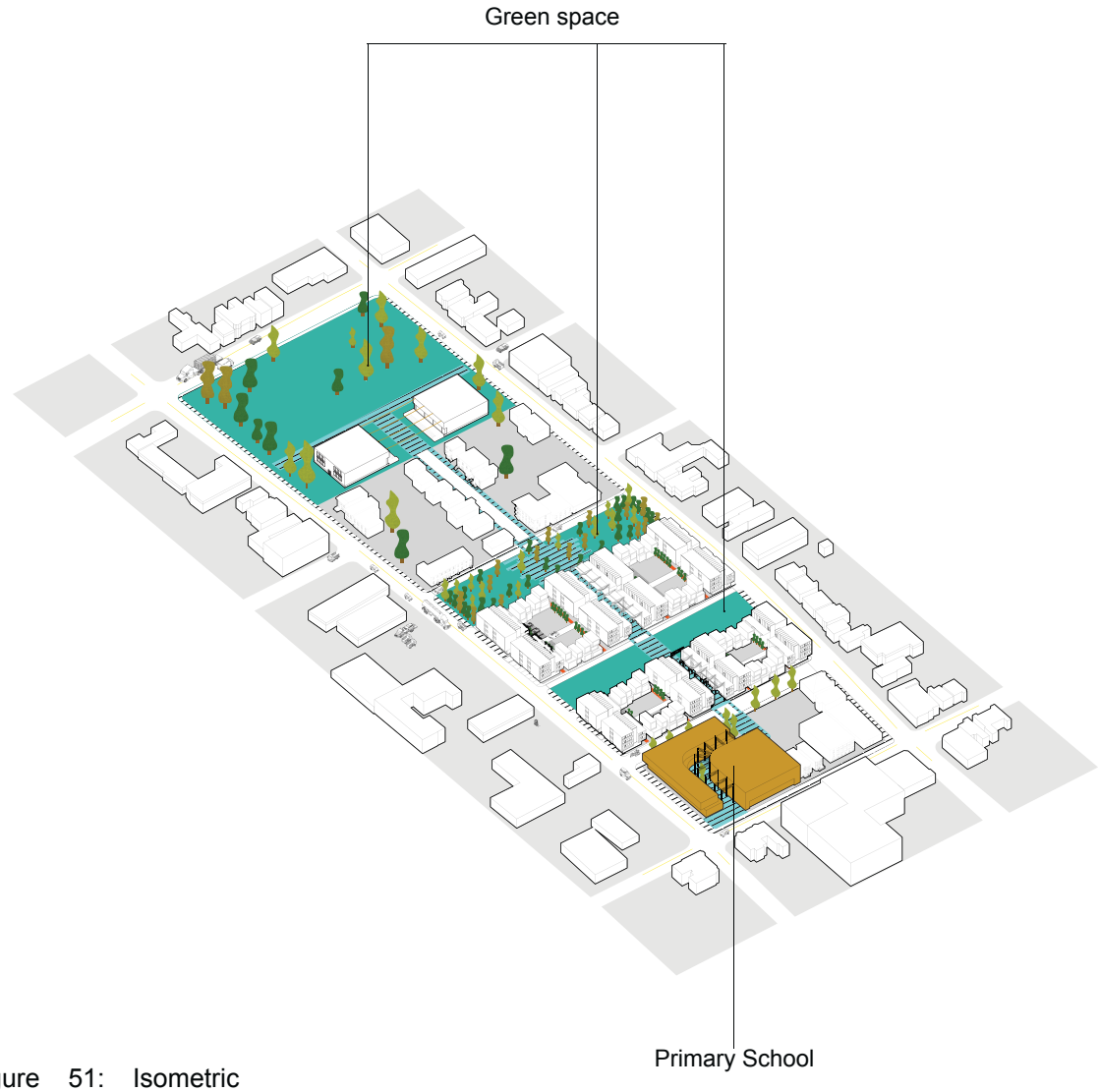


Figure 51: Isometric masterplan of proposed community design

Community Scale Principle #3: Streets

Design a wide variety of street types. A street's specific material and dimensions should make it visually distinct, yet programmatically flexible.

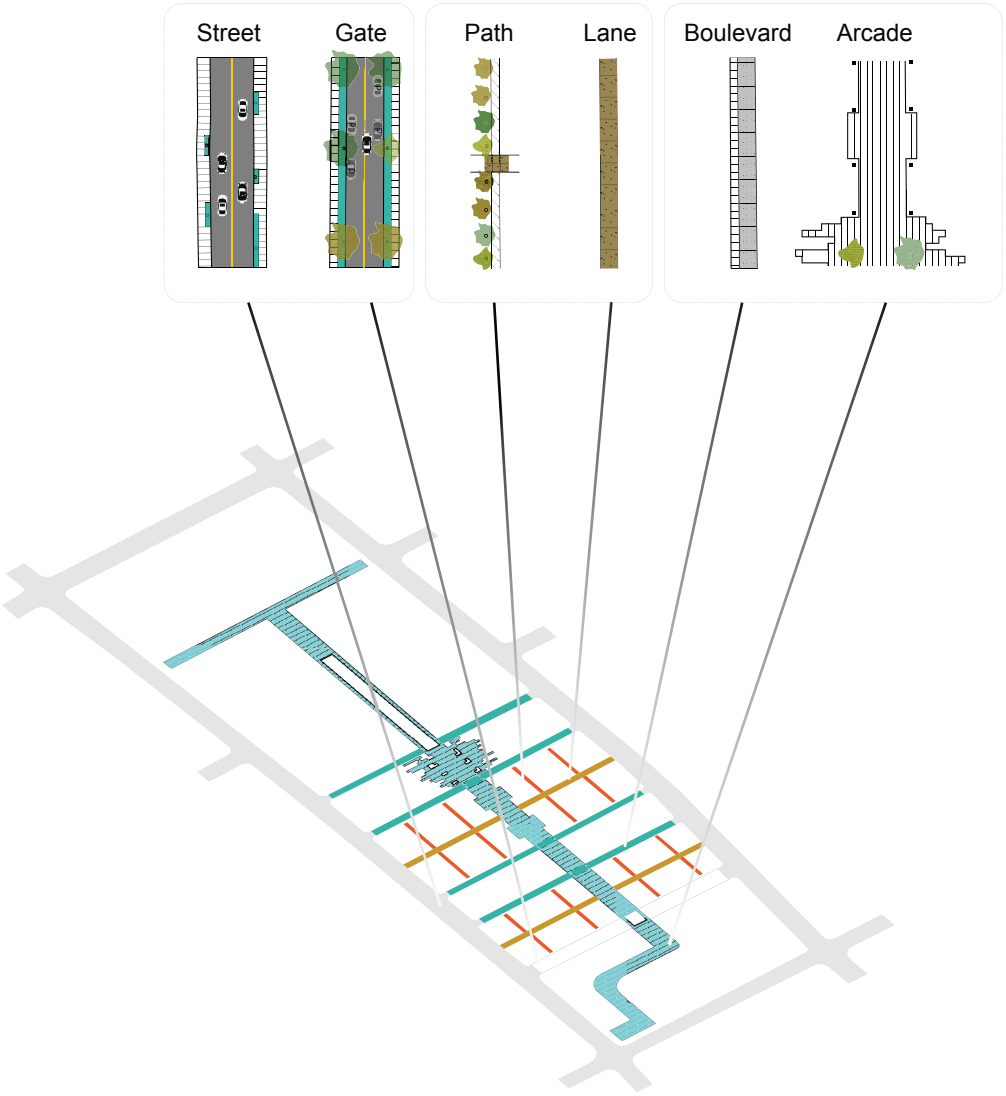


Figure 52: Isometric of proposed street layout

Community Scale Principle #4: Accessibility

Independent mobility depends on an urban environment that is free of physical barriers. Allowing for porous pedestrian movement on streets, between buildings, and on paths, lanes, and other smaller routes requires the removal of fences, retaining walls, and other insurmountable urban forms.

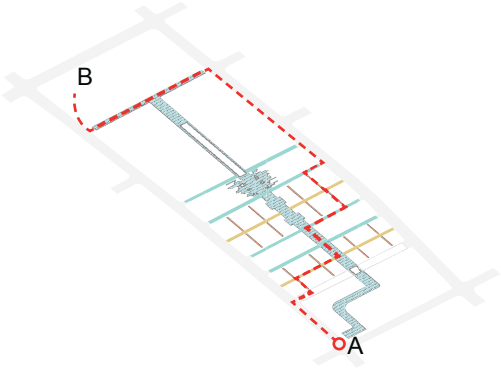


Figure 53: Sample route

The sample route above is one of 20,000 different ways to get from A to B. It is noteworthy that it is not the route that is important in this example, but rather the diverse network of public space that children can use to navigate and explore.

Community Scale Principle #5: Density

Aiming for ≥30 units per acre will allow buildings to be small enough to have a physical connection to the street, yet populated enough to support street life.

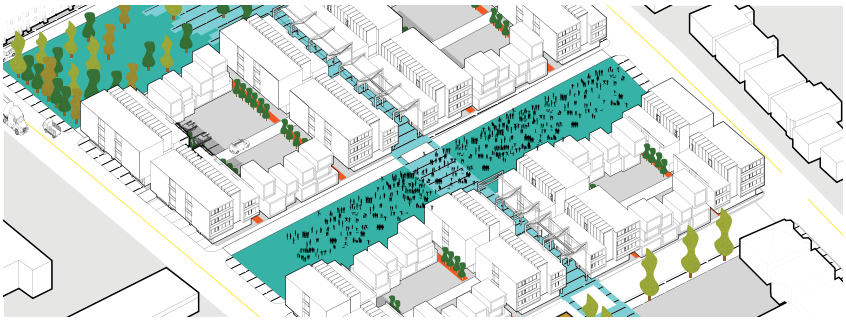


Figure 54: 600 residents

For example, each of the 200 proposed residential units could house two adults and one child. The image above shows these 600 residents in one of the green spaces.

Community Scale Principle #6: Ground Surfaces

Ground surfaces for travelling, both pedestrian and vehicular, should be clear and distinct. Main pedestrian paths through communities should remain unbroken, so that children can follow them without any ambiguity or confusion. Ground surfaces for social or event spaces can be less clear or specific in their use. Therefore, in these areas informative high contrast markings should be avoided, in order to promote creative use.

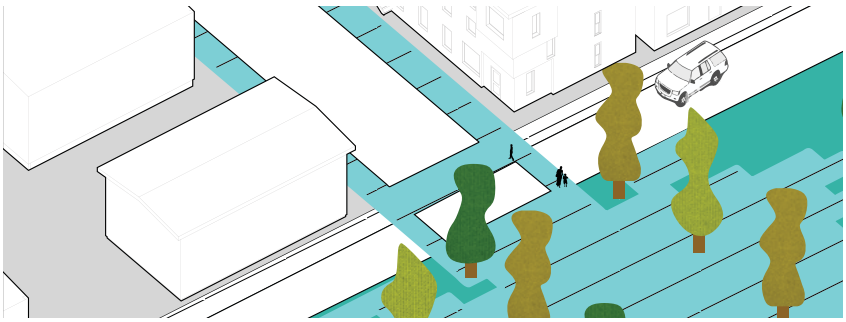


Figure 55: Intersection of streets

The design above puts emphasis on the intersections of streets by allowing both surface materials to weave, while allowing pedestrian surfaces to be continuous.

Community Scale Principle #7: Parking

Remove on-street parking and place vehicles on the northern side of buildings, accessed by a lane or alley. Use trees to buffer the space between parking areas and pedestrian paths.

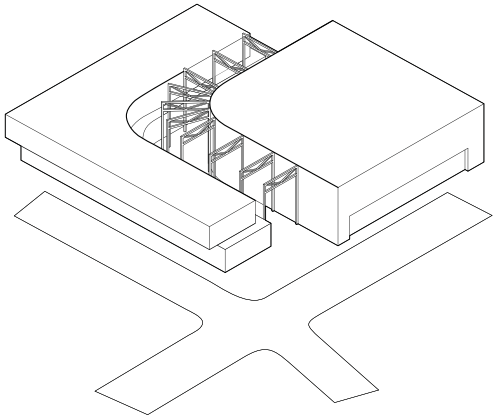
Figure 56: Parking in Masterplan

Community Scale Principle #8: Live/Work Housing

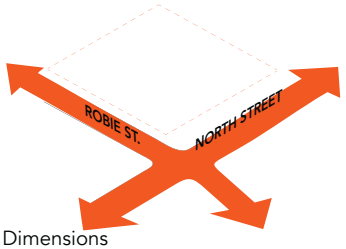
Live/work housing encourages local residents to invest in the success of the community. In addition, it encourages teenagers to begin their working lives and contribute to society, while developing mentors in the community. The ground floor shops of the residential units provide another 20 commercial spaces for the site, boosting local economy and encouraging pedestrian activity.

Building Scale

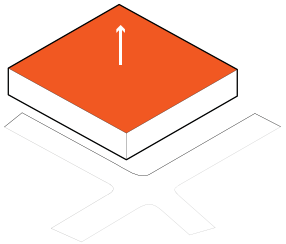
The form, program, and details of a particular building must respond to the street to which it is oriented. If it is oriented to two streets, it must negotiate them both. The design of this thesis focuses on the live/work housing portion, as that is where the children would be coming from and returning to each day. However, the illustrations below illustrate a schematic design for all three types of interventions: school, live/work housing, and a community building. Together they introduce the proposed buildings on the site, to which the building scale principles were applied.



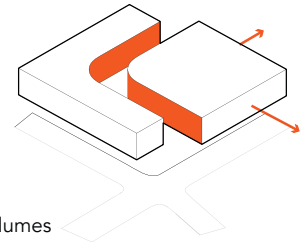
School & Community



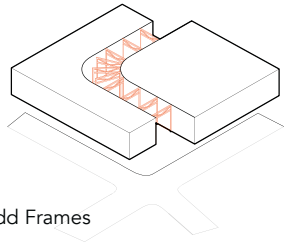
Site Dimensions



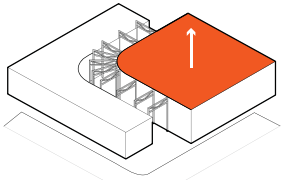
Extruded Form



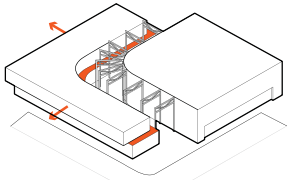
Split Volumes



Add Frames

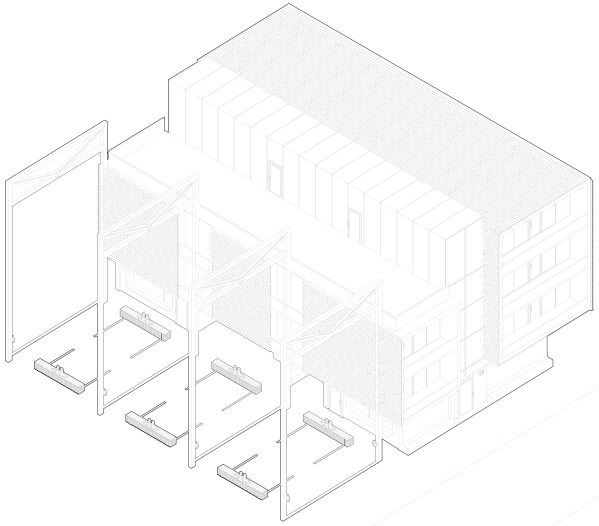


Raise Volume

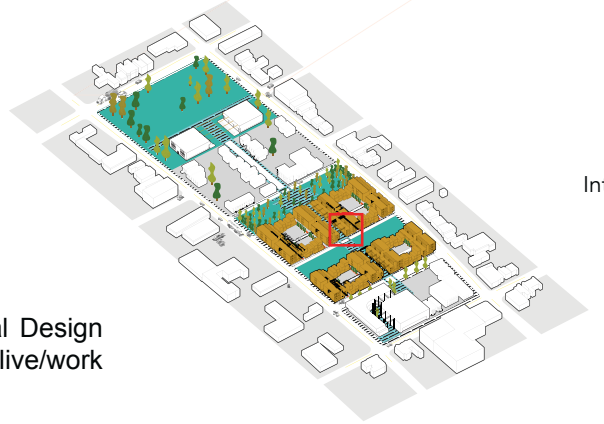


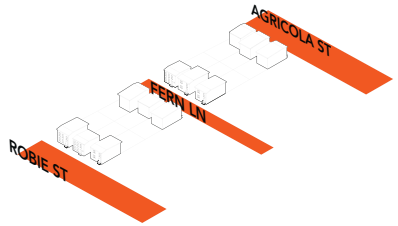
Slide Top Floor Plate

Figure 57: Formal design sequence of primary school



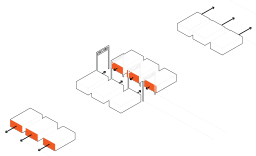
Live / work



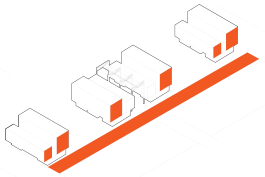


North-south street orientation

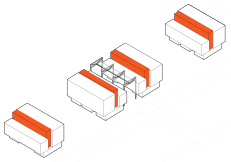
Colonial Honda house demolition



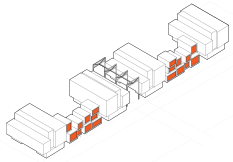
New commercial with same orientation



Housing above oriented to new cross-street

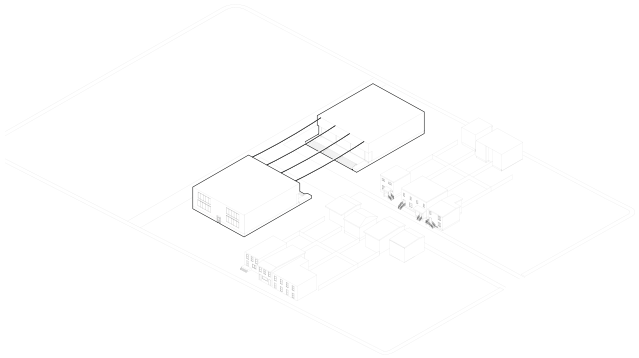


Interior Street added

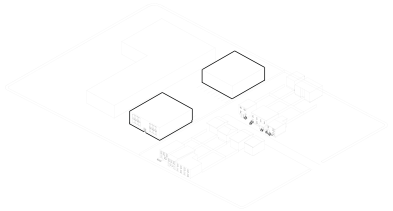


Infill gives urban room spatial definition

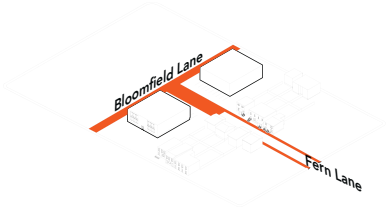
Figure 58: Formal Design sequence of live/work housing



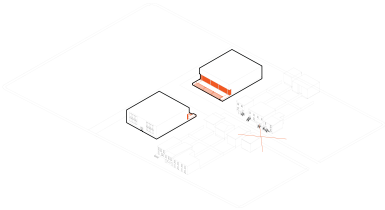
Civic Buildings



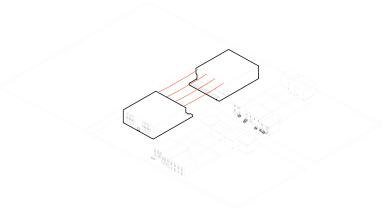
Existing Schools, fenced off from Neighbourhood.



Extend Fern lane & Bloomfield Lane



Puncture masonry walls with fenestration



Tensile grid becomes host for green canopy

Figure 59: Formal design sequence of Community Center

Building Scale Principle #1: Nooks + Niches

Human-scale breaks in the street wall create corners, nooks, and niches that encourage moments of friction where children may interact with a facade in creative ways.

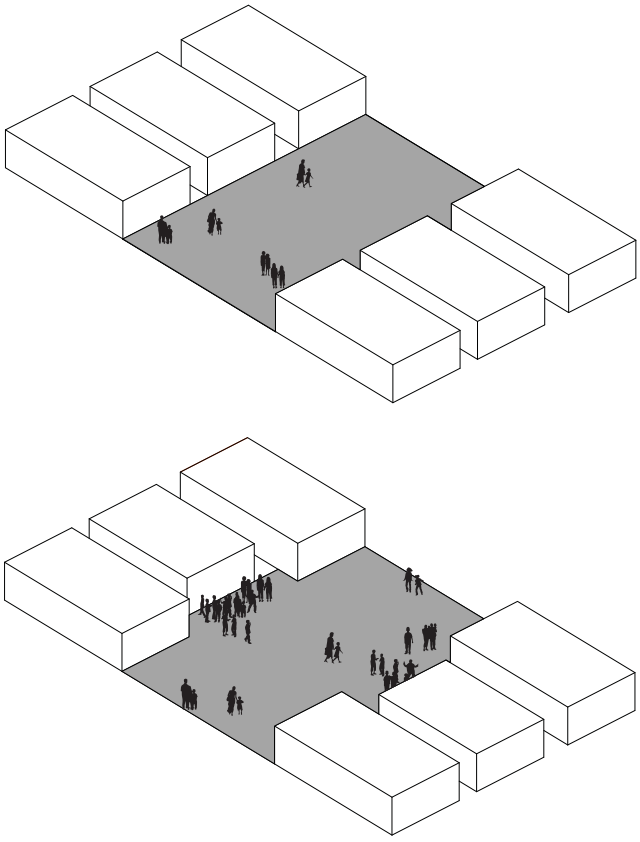


Figure 60: Nooks and niches

Building Scale Principle #2: Commercial Connection

Create areas of dense commercial activity adjacent to open public spaces where activity can spread. Connect commercial spaces on the street visually, physically and programmatically through the use of a consistent ground plane.

Use fronts and sides of facades to engage commercial activity, building on the nooks and niches principle above.

Group diverse types of small of industry, such as workshops, services, and arts.

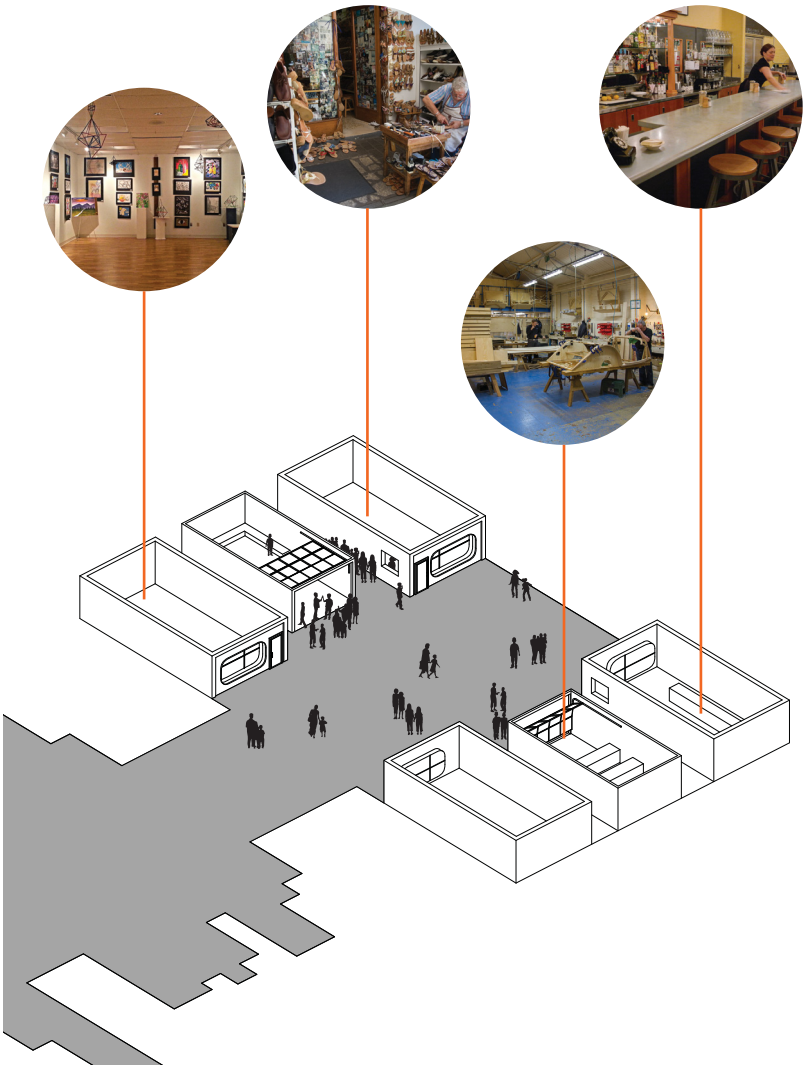


Figure 61: Diverse shop facades and programs. Adjacency to public space.

Building Scale Principle #3: Street Canopy

Use canopies over streets that will host social life to provide shade, shelter, and spatial definition.

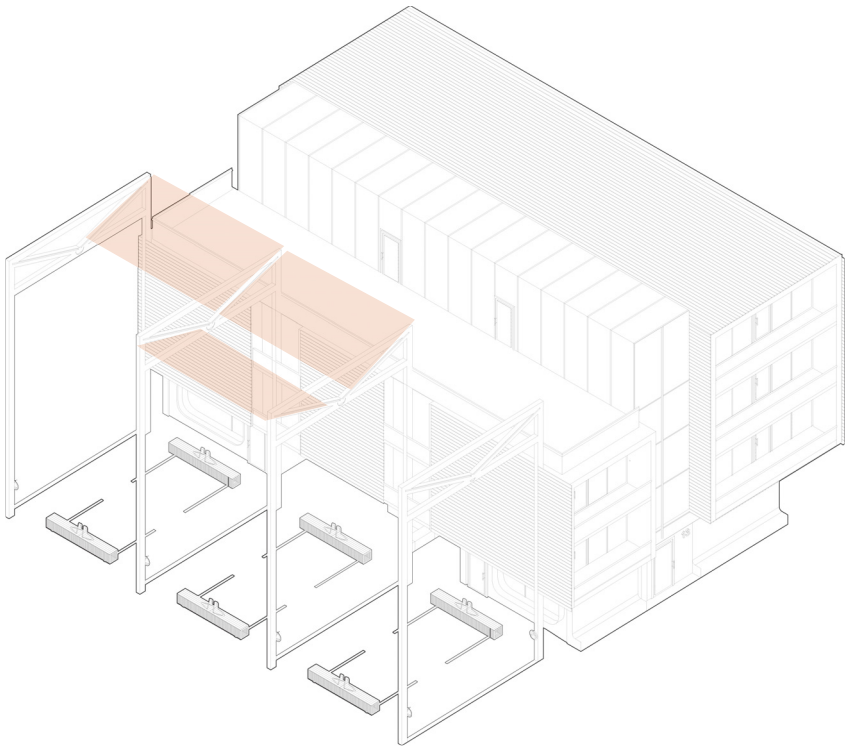


Figure 62: Canopy

Building Scale Principle #4: Floor/Roof/Wall

A playful use of floor/wall/roof/elements provides a diverse set of urban street volumes. Different volumes and surfaces can change the focus of street life and activities that occur (figures 12 and 13).

Figure 63: Floor roof wall element diagram.

Building Scale Principle #5: Street Section Ratio

If a street is to be spatially defined, its ratio in section, width to height, should be 1:1.1 to 1:1.25 (see page 22).

Building Scale Principle #6: Fenestration

A variety of fenestration types encourages those indoors to interact with what is happening on the street, and vice versa. Projecting window bays allow those indoors to view what is happening on the street. Conversely, window bays that project into the building (shown in green) allow those on the street to occupy the interior of a space. Both result in “eyes on the street,” which increase the safety, and therefore mobility, of children.

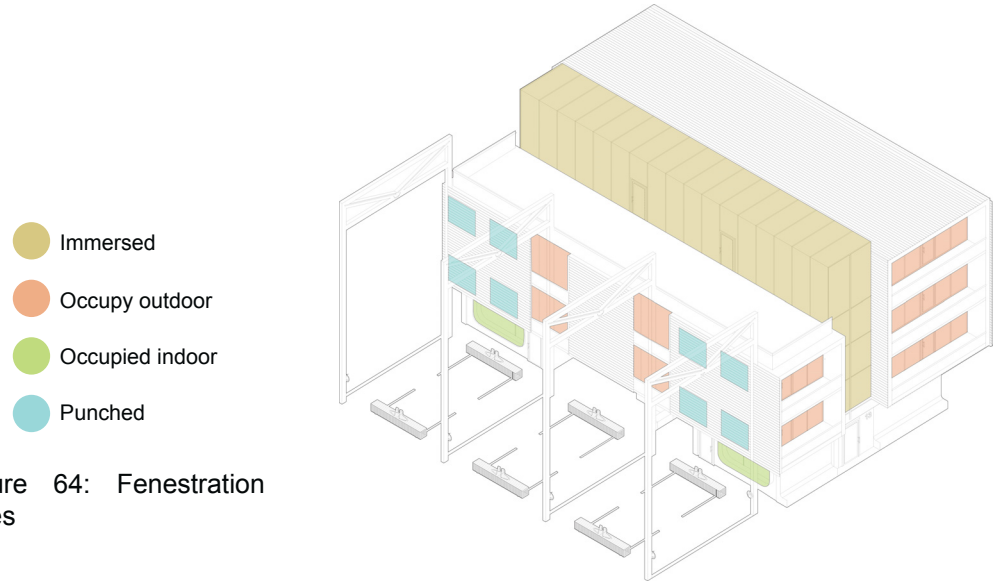


Figure 64: Fenestration types

The central atrium space (yellow) is an interior street, allowing residents to occupy the outdoors by seeing light from all directions. The balconies (orange) give residents the opportunity to engage with the street physically by stepping out of a hermetically sealed interior environment. Reverse bay windows (green) on the commercial facade allow pedestrians to sit and interact but also to occupy the interior of the commercial space. The punched windows (teal) allow for natural daylight and for residents to control views in and out of their private spaces.

Building Scale Principle #7: Interior Circulation

Connect residential circulation spaces to the street visually to reduce barriers between the interior and the street.

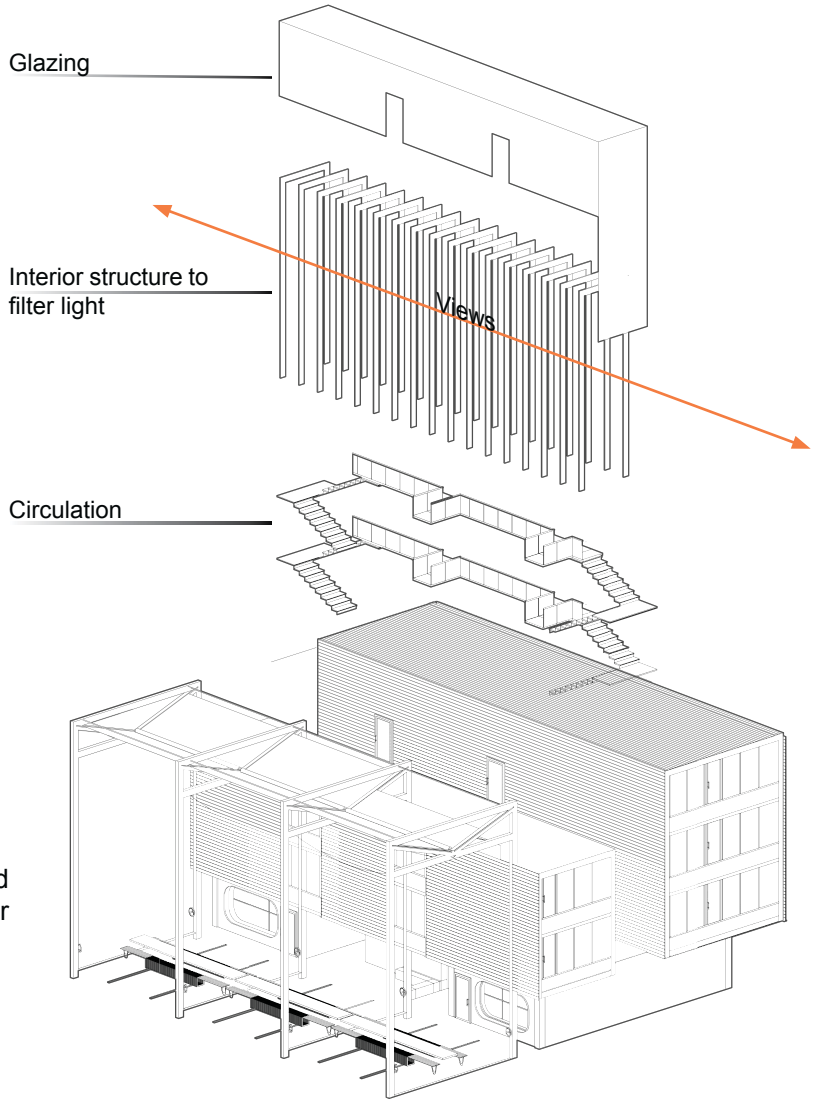


Figure 65: Exploded axonometric of interior street elements

Figure 66: Relationship of interior street to units and the street.

The interior street illustrated above allows residents to interact with the outdoor environment immediately after stepping outside their unit's entrance. By placing the stairs at the end, a resident can maintain views to the street and public spaces while in this central space. From the interior street, residents can access the rooftop patio that gives them the opportunity to view public streets from a different angle and with varying degrees of engagement.

Child Scale

Design for children's engagement in the aforementioned urban elements requires borrowing concepts that were first exemplified by Van Eyck in Amsterdam. Bjarke Ingles has recently implemented the same principles that Van Eyck used 40 years ago, and with the same success and livelihood. This speaks to the effectiveness of the principles as a sustainable way to design urban places for children. Although both architects design environments that are used by community members of all ages (photographs on page 25 illustrate the multi-generational use of BIG Architect's Superkillen park), there is merit in breaking this category down even further. Child-scale design incorporates preschool, grade school, and teenagers to ensure that interventions suit all age groups.

The child-scale interventions focus on how to blend everyday urban objects (lamp posts, benches, pavilions, garbage cans, or storefronts) with structures for play. Urban objects that have an ambiguous purpose allows people of all ages to use them differently. As a result, the infrastructure is neither specifically for children nor for adults, but for the whole community.

Child Scale Principle #1: Physical Manipulation

Elements of the street's built form should be interactive, allowing children to use them in their own way. Examples include mechanical movement, unfixed furniture, and natural materials such as dirt and water.

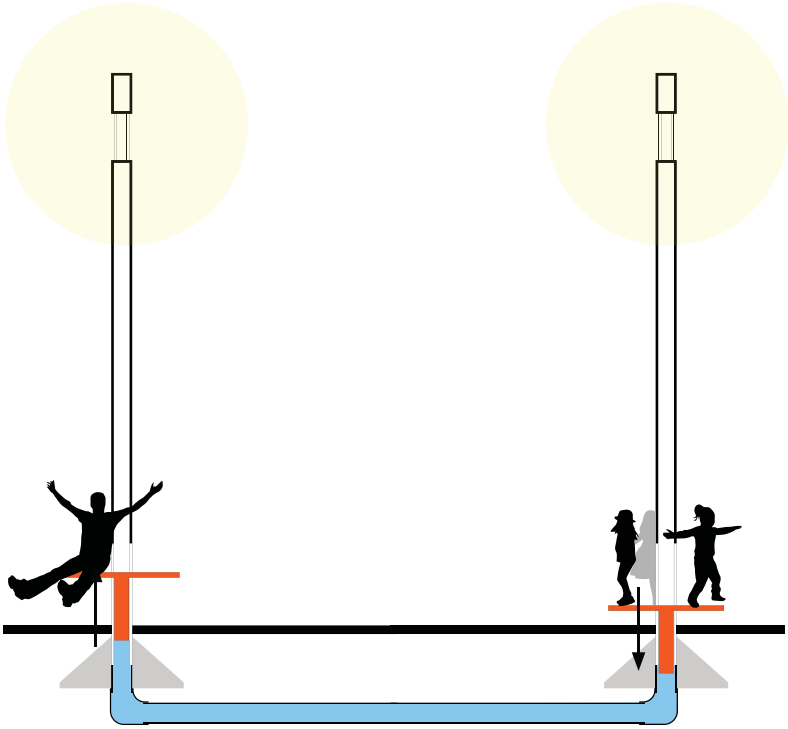


Figure 67: Section of dynamic light post seating

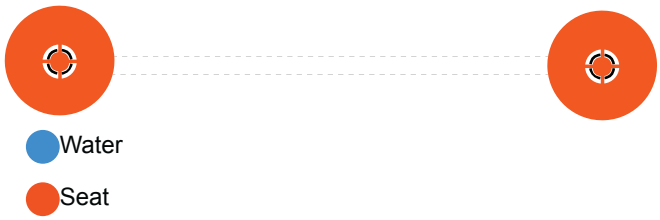


Figure 68: Plan of dynamic light post seating

This design above is aimed at grade school children and uses light posts as found urban objects, transforming them into urban furniture for play. The seating is connected under the ground using inexpensive PVC piping and filled with water and anti-freezing agents. When downward pressure is applied on one seat, it applies upward pressure on one or more other seats.

Child Scale Principle #2: Abstract Play Structures

Any play structures adjacent to streets should be highly abstracted to promote creative and spontaneous physical activity. These structures should also provide utility for adults as well (e.g., exercise equipment, bicycle rack, and seating).

The diagram below shows a play structure that also acts as a covered path connecting two main streets and covered seating places (seen in plan and section, page 77).

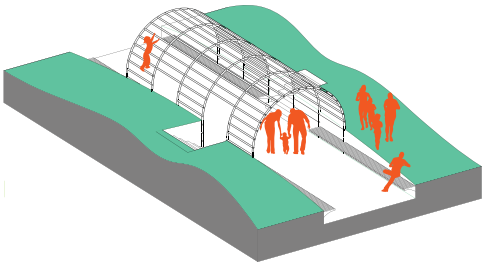


Figure 69: Blending the lines between play structure and covered path. Benches inside structure allow for the mixing of adults and children. Dynamic landscape rises to the sides

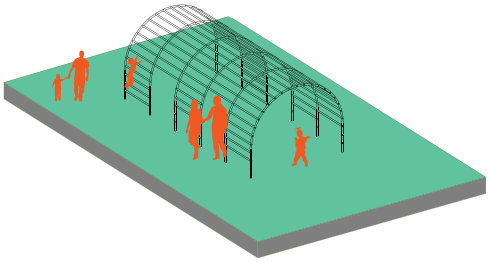


Figure 70: Fences removed, some bars removed for adult-scale use

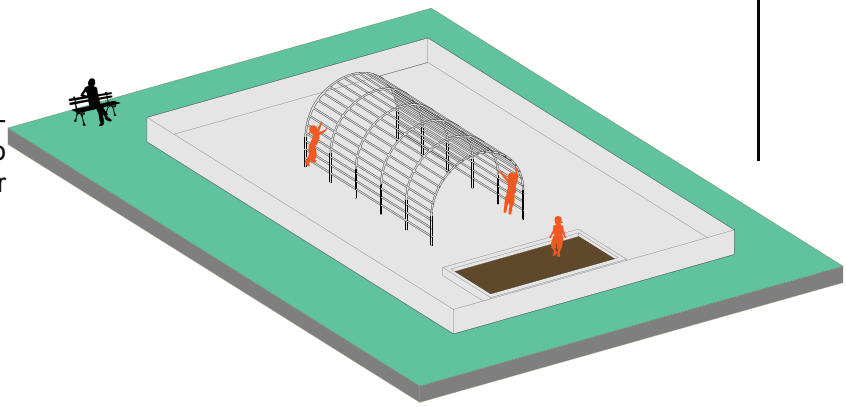


Figure 71: Traditional isolated playground with no engagement with adults or community

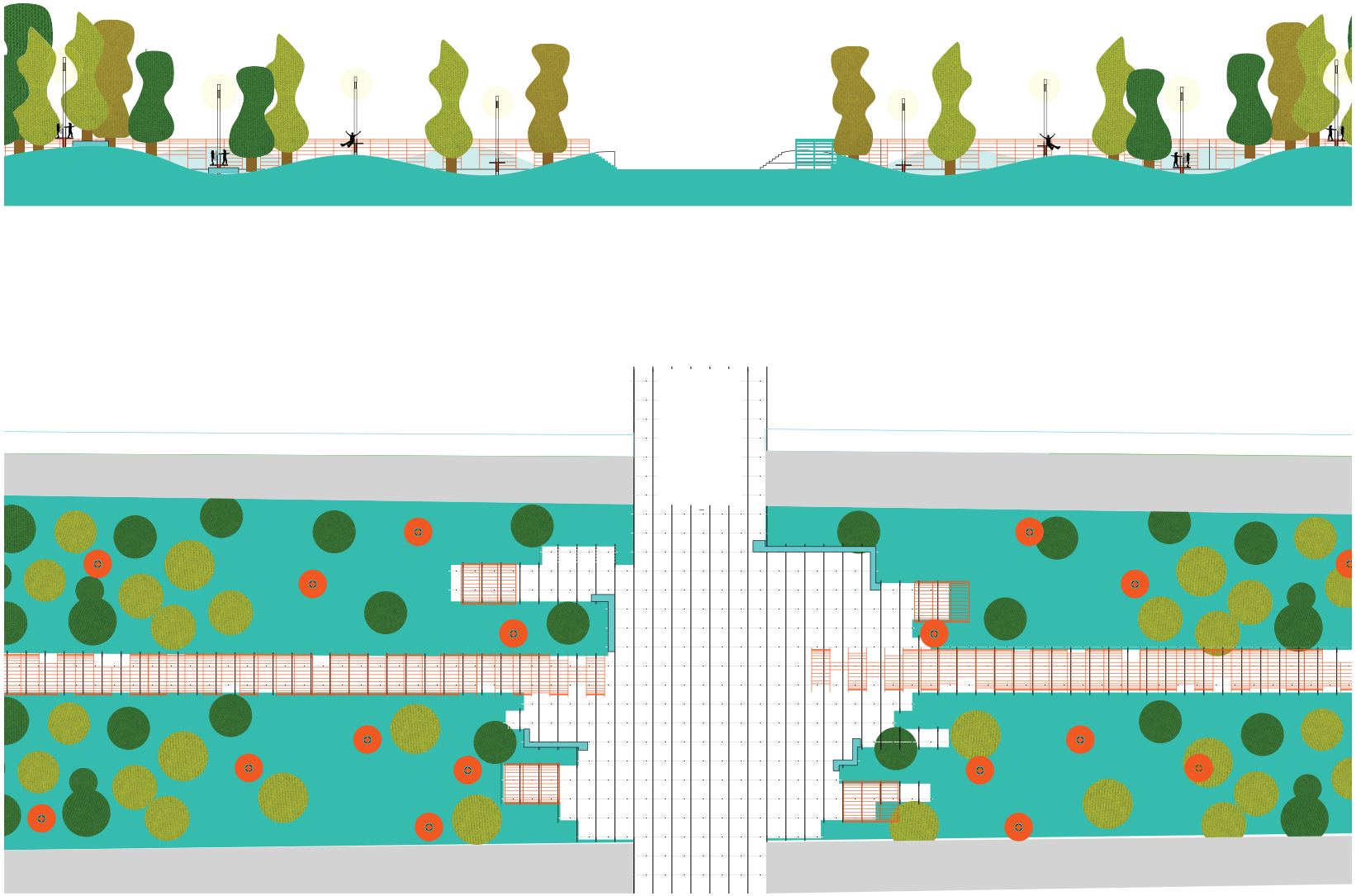


Figure 72: Section and plan of green space, representing composition of play structure.

Child Scale Principle #3: Seating

Seating surfaces should have the ability to be used in multiple ways by different age groups. Placed at different levels of engagement in relation to main public spaces, some seating can be at the center of the action, and others on the sidelines. Activity nodes, where community activity is highest, should have concentric rings outward that allow for different levels of engagement.

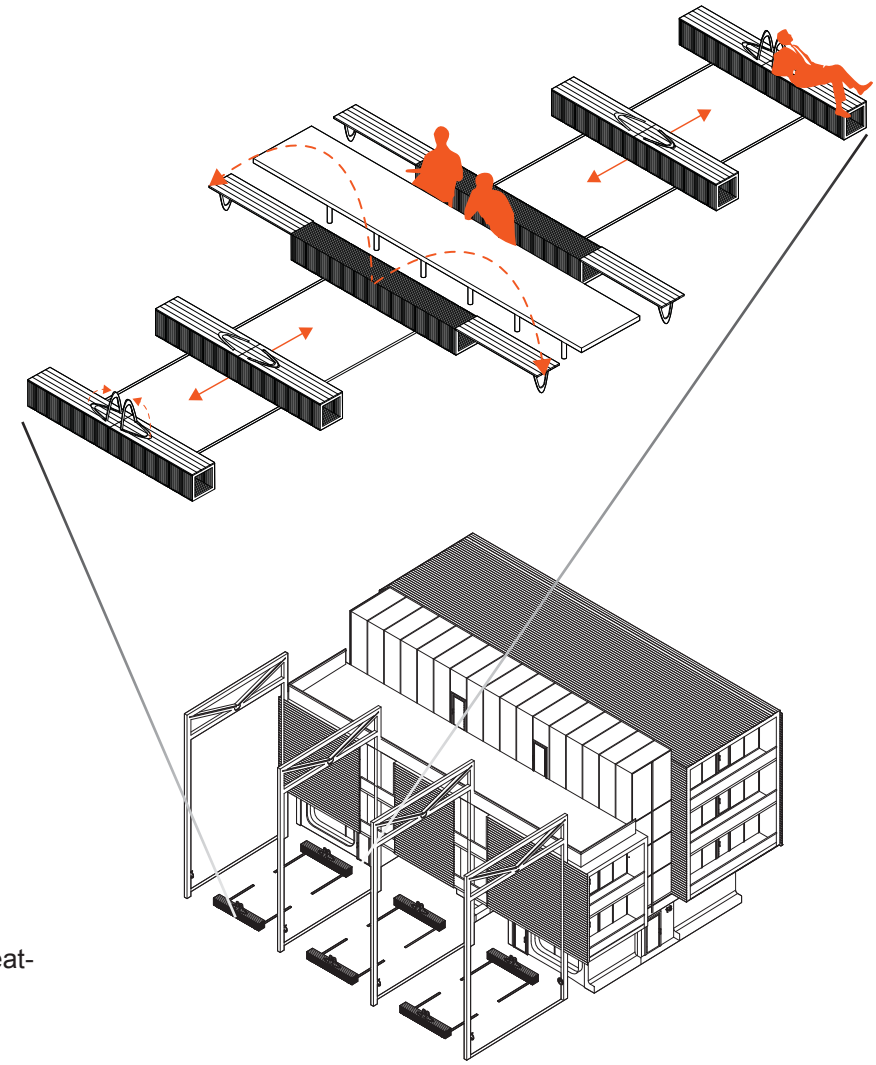


Figure 73: Operable seating

The above diagram, in addition to the light post seating illustrated previously, demonstrates how seating can be dynamic and used in multiple ways.

Child Scale Principle #4: Dynamic Landscape

Landscape features should be dynamic. They demand conquering and their playfulness is contagious through all generations.

Figure 74: Concept photomontage of dynamic landscape

Child Scale Principle #5: Boundaries

Differentiated paving or green surfaces allow preschool children to recognize the boundaries of play grounds without being confined within fences.

CHAPTER 7: INTEGRATED DESIGN SECTIONS

Streets that encourage child engagement are formed when design takes into consideration all three types of design best practices: community scale, building scale, and child scale.

The community layout provides the framework, opportunities, and means for children to move through their community using public streets.

The building forms and program encourage engagement with the street at varying degrees of intensity. The least intense is to observe the public realm from private places. Stepping onto patios, balconies, or rooftop patios increases this engagement. Finally, the buildings also provide and facilitate person-to-person interactions at street level by providing built-in dynamic furniture.

This chapter illustrates six different types of streets and how they embody the principles described above. They can be placed into three groups: traffic, movement filtration, and events and public life.

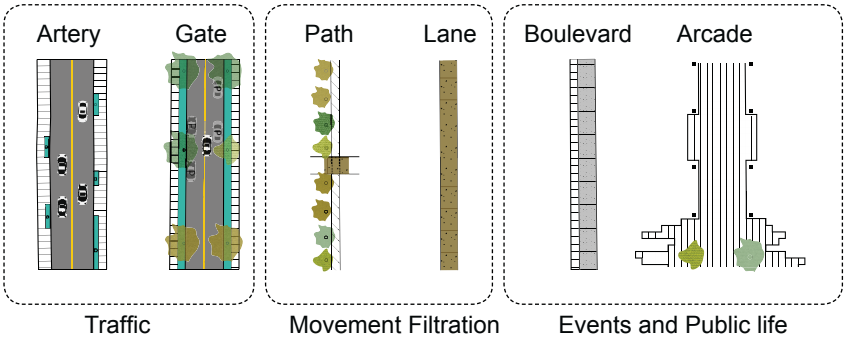


Figure 75: Street categorization

Artery

The artery represents the current state of streets for children, as many of the streets in our cities are prioritized for vehicles. While this thesis acknowledges the need for these types of streets, it proposed 5 other types. Therefore, the artery acts as a benchmark to illustrate the differences in the street types to follow.

In order to maintain the pedestrian nature of the block interior, traffic is routed around it, using this existing main traffic arterial. However, commercial shops are introduced with inverse bay windows that make the long, straight stretch less monotonous and add spatial definition to the eroded street wall. Street lamps are introduced along this street that later make an appearance in the green space, strengthening their identification as a found urban object.

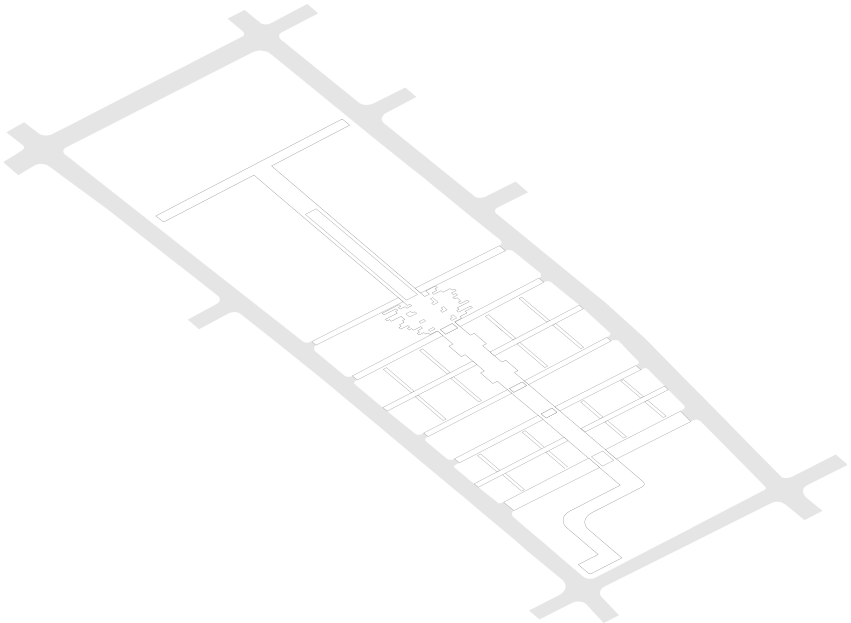


Figure 76: Arteries

Figure 77: Rendered sectional perspective of Artery

Gate

Gate is a term that describes a connection of two larger streets. The new commercial units provide overhangs for shelter and built-in benches for seating. This quiet street would provide access to the primary school on the far left of the image below.

Similar to the Artery, described above, the main purpose of the Gate is to handle vehicular traffic. Therefore, its material and form accommodate primarily cars. However, lighting and seating are introduced, and the main pedestrian arcade that runs through the whole site visually cuts through the center of the Gate.

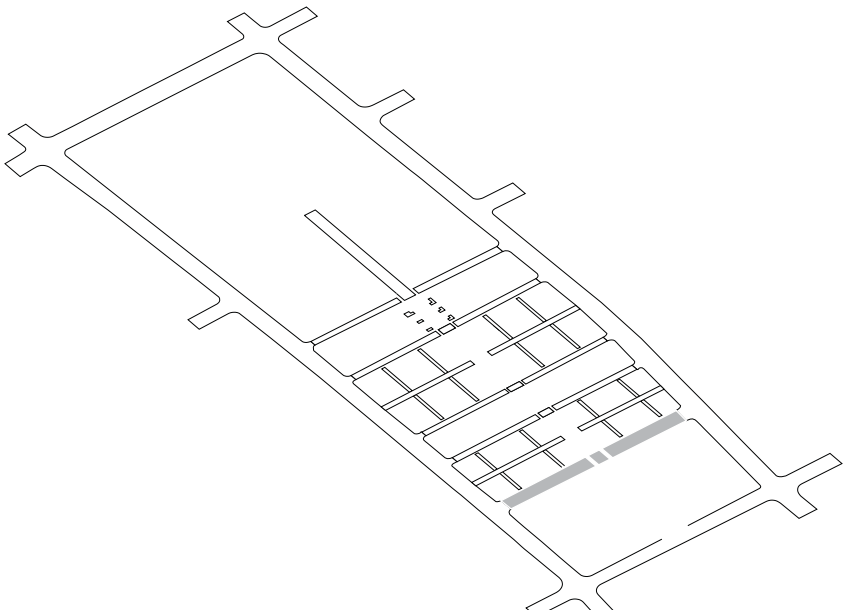


Figure 78: Gate

Figure 79: Rendered sectional perspective of Gate

Lane

The Lane, designed for traffic filtration, is a very low speed road that allows vehicles to access the parking on site. The Lane is meant to be unprogrammed and manipulable. It has a gravel ground surface and its concrete walls support chalk art and games that need sturdy surfaces.

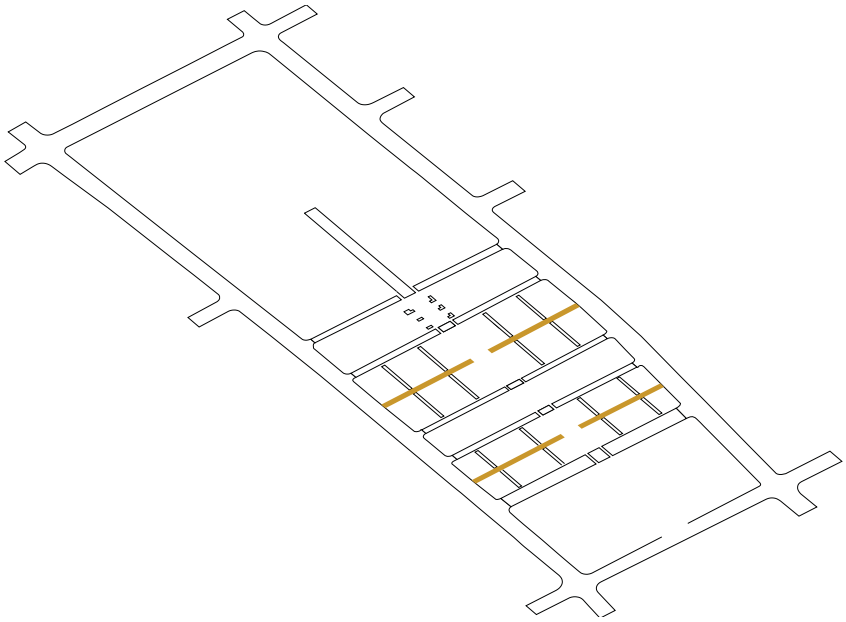


Figure 80: Lanes

Figure 81: Rendered sectional perspective of Lane

Path

The Path allows safe pedestrian filtration through the site at a small scale and responds to the many impassable fences on the existing site. Wherever possible, these paths were placed directly where the original fences blocked pedestrian movement. To shelter the path from parked cars, it is lined with trees on one side, providing visual and physical separation and more natural surfaces such as dirt.

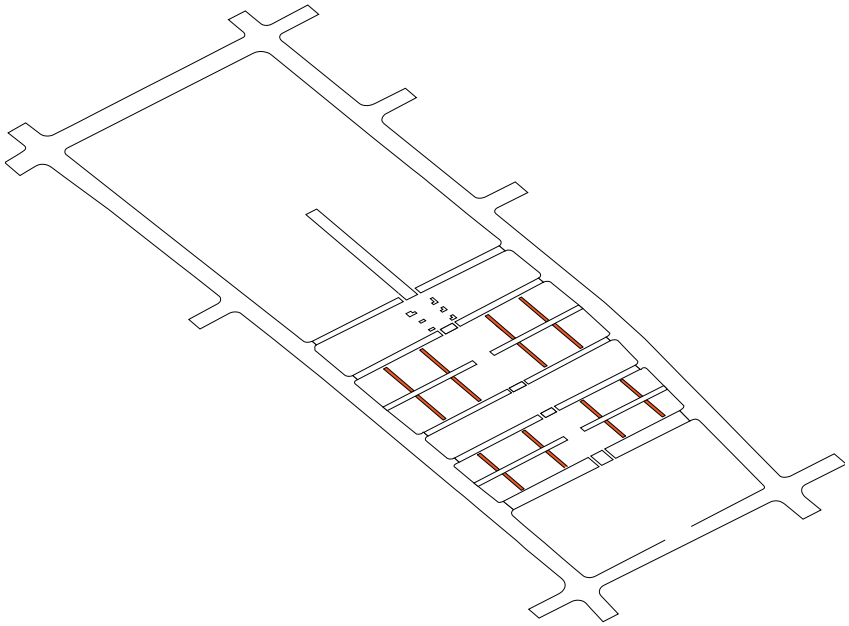


Figure 82: Paths

Figure 83: Rendered sectional perspective of Path

Boulevard

The Boulevards, borrowed from the layout of Halifax's Hydrostone community, are one-way and connect the busier Robie and Agricola Streets. Their most important role in the network is to frame the green spaces for the site. Within these green spaces are many of the child-scale interventions that make the community an attractive place for children of all ages. The park harbours dynamic lamppost seating that lights the tree canopy at night. Rolling hills and an ambiguous play structure, which serves as a covered path, are a draw for children in the community. The Boulevard also features a central open gathering space where the Boulevards intersect the Arcade, providing teens a space to display and sell goods that are produced in adjacent shops. This central space is surrounded by seating that mediates the transition from rigid paving to dynamic landscape and provides children with plenty of nooks and niches for play.

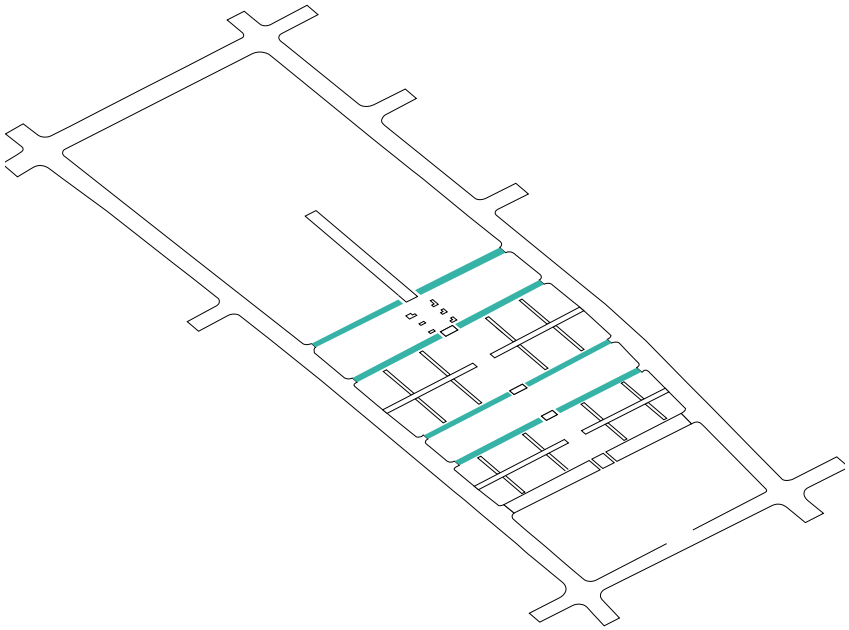


Figure 84: Boulevards

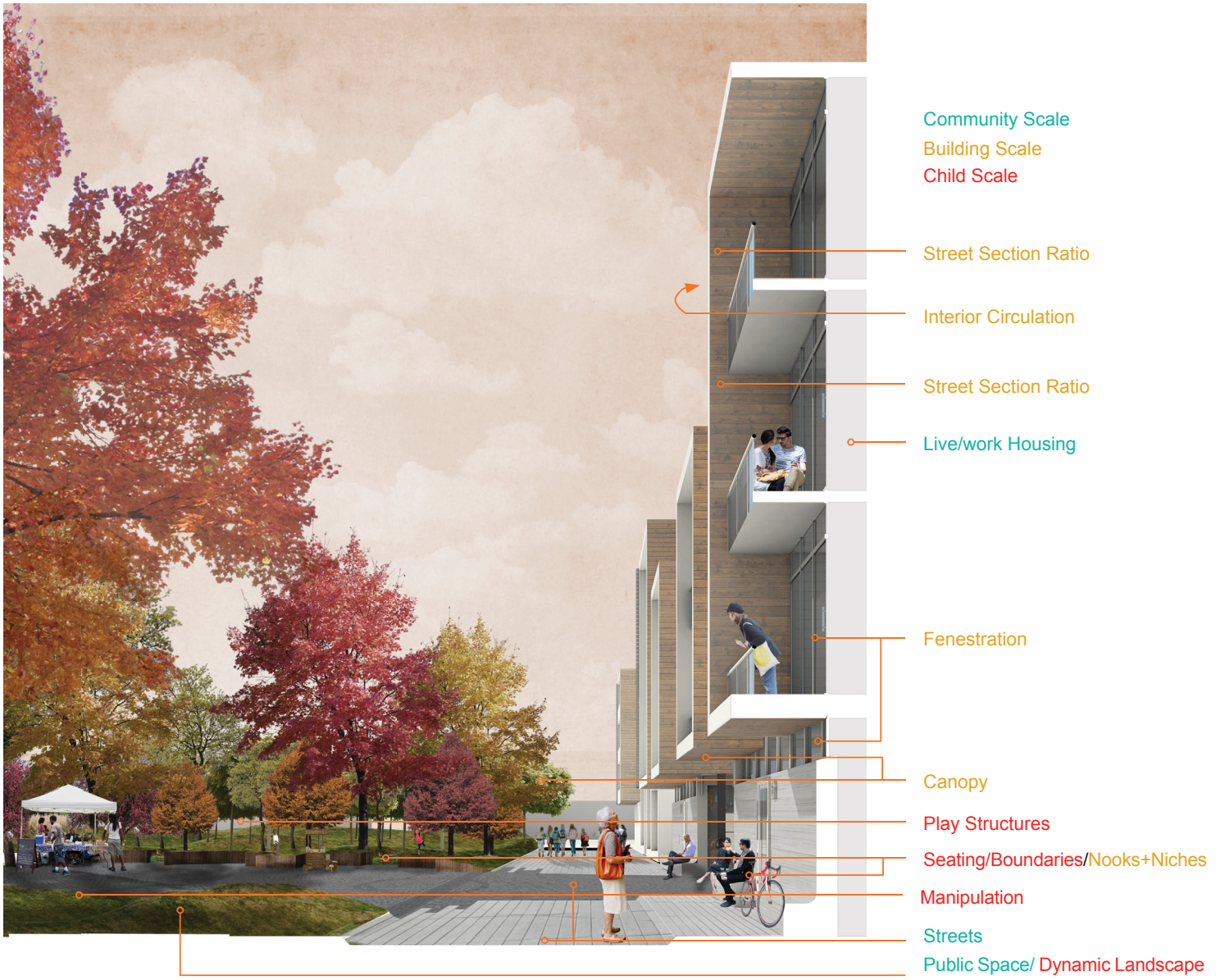


Figure 85: Rendered sectional perspective of Boulevard

Arcade

On the southern end of the site the pedestrian arcade opens up onto Robie and North Street as it cuts through the primary school. North of here, the Arcade connects the elements of the community: school, home, commercial shops, and community center. On the southern end, it terminates in a “T” formation at the historic schools. The shops that line the Arcade on the site’s interior give it spatial definition and intimacy that cannot be found on the larger surrounding streets. As the Arcade opens up in the green spaces the strict spatial definition is less defined.

The operable fabric canopy, dynamic ground-floor facade, and pedestrian pavers give the Arcade a roof, floor and wall, respectively. Within this volume, commercial activity takes the lead, and is catalysed through the use of moveable furniture. The flexible and dense programming of the arcade makes it the social node for the whole site, allowing children to be involved in both mundane and special social events. On a daily basis, the shops that line this arcade enable teenage children to work and contribute to their community.

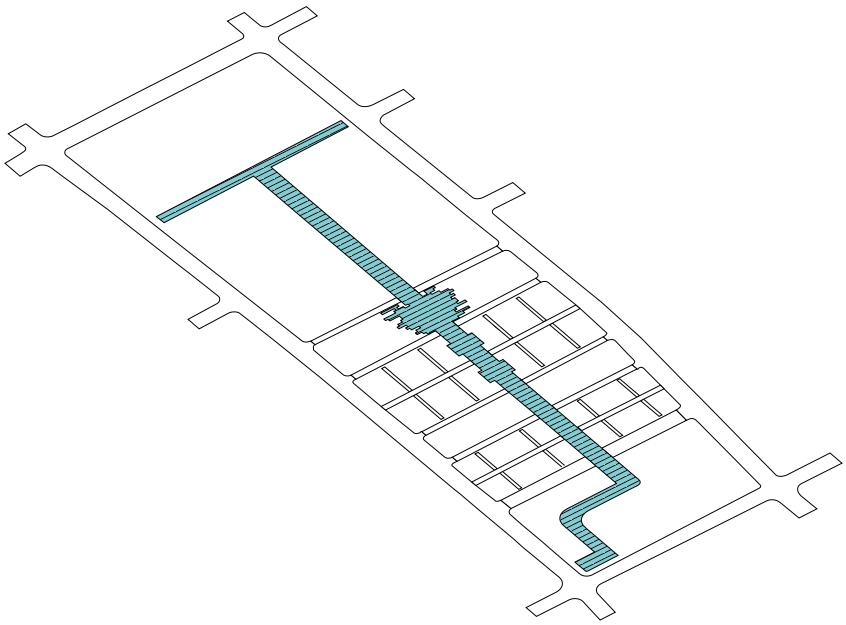


Figure 86: Arcade

Figure 87: Rendered sectional perspective of Aracade

CHAPTER 8: CONCLUSION

Marshall Berman tells us that children's relation to the street is their relation to the world. Undoubtedly, the "world" he describes has changed. However, as our urban centers reinvent themselves, I believe it is pivotal that the *relationship* is also reinvented. The multiplicity of streets this thesis introduces expands the current lexicon about streets and the children who use them.

The thesis's ambition for children to reclaim the streets may be misleading, as the utility that traffic streets give our urban centers cannot be ignored. Therefore, the point is not to change the nature and purpose of our current streets: it is to expand our understanding of what constitutes *a street*, adding layers to the already complex network of paths and intersections that exist within our cities.

The work presented here cannot predict what the children of the future will be passionately protesting about in twenty years. Rather, it lays the groundwork for a community that is open, walkable, porous, and dense, allowing today's children to construct their own world views and perspectives through daily interactions with their peers and adults.

The design principles outlined above offer designers the tools needed to identify what changes a community can make that will make a difference to children. Ideally, communities can be created from scratch and stitched into the surrounding fabric. In this scenario, designers have the opportunity to begin with the community-scale principles. Admittedly, development of land often happens gradually, but this is not necessarily a limitation of the work. It is important to note that if the community's pattern and layout are already in place, designers can begin by addressing the building-scale principles. Finally, in the scenarios where budgets, time, or

scope is limited, focusing on only the child-scale principles will still benefit children.

The work above, presented through design principle vignettes, is not meant to illustrate a complete community. Instead, it illustrates the components, their interactions, and their influences on children. In fact, the same principles applied to a different site would yield a differently formed community but would accommodate and integrate, children in the same way.

Children's integration into communities is a crucial element for the future of cities globally. Our current perspective of streets is limiting children's capacities to develop healthy relationships with their urban communities. Architects have the opportunity to design communities that give children the independent mobility they need and integrate children into street-based community life, creating fertile grounds for play and a more gratifying city for all.

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