

**Crossing the Tracks: Imagining a New Approach to Urban Rail
Yard Revitalization in North Winnipeg**

by

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*Dedicated to my parents, for their guidance,
understanding, and support. I couldn't have
done it without you.*

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ABSTRACT

This thesis proposes an approach to urban rail yard revitalization that is counter to the typical model of infill development. The railroad that historically joined Canada together, and galvanized urban development across the Prairies, now often separates the local communities that fall in its path. Many approaches to rail yard redevelopment conceive of a new master-planned community that includes all required amenities. However, this thesis explores how former rail yard sites could become unique environments that stitch together previously divided neighbourhoods, and celebrate the cultural value of Canada's railroad. Using Winnipeg as a case study, my approach involves three site strategies that focus on retaining and highlighting the main rail line, establishing new connections between the surrounding neighbourhoods, and opening the remaining land for public space and cultural events. These events could include travelling markets, festivals, and expositions that travel across the country by train and stop at redeveloped rail yards already located in the centre of major cities.

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CHAPTER 1: INTRODUCTION

Ideally, everyone would like to see the rail yards gone, moved outside the city, and have that land available for development and recreation, and you wouldn't have to build another bridge. I think we need to have a discussion about that. Now's the time to do it.

-Dan Vandal, Winnipeg city councillor (in Skerritt 2013)

Responding to the unique challenges of the CP land in Winnipeg will require innovative neighbourhood planning, not replication of these previous models. Located in the most economically depressed area of the city, it will be vital that any new development supports the surrounding communities physically, economically and socially.

-Brent Bellamy, architect (Bellamy 2012)

The sounds that groan up from the yards at night resemble the agonies of some colossal arthritis.

-Guy Maddin, filmmaker (Maddin 2007)

This past summer, the RAIC Festival of Architecture in Calgary held a contest to reimagine a typical urban condition - a suburb, a waterfront, or a rail yard. While I didn't enter the contest, it did spark an idea that evolved into the topic of this thesis. What if trains were used to move cultural events across the country, and urban rail yards became the venues for those events to take place? In this way, perhaps Canada's massive railroad infrastructure could be revitalized, as well as the cities and rail yard sites themselves. My hometown of Winnipeg contains a number of these urban rail yards, and one in particular has been the subject of much debate over redevelopment. Winnipeg, like all prairie cities, has a deep historical connection to the railroad, and this site especially has enormous significance to the history and growth of the city.

The quotes that precede this introduction are meant to convey to the reader something of how large the issue of this train yard looms in the consciousness of Winnipeggers. It has been examined by planners, politicians, policy-makers, architects, artists, and concerned citizens alike. Their understanding of the complexities of city planning, rail yard relocation, and inner-city revitalization far exceed my own. My goal with this work is not to suggest a master plan for the rail yard that is economically or politically feasible. Rather, I offer a different take on what this place and others like it across the country could become, and how architecture might play a role in enhancing this vision.

Thesis Question

How can the redevelopment of an inner-city train yard celebrate the railroad's significance to Canada, and stitch together a historical divide between two neighbourhoods?



View of the CP rail yards in Winnipeg, Manitoba and collage of historical photographs from the city (collage images from Artibise 1977, Paskievich 1978, and Scott 2015)

CHAPTER 2: A CONNECTED COUNTRY, A DIVIDED CITY

The Impact of the National Railroad

The building of the transcontinental railroad, like no other construction project before or since, transformed the fabric of our country and impacted the life of every Canadian. For the first time in our history, Canada could be envisioned as a continuous nation stretching from ocean to ocean. It took less than five years from the formation of the Canadian Pacific Railway Company (CPR) in February, 1881 to the pounding of the last spike in Craigellachie, British Columbia in November, 1885. In that time, the country, and the prairies in particular, were significantly altered. Towns sprang into existence and populations boomed as the vast, near-empty land between the granite shield of Ontario and the Rocky Mountains filled with settlers seeking a new life. The railroad was the means of their arrival and the means of their prosperity, as it linked the local grain economy with the rest of the country, causing towns and cities to flourish.



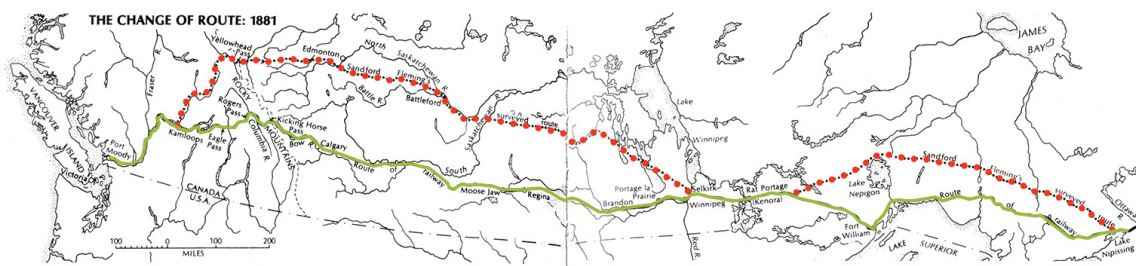
Population density on the prairies ca. 1871 (left), 1901 (centre), and 1921 (right). This shows the massive population boom brought about with the completion of the trans-continental railroad in 1885 (data from Natural Resources Canada 2012)

While the railroad brought growth, excitement and prosperity to some, it brought decline, misery and suffering to others. The aboriginal people of the prairies had existed for thousands of years hunting the buffalo, which was the source of their livelihood. In the blink of an eye, the buffalo were replaced by a web of steel rails, and the traditional hunting lands of the aboriginals were taken over by farmers recently arrived from eastern Canada or Europe. The displaced indigenous people were forced to adapt to a foreign way of life on northern reserves, many of which still have the conditions of third world countries to this day.

The CPR had a direct influence on the geography and settlement of western Canada that is incomparable to any other private company. The railroad was originally planned to follow the traditional fur-trade route from Selkirk to Fort Edmonton, before winding its way through the Rocky Mountains to the Pacific coast. However, in 1881 a small group of company executives altered the route to one that ran closer to the United States border. This was likely due to fear that American railroads would siphon off traffic if the Canadian line was built too far to the north. Pierre Berton discusses the impact of this revision:

Their decision affected the lives of tens of thousands of Canadians and ensured the establishment of cities close to the border that otherwise might not have existed for another generation, if ever. It affected aspects of Canadian life as varied as the tourist trade and the wheat economy. In addition, it gave the railway company something very close to absolute control over the destinies of scores of embryo communities along the right of way. (Berton 1974, 247)

Indeed, the cities of Thunder Bay, Winnipeg, Selkirk, Brandon, Regina, Moose Jaw, Calgary, and Edmonton, to name a few, were all directly impacted either positively or negatively by the decisions of the CPR. While it is reasonable to accept that a private company would make decisions on the basis of maximizing competitive advantage and profit, the result was that entire towns were sited and laid out strictly on the basis of real-estate values, and no consideration was given to other issues of town planning or urban design.



Map showing the originally planned route for the CPR in red, and the revised route in green (Berton 1974)

Rail Use Today

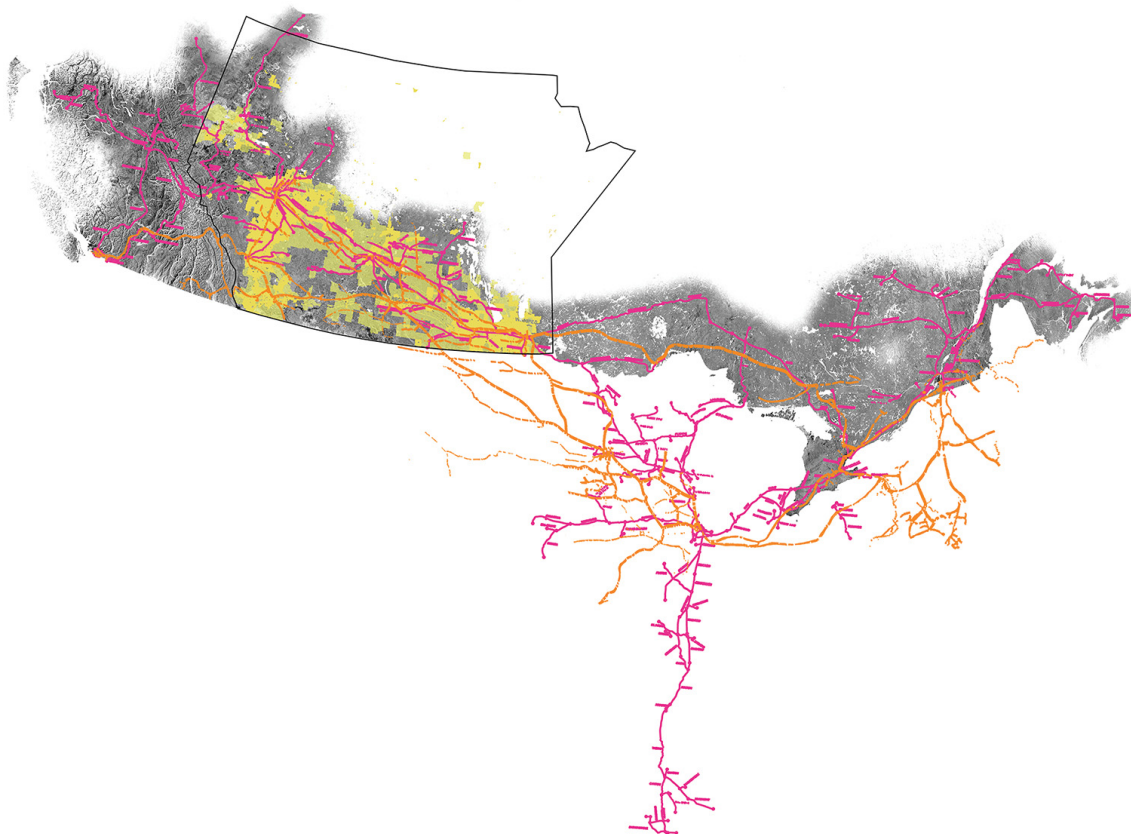
While the railroad once revolutionized travel across the country, its use for passenger service has largely dissolved due to the rise of personal automobile and air transport. VIA Rail is Canada's sole provider of cross-country passenger service. Unfortunately, as

a crown corporation, their ability to provide service is largely based on federal support, which fluctuates based on the mandate of political parties. Long distance travel by train is a niche market, though VIA is required by the government to operate certain routes in remote areas where other means of transport are unavailable.

In other countries, such as Japan and France, transcontinental travel by rail has regained popularity with the advent of high-speed train technology. These rail lines have stricter grade and curve requirements than Canada's current system, meaning our rail network would need significant upgrades to support high-speed travel. This obviously poses a problem through the mountain passes, but across the wide expanse of the prairies these upgrades would seemingly be simple to accomplish, making high-speed rail travel from Calgary to Winnipeg a possibility for the future.

Even with the decline in passenger service, the railroad is by no means dying out as a form of transport. When it comes to the movement of very heavy loads, the railroad still outperforms more modern forms of transportation. A train's steel wheels running along steel rails create far less friction compared to a truck's rubber tires on pavement. This means the enormous mass of a freight train can be moved with far less energy. Of course there are other advantages to shipping by rail, including dedicated lines that avoid traffic and the ability to move large amounts of goods, sometimes kilometres in length, at once.

In Canada, the railroad is used to move freight across the country and connect to international trade through port cities and the United States. The majority of goods moved by rail arrive in containers from Asia at the ports of Vancouver and Prince Rupert, before being shipped across the country. Interestingly, Canada's railroad infrastructure that was first designed to bring settlers to the west is now used mainly to move goods back east. It has been suggested that Canada upgrade the level of service of its railroad network in order to better compete with the US. This includes the development of inland ports, where rail, air, and truck transport are combined to efficiently sort and ship freight, helping to reduce the congestion at marine ports (Burghardt, Defehr, and Turner 2007).



Map of Canada highlighting the extent of the national railroad network (CP in orange, and CN in pink), and the population density of the prairies tied to the location of rail lines (data from CPR 2015, and CN 2015)

The Cultural Value of the Railroad

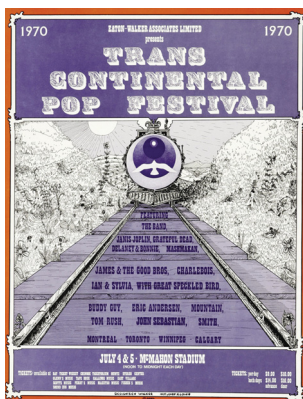
The railroad has the potential to move more than freight or commuters, and it has a long history of use for travelling cultural events. The circus was the first travelling show to use the railroad, and it became a huge cultural phenomenon in its day largely as a result of the ability to rapidly move from town to town. As a cultural event, the circus was a pioneer in its use of the train to move across the country, and was a precursor to the modern day concert or theatrical tour.

In 1970, a concert tour travelled by train from Toronto to Winnipeg to Calgary, stopping along the way to perform shows in local stadiums. The story of this event, and the unique experience it held for the artists who travelled together was documented in the 2003 film *Festival Express*. This idea has been picked up again in recent years, with electronic dance music artist Skrillex's Full Flex Express concert tour, which has travelled by train across Canada each summer since 2012.

Another event in 2012 showcased the railroad's unique cultural value for Canada. The Canadian Football League outfitted a special train to tour the country with the Grey Cup, in honour of the iconic trophy's one hundredth anniversary. It is noteworthy that the league would choose the rail over other, more efficient methods of transportation, and the league's commissioner Mark Cohon is even quoted as saying "The railway and the Grey Cup are both synonymous with Canada" (Canadian Football League 2012). Author Brian Hayes has also noted the curious way the railroad seems to connect with people on an emotional level:

More than other modes of transport, railroads attract amateur enthusiasts and collectors of lore and memorabilia. Some of these 'railfans' have nostalgic or antiquarian interests... Others are fascinated by modern train operations...in the manner of bird-watchers. (Hayes 2005, 353)

The idea of concerts or exhibitions crossing the country by train may seem nostalgic or overly-romantic. But, I believe this romanticism stems from a genuine quality of the railroad that is evocative to us as Canadians. The train has a certain cultural meaning to Canada, perhaps due to its role in first tying the country together, or perhaps the vastness of our geography has a poetic resonance with a rail line receding into the horizon, or the faint sound of a train horn in the distance. In his essay *The Measures of America*, Denis Cosgrove points out that cultural references to a freight train in blues music "...relay the romance of endless movement to a specifically American horizon." (Corner and MacLean 1996). To this I would add that, given the particularly linear arrangement of our country, the railroad in fact expresses a horizon that is decidedly Canadian.



Rail-based cultural events. Left: 1970 "Festival Express" concert tour (Heritage Toronto 2013); Centre: 2012 "Full Flex Express" concert tour (Montreal Gazette 2012); Right: 2012 Grey Cup train tour (Canadian Football League 2012)



Aerial photo showing the trajectory of rail lines cut across the regulated grid of the prairie landscape (Corner and MacLean 1996)



Photo of a freight train on the prairie horizon (Menard 2013)

Winnipeg and the Railroad

The railroad's impact in transforming the prairies can be illustrated no better than in the case of Winnipeg. The routing of the CPR through Winnipeg and construction of the North End yards began in 1881. Prior to this, Winnipeg had slowly but steadily been growing from a loose settlement, clustered around Fort Garry at the confluence of the Red and Assiniboine Rivers, to a distinct community of several thousand residents. At this time, Winnipeg encouraged quantitative growth above all else, and the key to rapid growth was the railroad. When it was announced in 1874 that the CPR would pass by Winnipeg to the north, through Selkirk, the city was determined to change this decision. The return to office of the federal Conservatives in 1878 helped the cause, but on top of this the city negotiated large cash incentives and tax exemptions with the CPR to ensure the routing of the line would move south and pass through the city. Alan Artibise sums up the city's approach to growth and development at this time:

The upsurge in Winnipeg's fortunes that followed the coming of the CPR reaffirmed the conviction that railways were the key to rapid and sustained growth. Thereafter city council did everything to encourage railway development and nothing to control it. This attitude had serious long-range consequences for Winnipeg's physical appearance and social fabric. (Artibise 1977, 26)

The building of the CP Winnipeg Yards dramatically altered the character of the city. Physically, the yards were an immense cacophony of train noise and smoke that effectively cut off the North End from the rest of town. This physical barrier was exacerbated by the many industries that set up on either side of the yards, thus forming a buffer between the residential parts of the city that was far deeper than the yards themselves. All of this industrial development attracted thousands of new immigrants to Winnipeg who settled in homes close to the yards. This new wave of immigrants was primarily from eastern Europe, and they had a strong cultural identity that made them quite different from the established Ontario-British population. This large cultural divide combined with the physical divide of the rail yards to establish the North End as the city's working-class immigrant ghetto (Artibise 1977, 64). The psychological divide between north and south created by the rail yards still exists in Winnipeg, and while the particular ethnicities that live in the North End have changed over the years, the boundaries of class segregation are still very much the same.



Map of Winnipeg showing the spatial growth of the city from 1875 (pink) to 1913 (green) to today (data from Artibise 1977)



View of the CP Winnipeg Yards from atop a rail car, ca. 1920, photograph by L.B. Foote (Artibise 1977)



Aerial photo of the CP Winnipeg Yards, 1968, which used to contain many more buildings than they do today (Winnipeg Free Press 2012)



Aerial photo of the CP Winnipeg Yards, 2012, photograph by Boris Minkevich (Winnipeg Free Press 2015)

The Neighbourhoods Surrounding the Yards

In some ways, the neighbourhoods surrounding the rail yards haven't changed much in the last hundred years. They are still among the poorest areas of the city. In fact, income levels in some neighbourhoods are among the lowest in Canada. The neighbourhoods are also still among the most culturally diverse in Winnipeg. Whereas the North End used to be mainly inhabited by a myriad of eastern European cultures, today there is a large indigenous and Filipino population present.

In other ways, the character of these neighbourhoods is quite different from what it used to be. The picture of the North End at the turn of the twentieth century is one of density, vibrancy, noise, and ethnic flavour. Today, while the buildings remain densely packed - a legacy of land developers who purposefully made lot sizes smaller to squeeze in extra profits (Artibise 1977, 66) - the picture of the North End is of a struggle to revitalize in the face of decline. In the neighbourhoods highlighted in the below map, total population density has decreased from 5,043 people per square kilometre in 1971 to 3,269 in 2006.

Over the same time period, while Winnipeg's total population increased by 18%, the total population of these neighbourhoods decreased by 35%, and the neighbourhoods closest to the yards decreased by close to 80% (City of Winnipeg 2014). Selkirk Avenue, located two blocks to the north of the rail yards, was historically the business and retail hub of the area. Today, the street is a shadow of its former self with many vacant buildings, while local community groups endeavour to rejuvenate the street to its past glory.

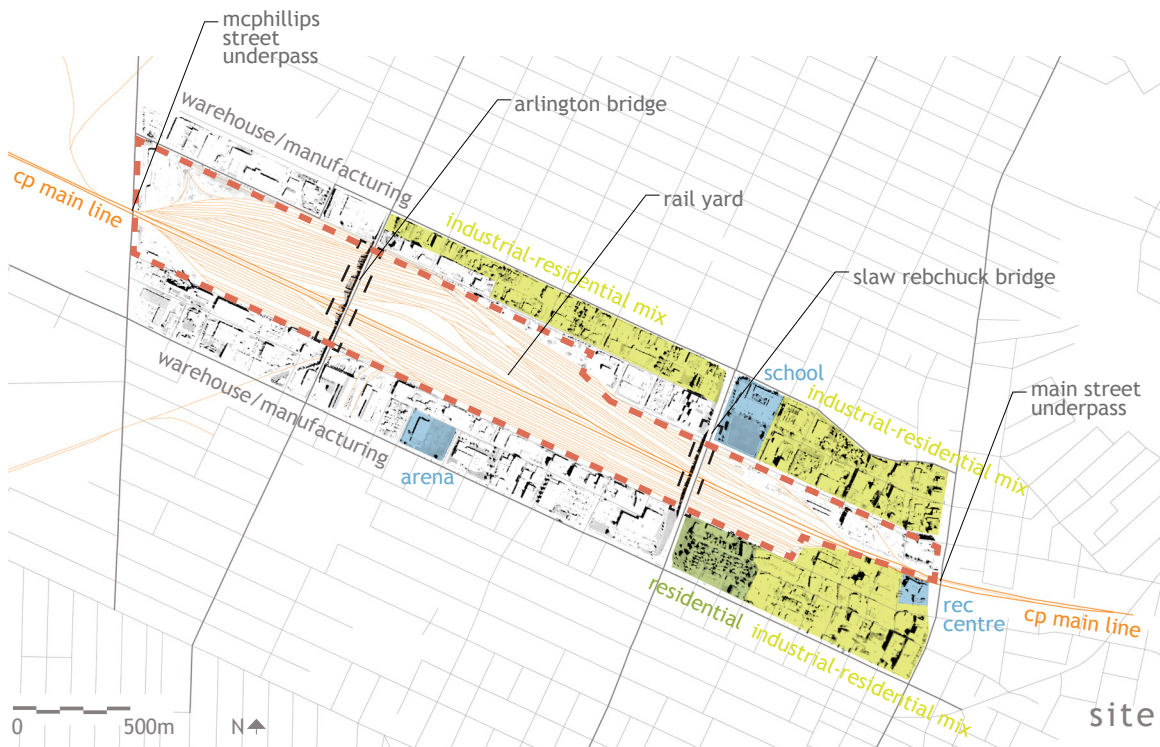
One can look at statistics and count the number of schools or parks in an area (there are 28 schools in the neighbourhoods around the yards) and still not know much about the quality of life there. I do not know what it is like to live in this area of Winnipeg. I imagine that, though it is in decline, for many it is still a rich and vibrant community; a pleasant and walkable place to live. But, it is clear that the presence of the rail yards remains a physical and psychological barrier. They are difficult to get across if one doesn't own a car. They are noisy, and potentially dangerous for children who wander where they shouldn't. There is a stigma, according to residents who live there, of being on the wrong side of the tracks (Welch 2012a). So, what exactly comprises this scar across the city, and what do people propose be done with it?



Map of the neighbourhoods surrounding the rail yards, showing the location of major roads (yellow), rail lines (pink), schools (blue), parks (green), and institutions (brown)



Satellite image of the rail yard (Google 2015)



Map of the rail yard highlighting the four crossings and the types of buildings in the immediate surroundings

The Yards as they Exist Today

The CP Winnipeg Yards are roughly 77 hectares (190 acres) of train tracks and gravel. It is a long, narrow plot of land that measures about 2,800 metres by 400 at its widest. Archival photos reveal that the yards once contained substantially more buildings than exist today, and the imprint of a train roundabout, long since removed, can still be seen from satellite images. Currently there are less than a dozen structures scattered across the entire site, the vast expanse of land resembles a thumbprint of rail lines. The yards function as a marshalling facility where freight cargo is sorted and transferred from one train to another. As such, whistle blasts, idling locomotives, and the shunting (joining) of train cars make up a kind of ghostly din that echoes across the barren site night and day.

There are four ways for pedestrians and vehicles to get across the yards. At the northwest edge is the McPhillips Street underpass, which is heavily used by vehicles but not a very pedestrian-friendly route. The Slaw Rebchuck Bridge connects Salter Street and Isabel and, despite being a rather nondescript structure, it offers a unique experience for the pedestrian. One feels an incredible sense of exposure and awareness of the prairie landscape from the narrow confines of the sidewalks elevated about 11 metres off the ground below. In a land as flat as Winnipeg, a little bit of height goes a long way to produce a powerful effect. At the southeast edge of the yards is the Main Street underpass; an unfortunate gateway from the North End to Downtown that is dark, narrow, and wholly uninviting.

The fourth crossing is the Arlington Street Bridge, a century-old structure of rusted rivets that is on the brink of demolition. The bridge has a long history of defects, shortcomings, and costly repairs. It was built amid controversy in 1912, and local legend has it that the structure was originally destined to span the Nile River, though this myth has never been confirmed. Indeed, shortly after the bridge opened it needed to have steel plates attached to the underside, as it was apparently never designed to be exposed to corrosive train exhaust. This was just one of dozens of repairs that would be undertaken over the decades, as the city continually opted for a temporary repair job rather than complete replacement (Cassidy 2011). The bridge has very steep approaches on either side, a feature that historically prevented it from being used by the city's streetcars, and currently is an impediment to pedestrians with mobility issues, especially in the winter months.

Despite all its failures, the Arlington Bridge does have historic, even nostalgic value. It is an icon of the city's skyline; a unique character whose mysterious origin and history of imperfections somehow make the structure more endearing. In his fantasy/documentary film *My Winnipeg*, Guy Maddin touches on the sense of humanity present in Arlington Bridge:

The bridge has not adjusted well to its always-strapped foster home, and it often turns in its sleep, when it is possibly dreaming of its lush and joyous originally-intended home, and pops a girder out of place. (Maddin 2007)

Sadly, it appears that the end is at last in sight for the Arlington Bridge. A new study has declared the bridge can no longer be repaired and must be demolished. The city is looking at plans and consulting the public on designs for a new bridge, and is even considering an option to build a tunnel as an additional crossing (Kives 2015). This has caused the decades-old debate about relocating the CP rail yards to return to public discourse. Perhaps, then, it is the ever-flawed nature of the Arlington Bridge that is its greatest contribution to the city, as its exorbitant maintenance costs repeatedly act as a catalyst for an important discussion about the city's future (Bellamy 2015).



Collage showing the character of the Arlington Street Bridge (original photos/images from Cassidy 2011, Maddin 2007, and Scott 2015)

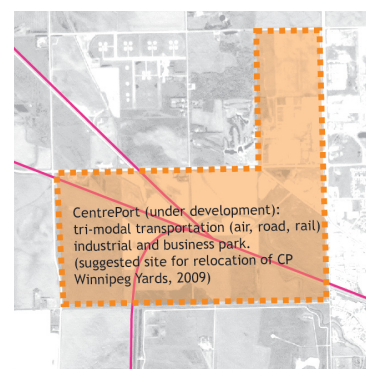
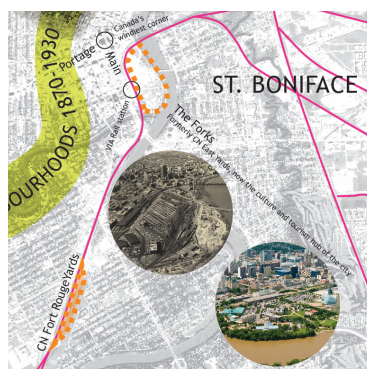
The Debate Over Yard Relocation

In the early 1970s, roughly ninety years after the rail yards were built in Winnipeg, the city began studying the idea of relocation. Over the next decade, the issue was raised several times, most notably when the city outlined plans to construct a new bridge connecting Sherbrook and Macgregor Streets. That plan would require the demolition of inner-city neighbourhoods, and a large grassroots campaign was mobilized to prevent the new bridge from being built. Opponents to the bridge plan argued that it would be unnecessary to build a bridge if the yards themselves were removed, but critics and CP officials countered that moving the yards would be too expensive an undertaking. After several years of debate, both the plans for the new bridge and the relocation of the yards were shelved.

It has been suggested that the CP rail yards, which date back to the 1880s, are inefficient and obsolete by today's standards. The Canadian National Railway (CN) operates a much larger and more modern rail yard on the southeastern outskirts of the city. Built in the 1960s, the Symington Yards replaced three inner-city rail yards, including the site at The Forks that was later redeveloped into the city's top tourist destination. It has also been suggested that the Symington Yards are so large, they could in theory support use by CP and CN, if a business agreement between the two companies could be made (Selinger 1985).

A more likely relocation strategy was brought forward in 2009 by provincial cabinet minister Steve Ashton. His plan was to relocate the CP rail yards to Centreport, Winnipeg's new inland port on the northwestern periphery that was in the early stages of development at the time. Centreport is located along CP's main line, adjacent to Winnipeg's international airport, and connected directly to the Trans-Canada Highway. It is a large industrial development that advertises its tri-modal (air, rail, truck) transportation network as a unique advantage. There is even a section of the development being designed specifically for rail users, such as grain exporters (CentrePort Canada 2016). As mentioned above (see "Railroad Use Today"), inland ports are considered important pieces of a competitive international shipping network for Canada. This seems like a logical place for CP to set up their main Winnipeg operation, rather than continuing to occupy an obsolete site in the centre of the city.

It is no question that relocating the rail yards and opening land close to Downtown for development is in Winnipeg's best interests. With plausible options for alternative sites available, it would seem that the pieces are in place for the project to move forward. However, the issue of moving the yards is far more complex than simply finding a new place to put them. The cost to move the yards is huge. CP still owns the land and has expressed no desire to disrupt their operations by undertaking a relocation project. Who would pay? Who would be responsible for what, and for how much? In this thesis I do not attempt to resolve these issues or suggest how relocating the yards could come to fruition. Rather, I explore how the redevelopment of this land might be imagined, under the assumption that one day the removal of the rail yards will indeed occur. What, then, should be built on this vast tract of land?



Map of Winnipeg showing the location of The Forks (enlarged left), the Symington Yards (enlarged centre), and CentrePort (enlarged right), with rail lines highlighted in pink

CHAPTER 3: LARGE URBAN INFILL PROJECTS

New Neighbourhoods

The prospect of opening up the rail yard lands to redevelopment leads to a whole world of possibilities for what could be built on a site like this. Local residents have offered their opinion on what should go there, the most common answer being more affordable housing. Others suggest turning the land into a big park, adding daycares, and creating a connecting plan between the North End and the neighbourhoods just south of the tracks (Welch 2012a). The Social Planning Council of Winnipeg authored a feasibility study proposal for relocating the rail yards in which they suggest the land could be developed into a new mixed-use community that would be a model for sustainable neighbourhoods (Lewycky and Maes 2012, 19).

Many Canadian cities have taken just such an approach to the redevelopment of large infill sites. Oliver Village in Edmonton, The Railyards in Victoria, and Angus Shops in Montreal are a few examples of new neighbourhoods built on sites of former rail yards. Edmonton is also redeveloping the site of their old airport into a new mixed-use development that is striving to be a 'beyond carbon neutral' community, one that produces a surplus of energy that can be sold to public buildings throughout the city (City of Edmonton 2016).

The tendency to imagine rail yards and other former industrial sites as bustling new neighbourhoods is completely understandable. After all, infill development in the centre of the city is one way to counter the negative effects of urban sprawl. By creating new mixed-use communities on former industrial lands, the city receives a much needed density increase in the core, while also seeing a huge boost in revenue from new properties that require relatively little new infrastructure to serve them. However, the common critique of these developments is that they become 'island neighbourhoods' that miss the opportunity to tie into and enhance the existing neighbourhoods surrounding them.

Brent Bellamy, a Winnipeg architect, notes that new infill neighbourhoods often cater to higher-end residents, and by locating all support services within, they isolate themselves from the rest of the city (Bellamy 2012). Likewise, Richard Milgrom, city planning professor at the University of Manitoba, cautions that any new development should

enhance what already exists on either side. He points to Selkirk Avenue, which - as previously mentioned - has historically been a retail hub that is currently struggling to retain businesses (Welch 2012b). Landscape architect Jeff Frank has also suggested an alternative approach to the development of the rail yards. In his masters thesis at the University of Manitoba, he proposed that the rail yard land be turned into a swath of urban agriculture. He argued that productive fields, forests, and ponds could serve double duty as public leisure space that would educate people on the importance of land and resource management (Frank 1984).

Public Space and Incremental Growth

A new mixed-use 'village' where all the necessities of life are accommodated is an enticing vision, and it probably makes sense in situations where cities are desperate for new places for people to live, work, and play. However, in the case of Winnipeg's core neighbourhoods surrounding the rail yards, too much density is certainly not an issue. The city continues to build new developments on the outskirts in the face of projected population growth, but clearly these inner city neighbourhoods are not bursting at the seams and could stand to densify. Perhaps, then, the appropriate thing to do with the rail yard lands is to provide a space that enhances these economically-depressed and struggling neighbourhoods. In this way there would be an incentive for growth and development to occur within the neighbourhoods themselves.

Some cities have taken this approach to the development of vacant lands. There are several examples from Germany of post-industrial sites that have been converted to multi-functional public spaces. The Gleisdreieck Park in Berlin is a former rail yard that became the site of the German Museum of Technology. A large triangle of vacant space remained next to the museum for many years, and divided the surrounding neighbourhoods. Recently, this land has been converted into a public park that serves to connect these neighbourhoods and attempts to celebrate the historic use of the site. Also in Berlin is the Tempelhofer Park, a former airport that has seen attempts to redevelop it defeated by local residents who don't want to see the loss of their beloved public space.

The idea of allowing vacant sites to become public space, or to undergo a gradual process of inhabitation is perhaps best exemplified by another German project. The IBA

Emscher Park Initiative was an approach to the redevelopment of a large area of post-industrial sites in the North Rhine-Westphalia region of Germany. Rather than creating a master plan for the development of the area, the region has slowly seen revitalization occur through a series of individual projects. The Landschaftspark in Duisburg, and the Zeche Zollverein cultural park in Essen are two successful projects that grew out of this concept of incremental development. Klaus Kunzmann explains:

The IBA initiative was a holistic concept for regional revitalization, a continuous process of guided incrementalism that responded to efforts by visionary actors. No blueprint or master plan has been designed for the region. Individual projects followed a vague long-term vision...Only a few flagship projects were implemented on brownfield sites to illustrate the applied principles and to attract outside interest...The initiative has illustrated that such an approach to regeneration can successfully guide a process of innovation and modernization in a region that the market bypasses or neglects. (Kunzmann 2004)

Winnipeg has its own example of a former rail yard that has slowly developed into a major cultural hub over the years. The Forks - touched on in the previous chapter (see “The Debate Over Yard Relocation”) - has become the attraction it is today through a series of projects that developed incrementally, rather than as part of a complete master plan. In the last twenty-five years these projects have included a youth theatre, children’s museum, ballpark for the city’s minor league team, playground, hotel, and most recently, the Canadian Museum for Human Rights. The Forks is now seen as the jewel of Winnipeg’s downtown, but this was not the case when it was first decommissioned and the site was a barren field of gravel. As has been observed in the reclamation of post-industrial lands, “(j)ust opening the gates initiates processes of the public’s taking possession of and identifying with a formerly abandoned area” (Daldrup and Zlonicky 2010, 23).



Post-industrial sites successfully converted into cultural centres. Left: The Forks in Winnipeg, ca. 1970 (The Forks 2015). Centre: The Forks in Winnipeg, 2014 (Harper 2014). Right: Zeche Zollverein park in Essen, Germany (Zollverein 2015)

My Approach to the Infill of the Rail Yards

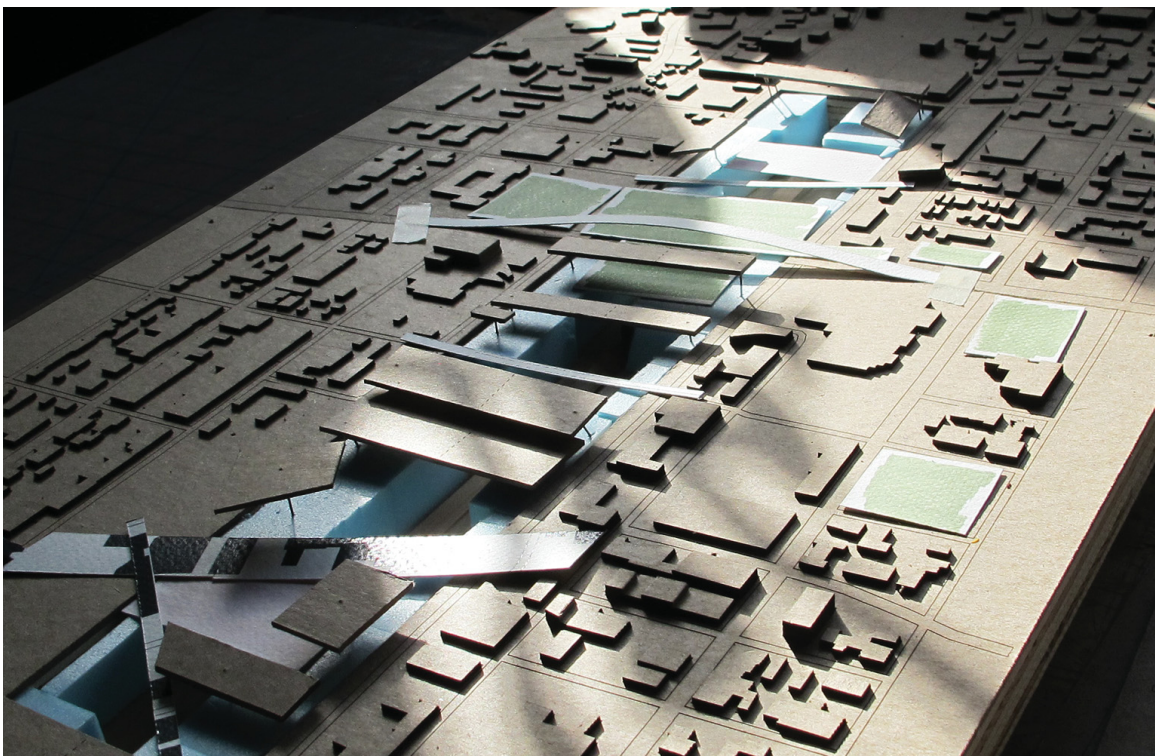
The potential for a redevelopment of the rail yards to enhance the life of the surrounding neighbourhoods is huge. But, if this redevelopment took the form of a new mixed-use community plan, it would not necessarily help the existing dilapidated housing or struggling businesses. It would also miss an opportunity to see the existing rail line as an asset; to tap into the value the railroad had historically, and continues to have to our economy and our cultural identity. Additionally, incremental growth allows for an area to develop organically, based on the needs of the community, rather than a top-down master plan that tries to envision a complete site strategy all at once.

My approach to the revitalization of the rail yards follows from this idea of public space as an amenity that enhances the life of its surroundings, and my design has followed from three main concepts. The first is retaining CP's main line, recognizing its existing importance to Canada's transportation network, its historical and cultural currency, and its potential as a vehicle for cultural events that could cross the country by train. Second, the existing street grid on either side of the yards will be connected, recognizing that the psychological divide between north and south needs to be stitched together for the life of these neighbourhoods to be enhanced. Finally, the remainder of the land will then be opened up for public space and cultural events, recognizing that providing an amenity to the existing adjacent neighbourhoods will help the revitalization *within* them. The next chapter will look more closely at this approach at the scale of the site, and at one building that follows from these concepts.

CHAPTER 4: CREATING THE URBAN YARD

The Three Layers

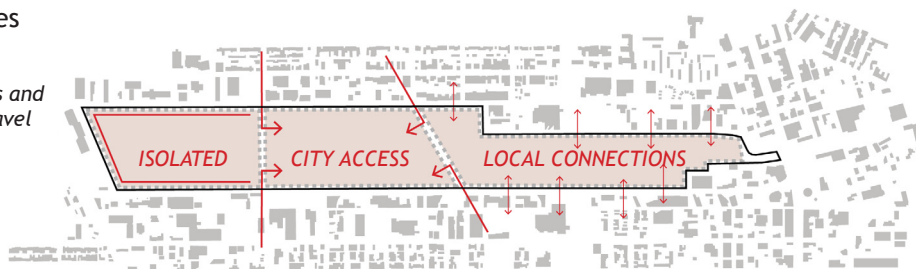
The three concepts behind my approach to redeveloping the rail yards mentioned above roughly translate to three layers: below grade for the train, at grade for the crossings, and above grade for the events. This idea is perhaps best explained by the conceptual model shown below. This sketch model is useful in illustrating how the three layers overlap, and roughly where major design moves take place across the site.



Sketch model showing the three concepts behind the design of the site: Train & service functions below grade (blue), connections between the surrounding neighbourhoods at grade (pink & white), and event functions populating the site above grade (brown)

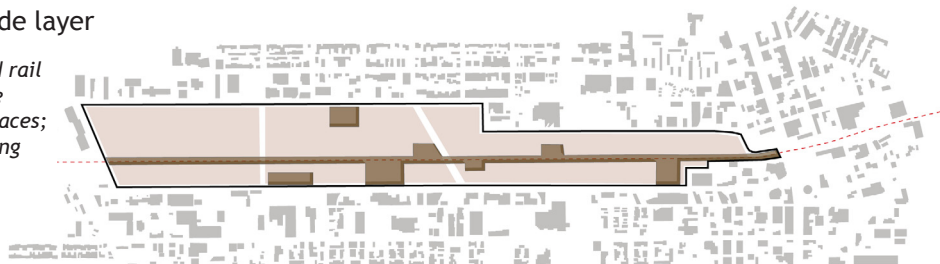
three zones

informed by surroundings and routes of travel



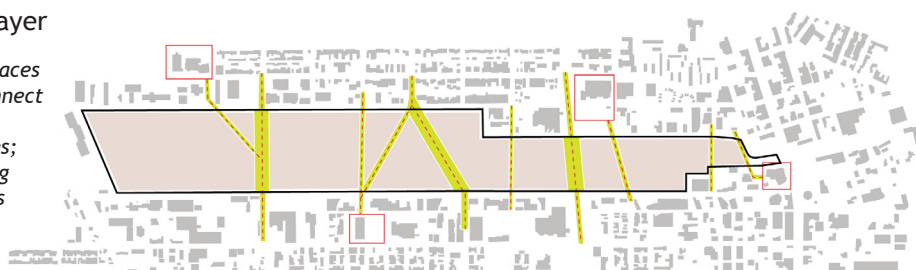
below grade layer

underground rail line; provide sheltered spaces; buried parking and utilities



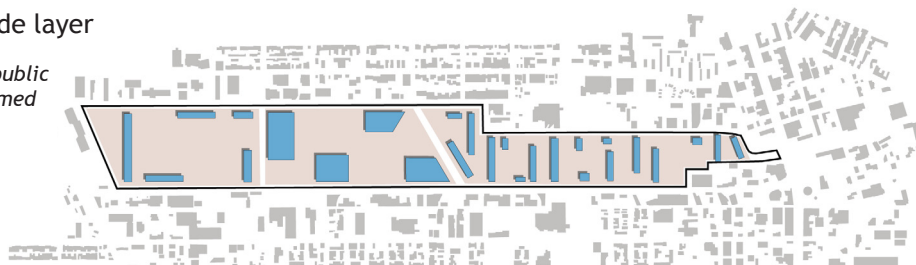
at grade layer

numerous places to cross; connect to surrounding amenities; thicken along major routes



above grade layer

events and public spaces informed by zones



three layers superimposed



Plan diagrams of the conceptual site strategy

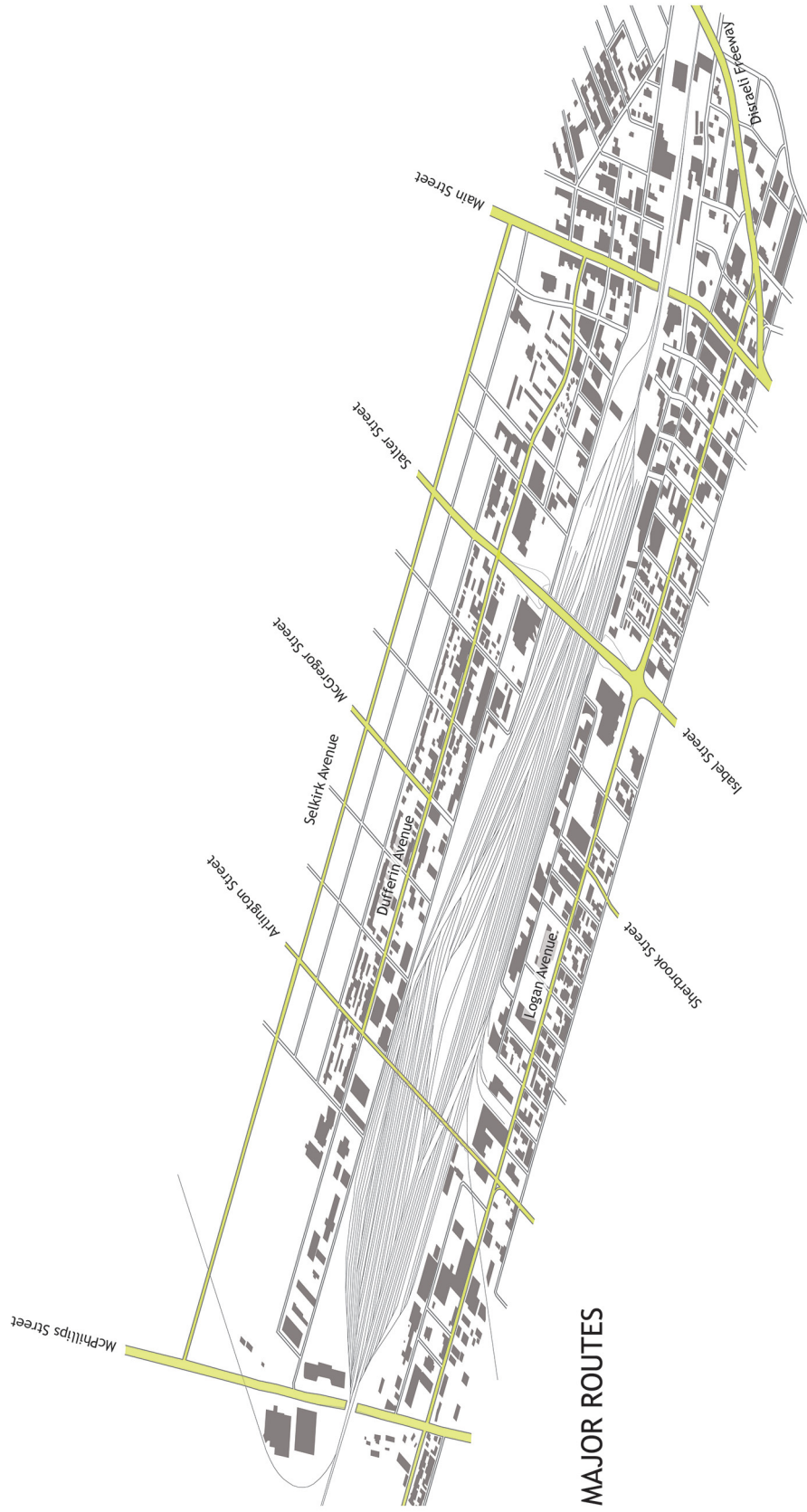
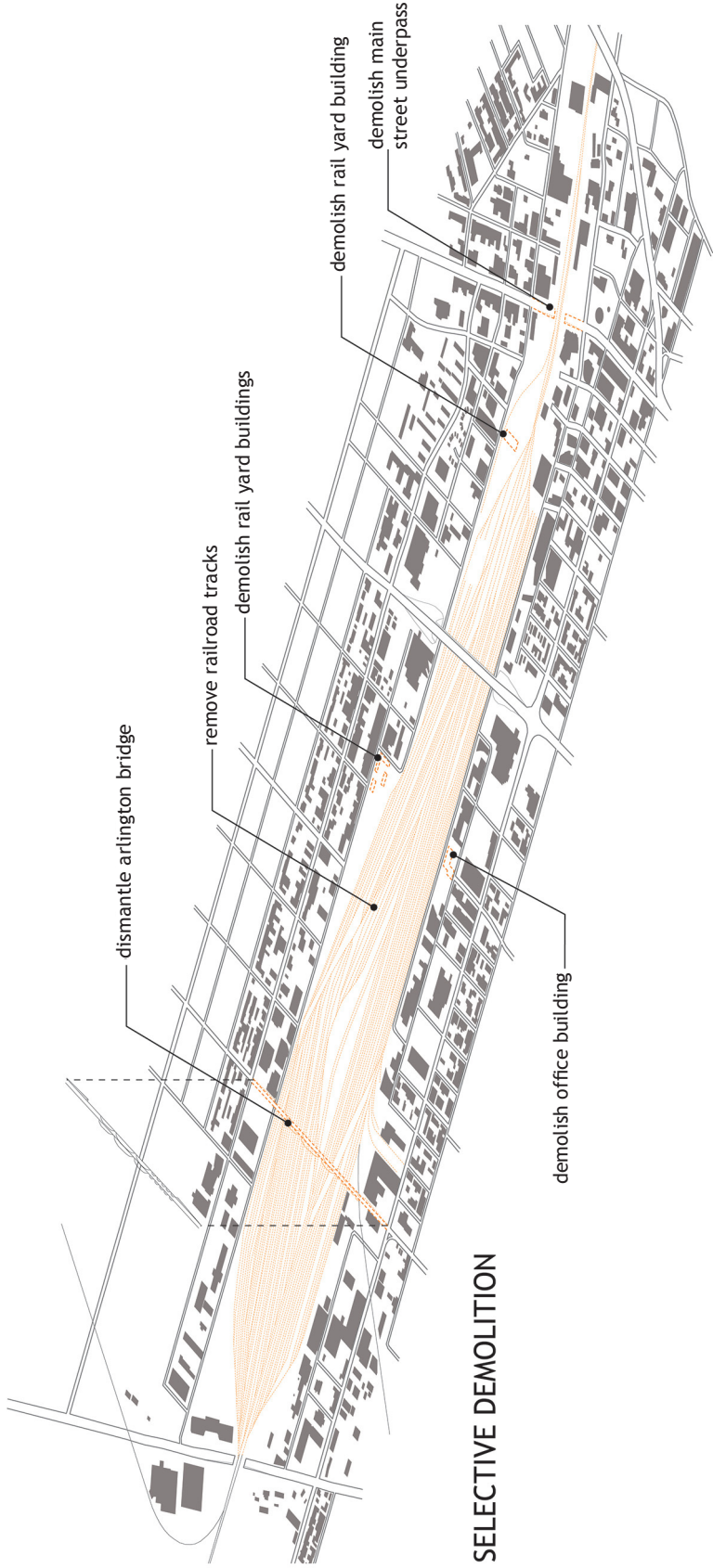


Diagram of the major traffic routes surrounding the yard



Diagram of schools, parks/recreation spaces, and business/retail districts surrounding the yard



SELECTIVE DEMOLITION

Diagram of the initial demolition required for redevelopment of the site

Below Grade: The Cut

The first big move on the site, after removing the existing railroad tracks and buildings, is burying the main CP line underground. This allows freight traffic to continue to move through the site, while people can move freely on the ground above without the use of bridges. Trains have very low slope restrictions (generally 1%-2%) and a minimum clearance of just over 6m is required for the tallest loads (double-stacked containers). The tunnel entrances for the underground train line are located based on these restrictions and the location of existing major streets, which form natural points of entry.

This act of cutting into the ground opens up a number of possibilities besides running the train line. It provides sheltered areas from the wind to sit or play; parking structures can be sunken into the ground and their roofs used for hard play surfaces; the opening up of the side of the tunnel dramatically reveals the act of a train passing; and of course it allows the creation of topography in an otherwise dead-flat landscape.

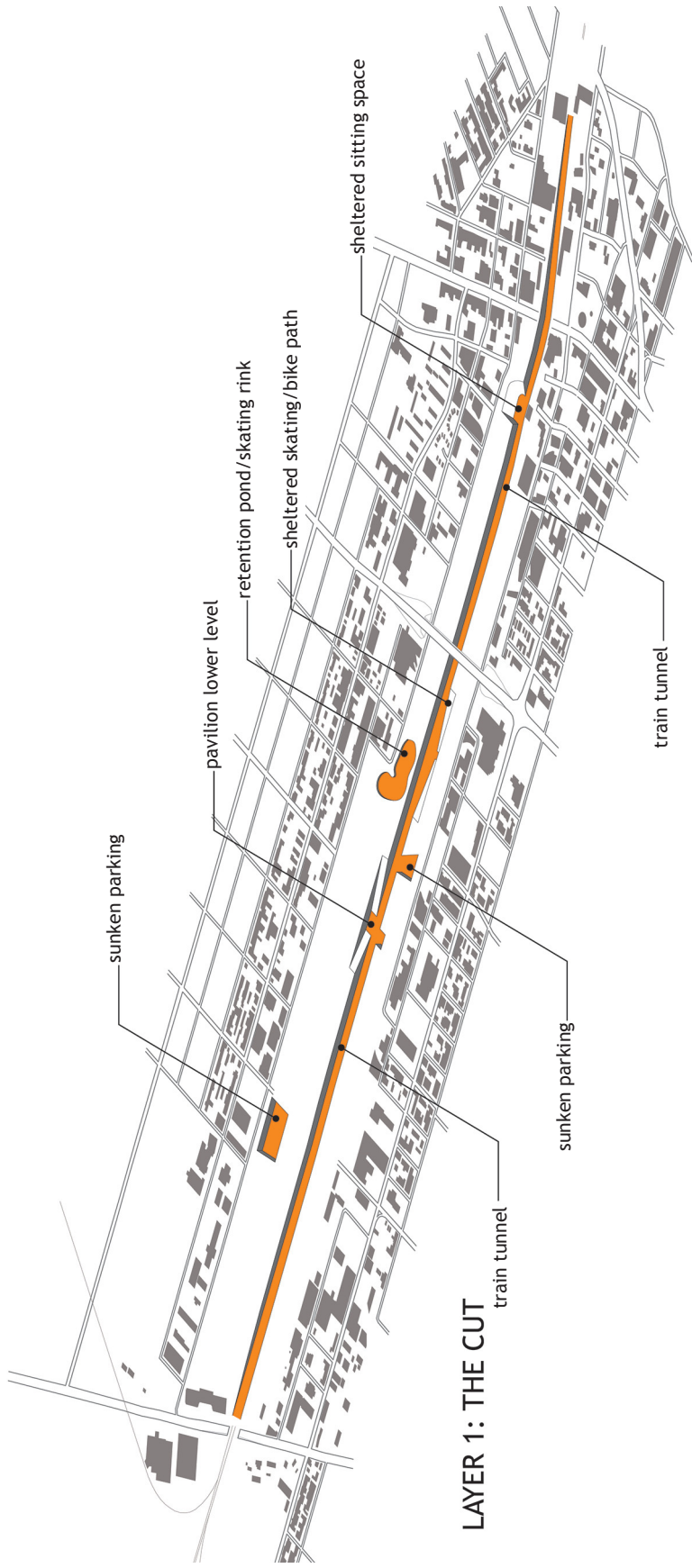


Diagram of the below-grade layer

At Grade: The Crossings

The connections across the site are probably the most important aspect, given the place's history as the great divide between the North End and the rest of the city. Five new street crossings will stitch together the interrupted city grid, while new grade-level crossings are made at Arlington and Main Street.

The Main Street underpass has always been an uninviting gateway from the North End to Downtown. A new crossing at grade removes this blight and provides a main pedestrian 'front door' entry into the yard. The Slaw Rebchuck bridge can remain, as it is a major thoroughfare that will allow traffic to bypass the yard without interrupting activities. Large lookout points for pedestrians will be built on either side to take advantage of the view one gets of the prairie horizon from this elevated position, and earth removed from excavating the train tunnel will be heaped up under the bridge to provide large new toboggan hills. A new connection between McGregor and Sherbrook streets, two major traffic routes, forms a vehicular entry point into the site from north and south. The Arlington Bridge can be dismantled, with its pieces re-used for features within the yard. This way the history and character inherent in the assembly and weathered materials of the bridge avoid being melted away. The remaining four new crossing streets, as well as various dedicated pedestrian and bike routes provide the local neighbourhoods with more opportunities to connect to each other and engage with the site.



Diagram of the at-grade layer

Above Grade: The Events

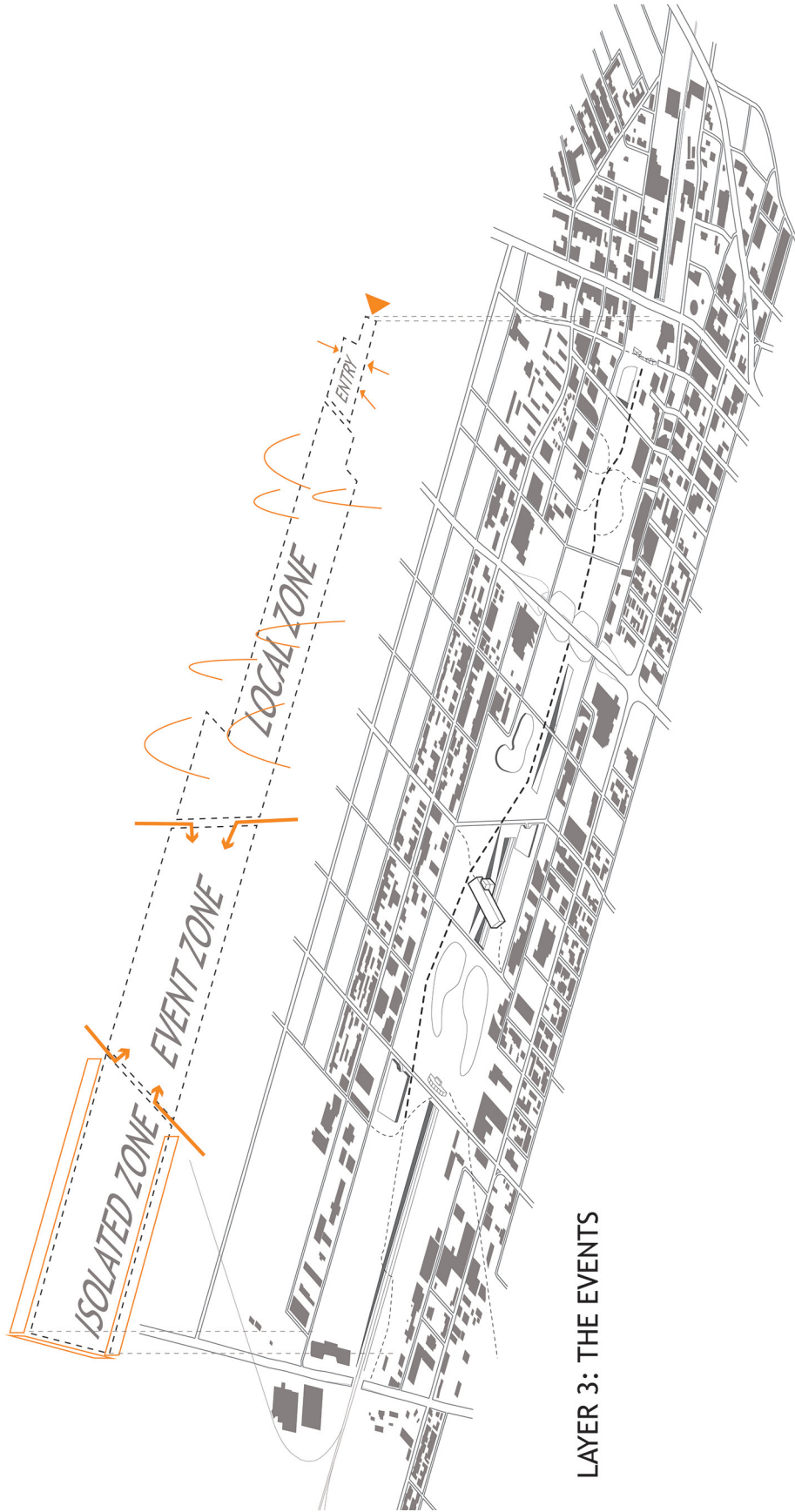
The third concept is that the remaining land on the site is opened up for public space and cultural events. The various features are based on the particular qualities that different portions of the site have, given by the surrounding context, amenities, and routes of travel. The identification of these zones began to inform how the site might become inhabited; what could take place and where. Through this process, the concept of “above grade” became more figurative than literal, most of the uses or activities in fact take place on the level of the ground.

The eastern end is the “local zone” based on this area having the most residential buildings and schools adjacent, or in close proximity to the site. This becomes the site for multiple pedestrian paths around a large community garden. A toboggan hill, skating rink, and playground are features that are meant to be most useful to local users of the site

The western end is identified as the “isolated zone.” This area is bordered to the north and south by a continuous block of industrial buildings, and to the west is McPhillips Street, a major thoroughfare and truck route. This zone has the least connection to its surroundings due to the fact that they are mainly industrial; not many people live around this area. This is the area of the site where the train descends into the tunnel. Footpath entries into the site give access from McPhillips, and connect to a community and recreation centre located two blocks to the north. The rest of the land is envisioned as a place for urban agriculture, perhaps in the form of an orchard planted in the pattern of the former rail lines, and protected from the north wind by a buffer of forest.

The section between McGregor-Sherbrook and Arlington is the “event zone.” These two streets are the major routes into the site for people from other parts of the city. The outdoor amphitheatre and pavilion are the main features of this zone. The amphitheatre bowl is created with earth that was removed to create the train tunnel, but is interrupted to retain the view to the western horizon from the lookout points mentioned earlier. The bandstand/backstage structure is built from a section of the Arlington Bridge, transplanted to the ground yet still framing the view of the setting sun over the outstretched train line. Two underground parking areas are located in this zone as well to accommodate large crowds for an outdoor concert or major event.

The pavilion building contains elements of all three of the site concepts: the train, the connections, and the events. It functions as a diner and marketplace, where small vendor stalls can be rented by local people, and used temporarily by travelling markets that arrive by train. The building itself is oriented along a main pedestrian path across the site, and thereby functions as a method of crossing the tracks. This particular moment is heightened by a series of foot bridges that are open to the train tunnel below. The diner, located below grade, is accessed from outside by long sloping pathways, or from the market building above by an elevator. It features a large window of soundproof glass to provide patrons with an opportunity to sit with a sandwich and watch the trains go by.

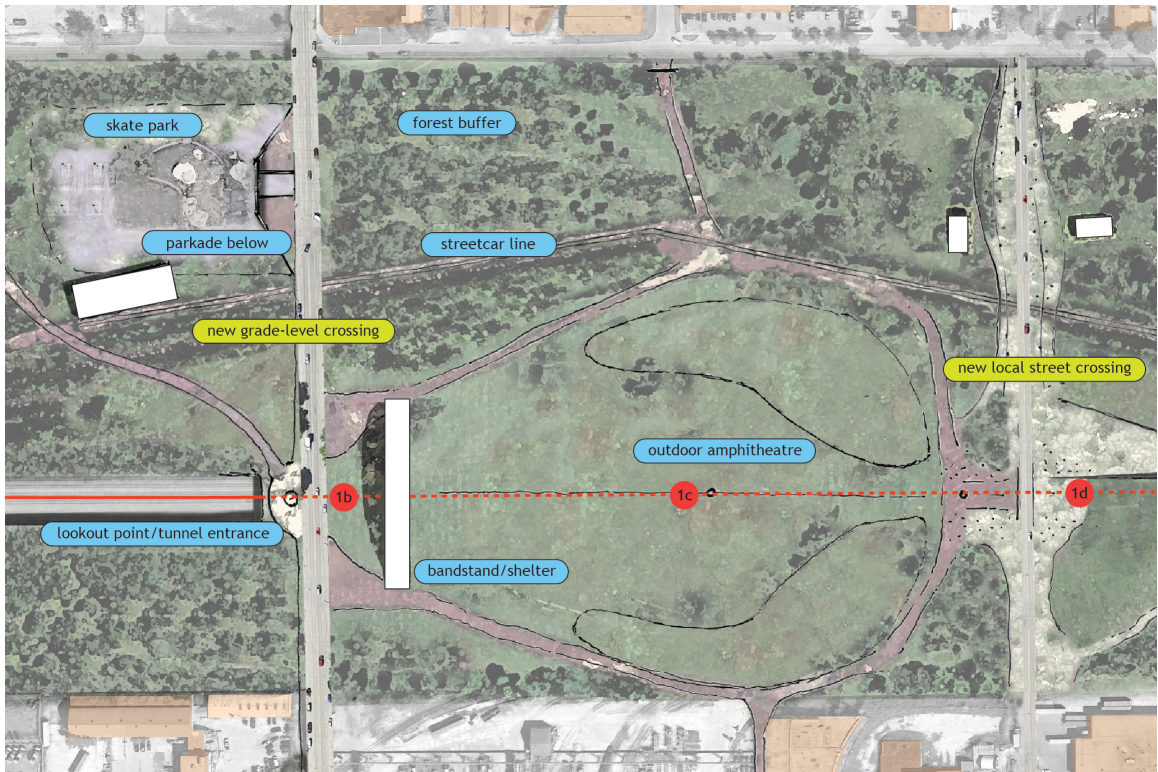


LAYER 3: THE EVENTS

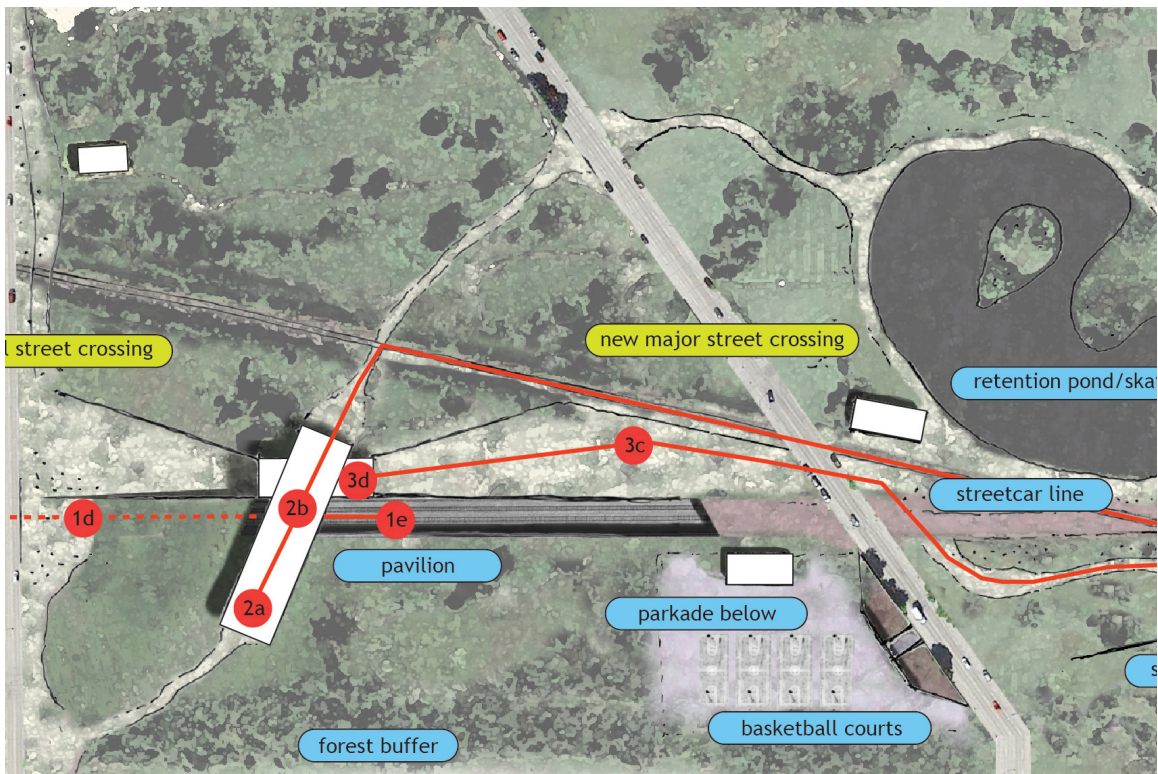
Diagram of the above-grade layer



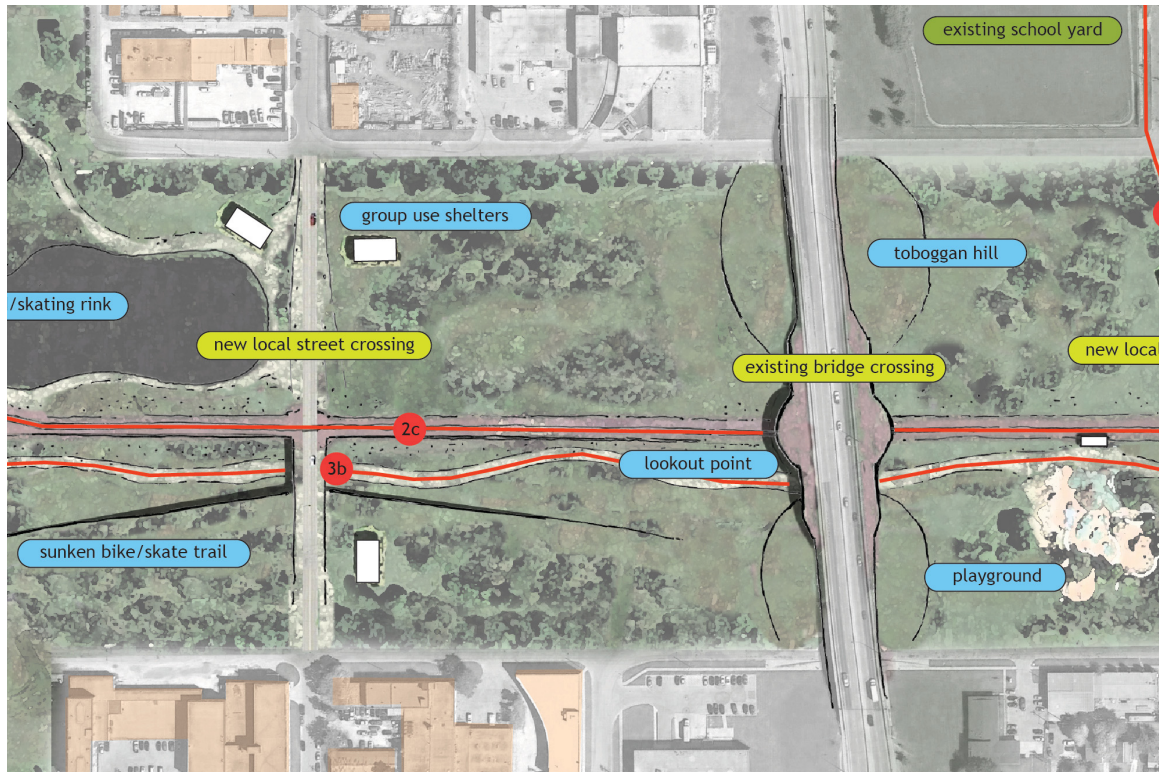
The CP Winnipeg Yards: New site plan and surrounding context. Areas highlighted in orange are potential sites for revitalization within the surrounding neighbourhoods (Selkirk Avenue and Main Street business/retail corridors, and low density/vacant industrial buildings adjacent to the yards. Details shown on the next two pages (satellite image from Google 2015)



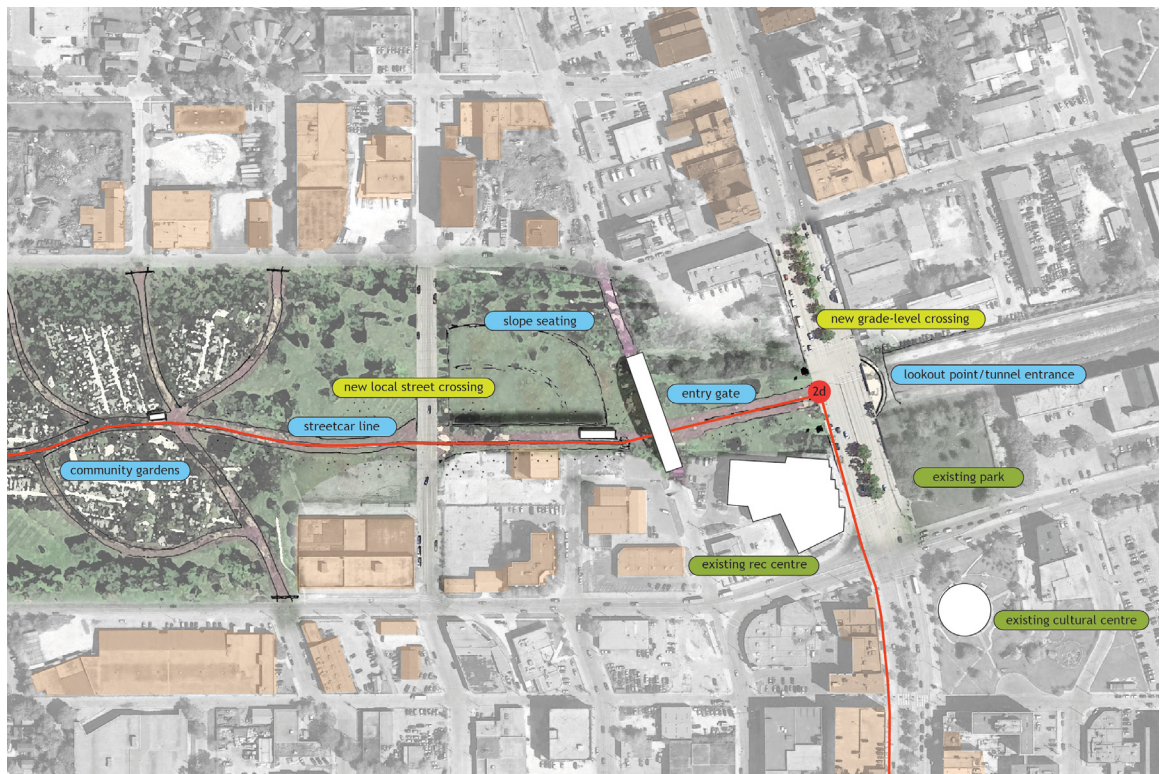
Site plan detail showing outdoor amphitheatre and bandstand east of Arlington Street



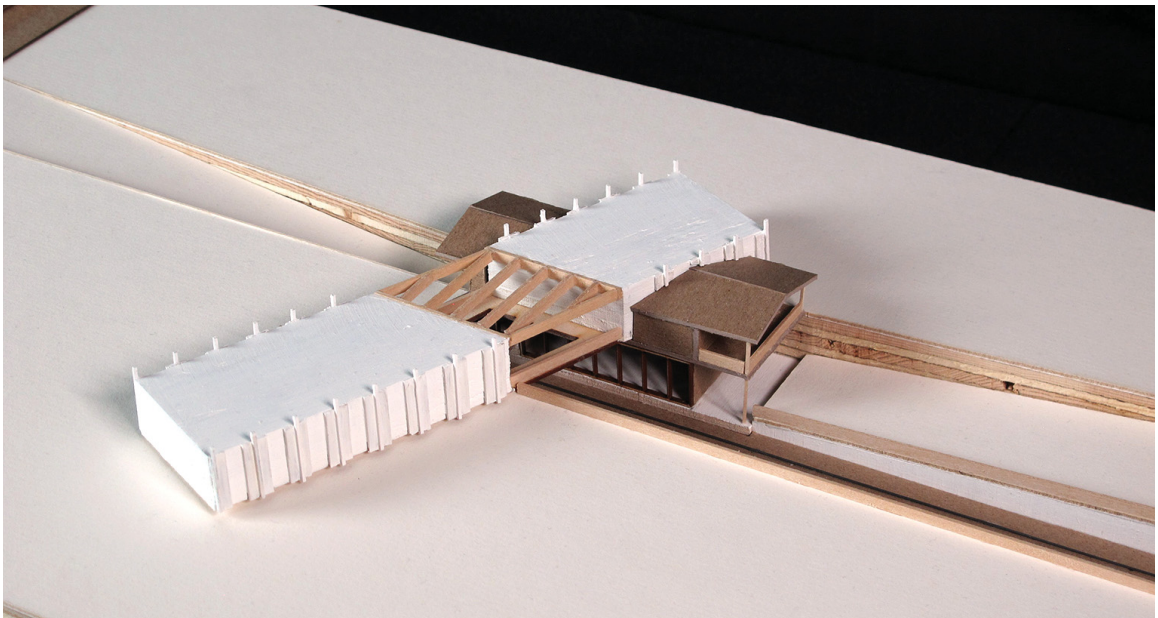
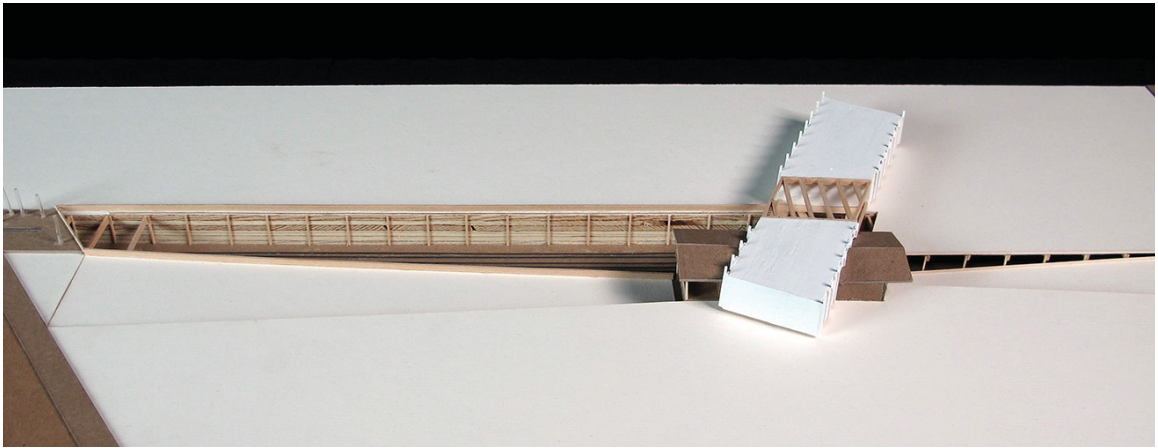
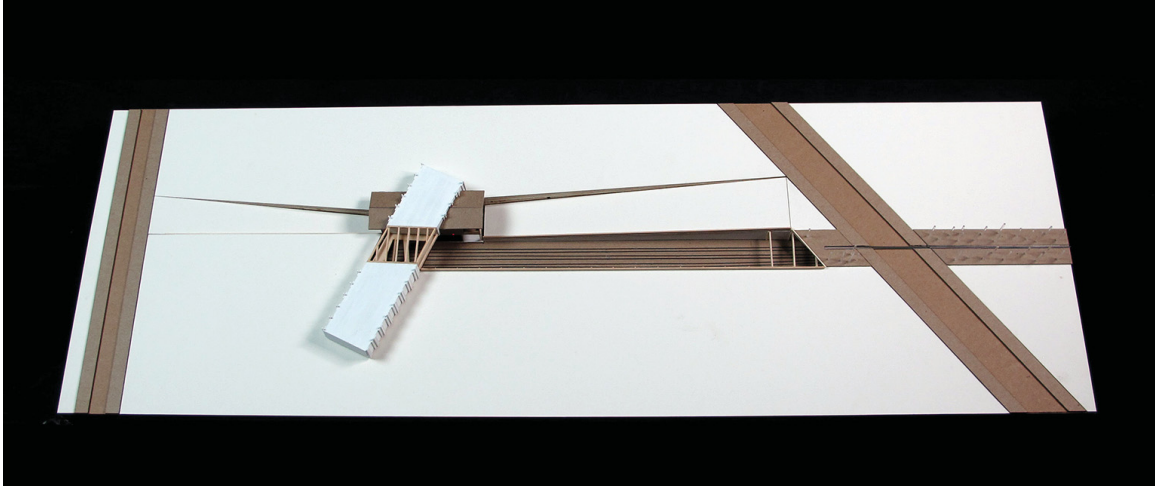
Site plan detail showing pavilion west of new McGregor-Sherbrook Street connection



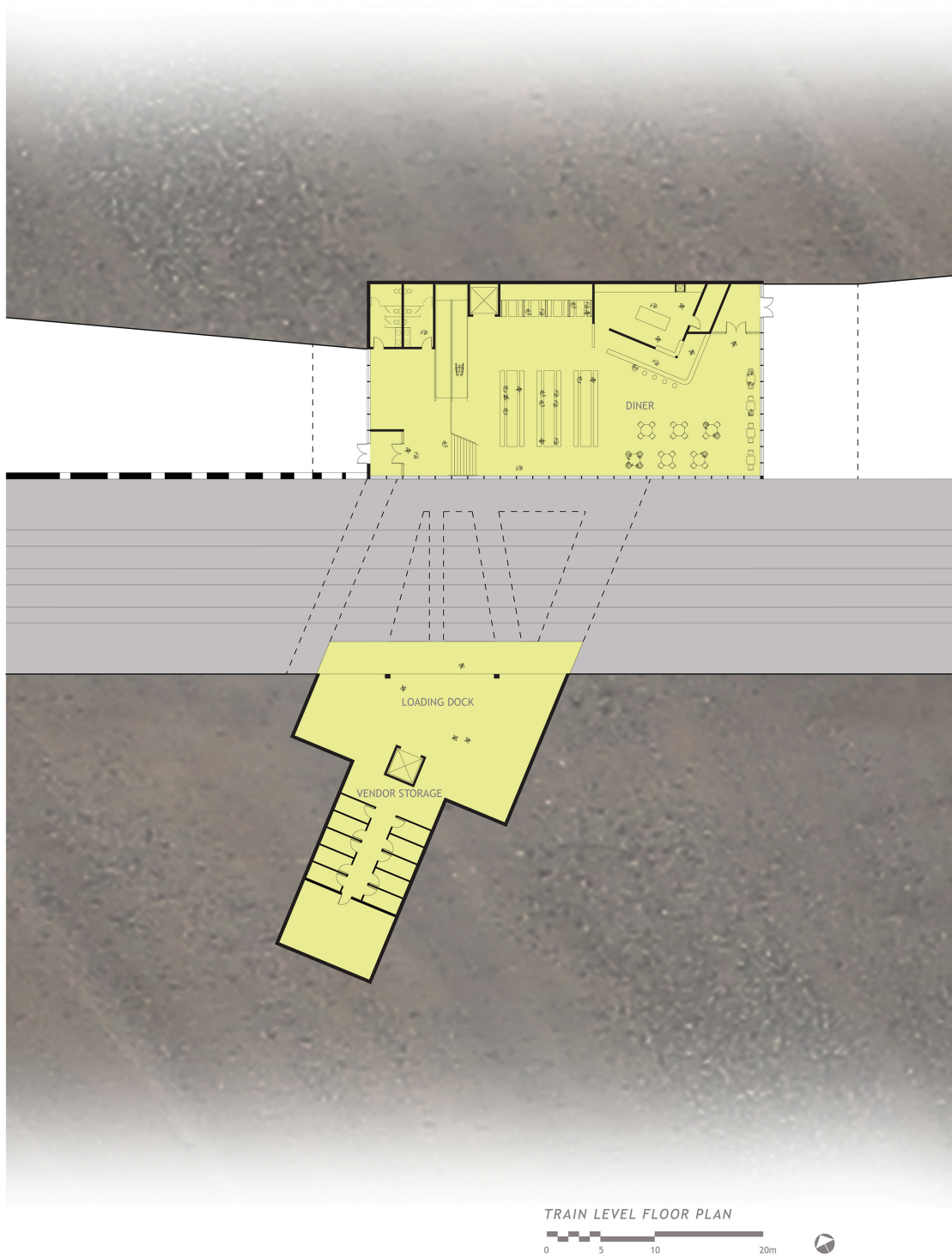
Site plan detail showing areas around the Slaw Rebchuck Bridge



Site plan detail showing entrance to the yard from new at-grade section of Main Street



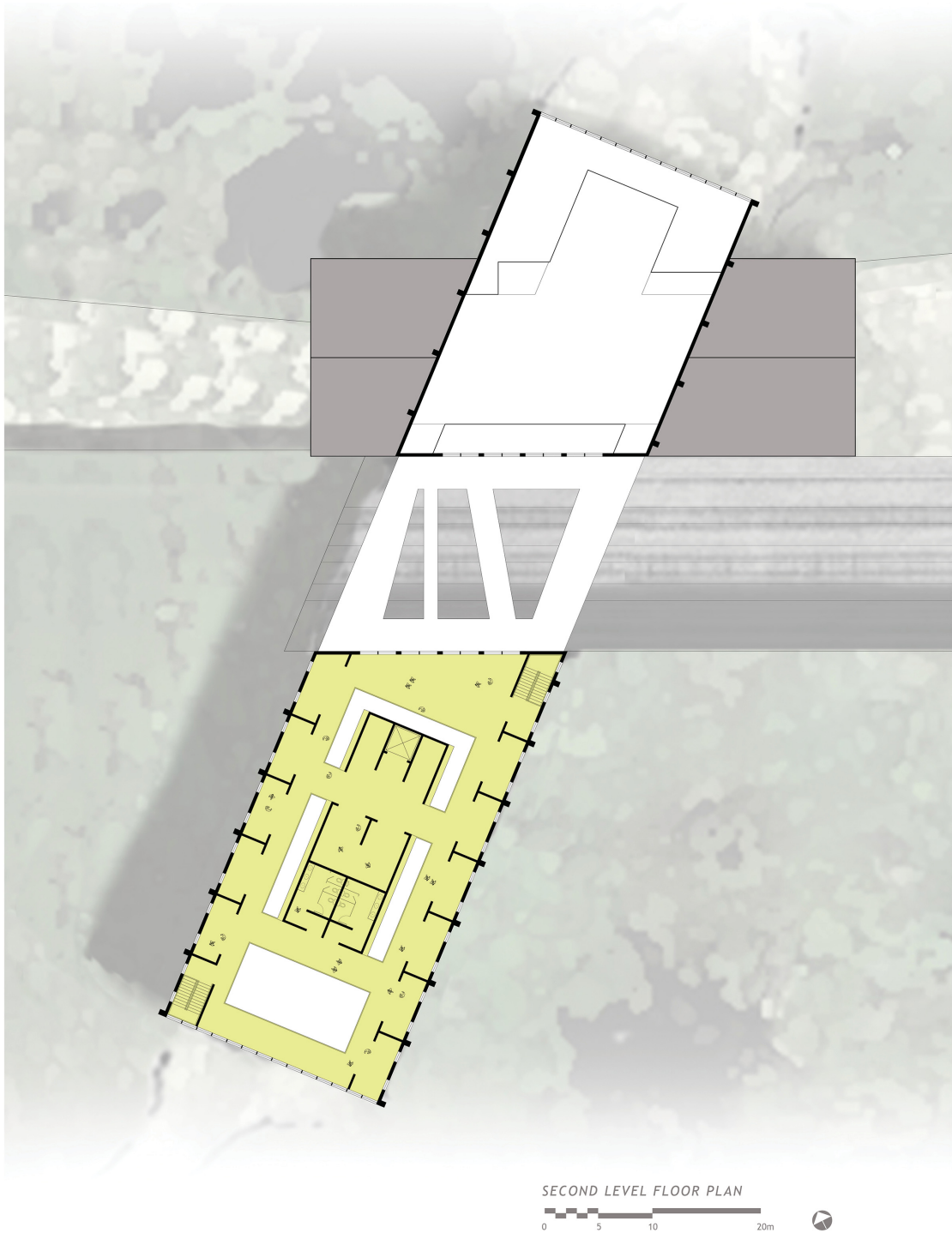
Photos of pavilion building and train tunnel model, built at 1:500 scale



Pavilion building train level floor plan



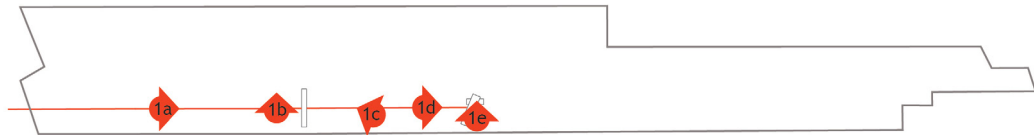
Pavilion building ground level floor plan



Pavilion building second level floor plan

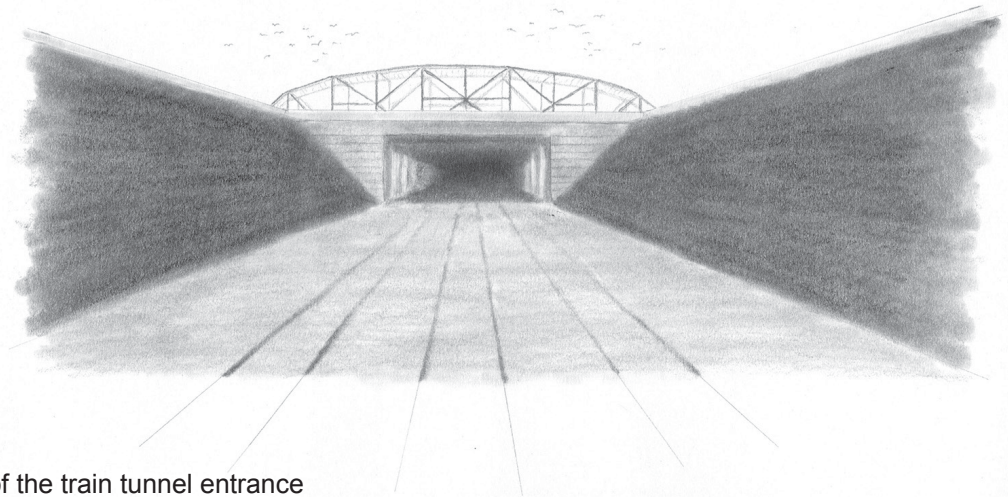
The Narratives

The following images and text tell three short stories that are meant as a suggestion for how this place might be used, and by whom. By imagining how different people might experience the yard, these narratives ended up guiding what I chose to draw, and helped determine the design of certain details.



Bill's route

The first character is Bill, a train conductor. Bill is driving across the prairies pulling a market train, which has made stops in Calgary, Medicine Hat, Regina, and Brandon, before finally arriving in Winnipeg. His train is on the main CP line, approaching the yards from the west, beginning the gradual descent into the tunnel that runs the length of the site. It's late afternoon in the winter, the sun is starting to go down.



View of the train tunnel entrance

As Bill's train enters the tunnel, he looks up at the old structure of the Arlington Bridge. Bill's grandpa used to drive trains for CP, and he'd tell stories of coming into town by passing under that same bridge, before the rail yards were moved to Centrepoint on the outskirts of town, and how the bridge was rumoured to have been built to go over the Nile River in Egypt, but got sold to Winnipeg at a bargain. Bill was about to pass under the same structure, only now he was going underground.



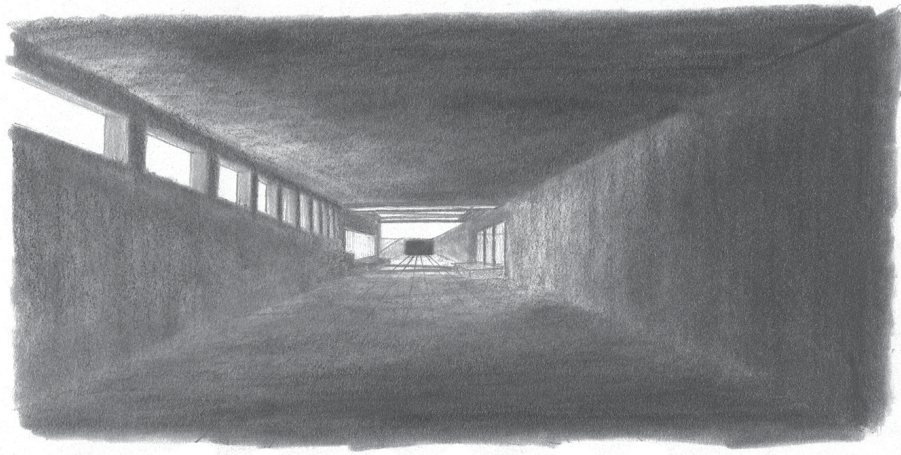
Section cut through the tunnel entrance and the Arlington Bridge bandstand

Arlington Street now crosses the yards at grade. A small lookout plaza above the tunnel entrance provides a view to the rail line receding into the horizon in the west. A portion of the old Arlington Bridge is repurposed as a bandstand for outdoor concerts.



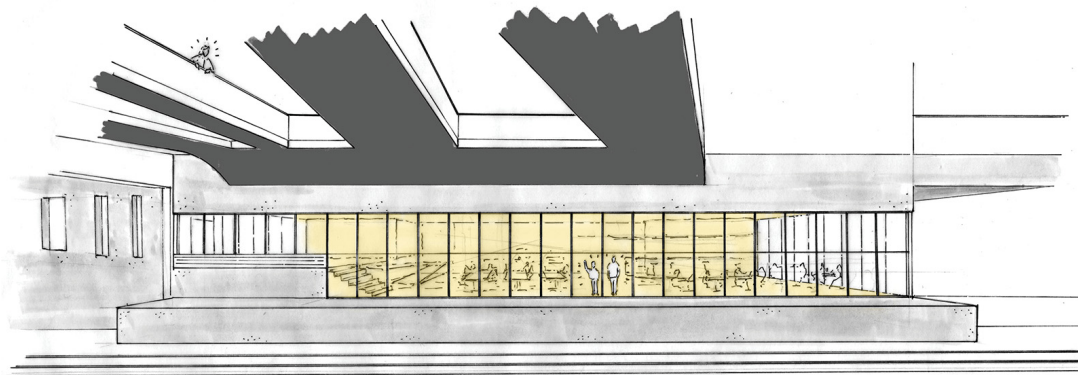
View of the Arlington Bridge bandstand

Bill thinks back to a concert he saw at the yards with his nephew a few summers ago, a bunch of bands from out west were crossing the country by train. I think the Grateful Dead did that once.



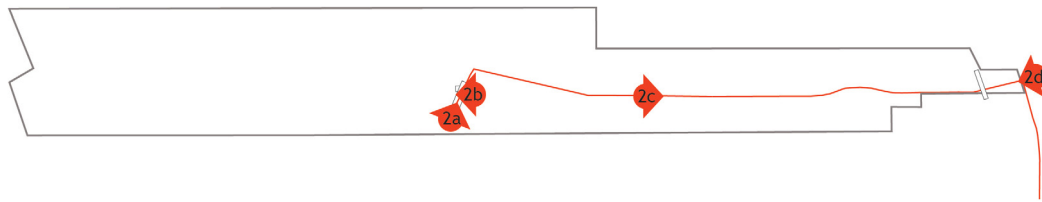
View down the tunnel towards the pavilion

As the train slows towards the pavilion, shafts of light stream into the tunnel. The path to the pavilion from the north is separated from the tunnel by a thick concrete wall, which is pierced by large openings that get narrower and taller as you descend underground. To the south of the pavilion, the tunnel is open to the sky above, and the sloped path is open to the train tracks below. Up ahead to the left, Bill sees lights from the pavilion diner glowing warmly. A bowl of soup would be good right now.



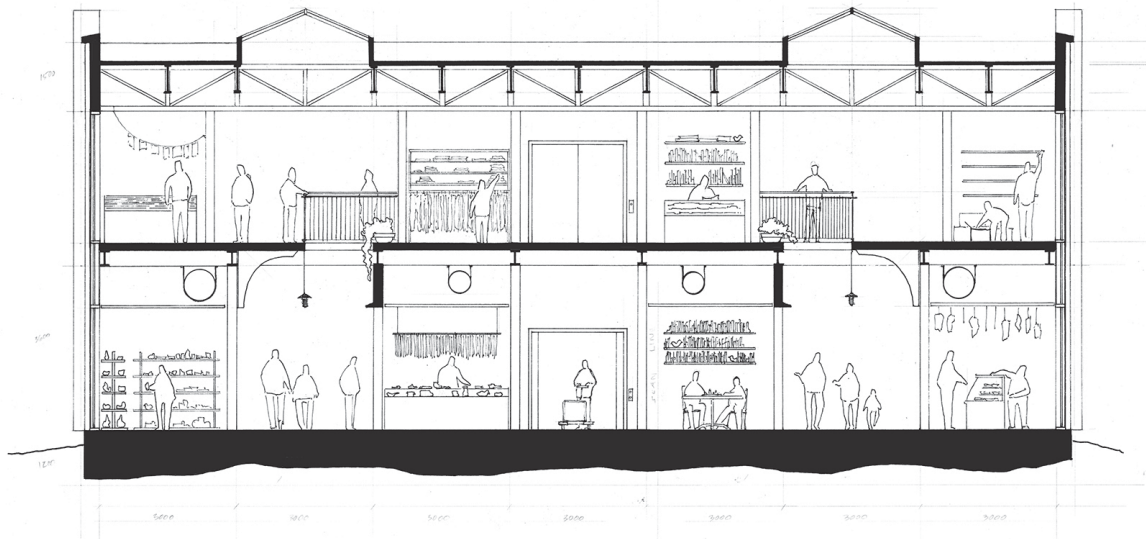
View from Bill's train to the pavilion diner

As Bill's train grinds to a stop, he notices a kid in the diner window motioning for him to blow the locomotive horn. He's not supposed to; its only used at street crossings and when the train starts moving, but something about the idea of startling the people on those bridges makes him smile. Aw, what the hell. Just this once.



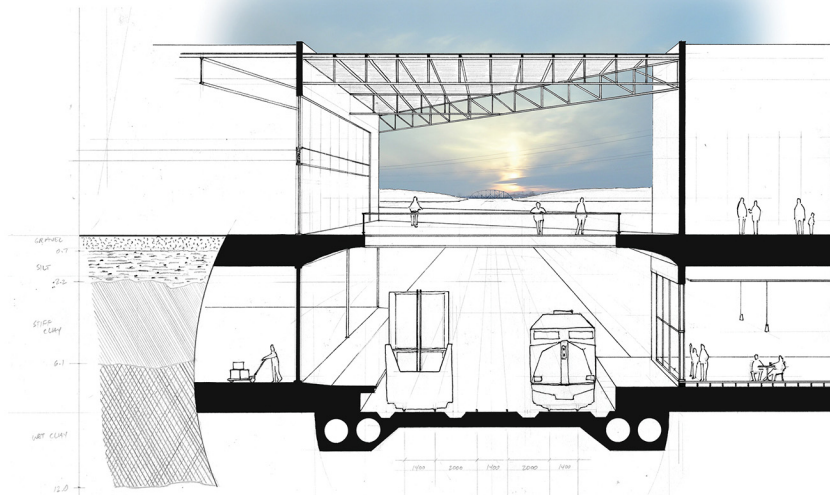
Laurie's route

The next character is Laurie, an artisan at the market. Laurie is a member of the market co-op. She rents a stall on the second floor where she sells her crafts. She'll move her stuff into storage for the next week while a travelling market from out west occupies the space. It's late afternoon and she'll take the streetcar out of the yard, headed to her home Downtown.



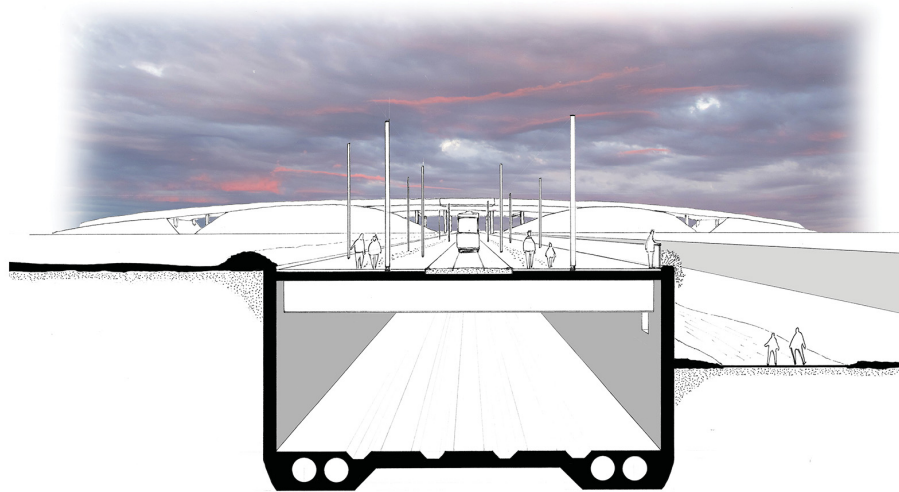
Section cut through the pavilion market

Laurie finishes cleaning up her stall at the market and heads towards the door. Her and the other co-op members were putting their goods in the basement storage lockers to make room for the travelling market that was soon arriving by train. The temporary market would be here for a week, and if they did well Laurie and the other members got a cut of the profits. The building was a hive of activity as she headed down the corridor towards the bridges.



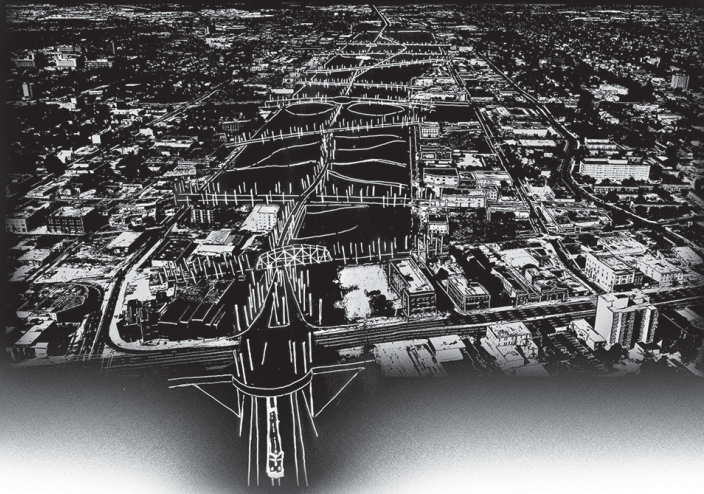
Section cut through the pavilion bridges with a view towards the Arlington Bridge bandstand

She stops on the narrow pathway that crosses the train tracks and watches the sun set behind the arch of the old Arlington Bridge. The squeal of a train coming to a stop comes up from the tracks below. A short, sudden blast from the locomotive horn startles her and she peers down to see if something happened, but it was just the market train arriving in a cloud of exhaust.



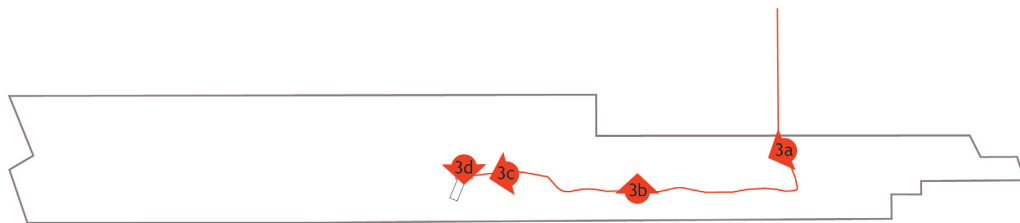
Section cut through the streetcar line with a view towards the Slaw Rebchuck Bridge

Laurie leaves the pavilion and gets on the streetcar heading towards Downtown. The streetcar runs the length of the site, following the path of one of the old rail lines. The Slaw Rebchuck Bridge rises up before her, a few kids are still tobogganing down the slopes in the last light of the evening. The bridge provides a great spot to look out over the yard and see the Downtown skyline in the east, or the setting sun in the west.



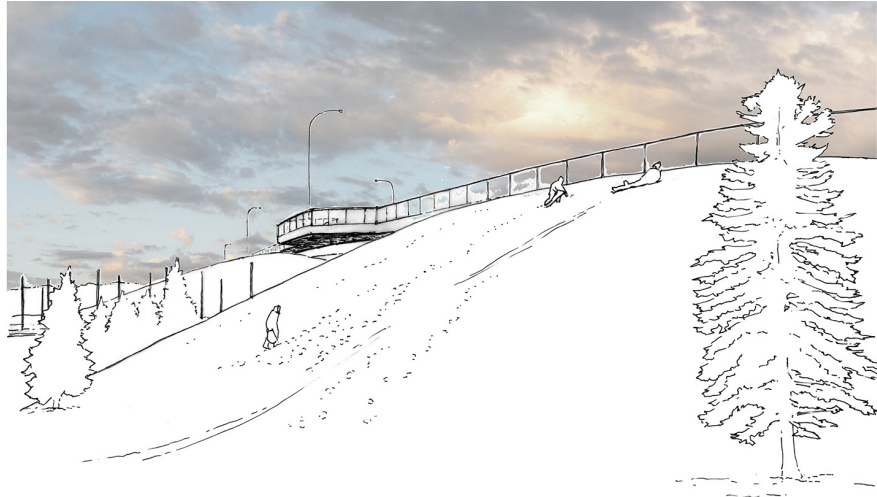
Aerial view of the yard from the Main Street tunnel entrance, looking towards the west

Laurie heads towards Main Street, passing under the old section of Arlington Bridge now used as the main entry gate into the yard. At the western end of the site, the light poles that line the streets and pathways throughout the yards begin to glow, and slowly the lights flicker on moving in a line towards the east. The poles have sensors that are activated by low frequency sound, and are signalling the passing of a train moving through the tunnel below.



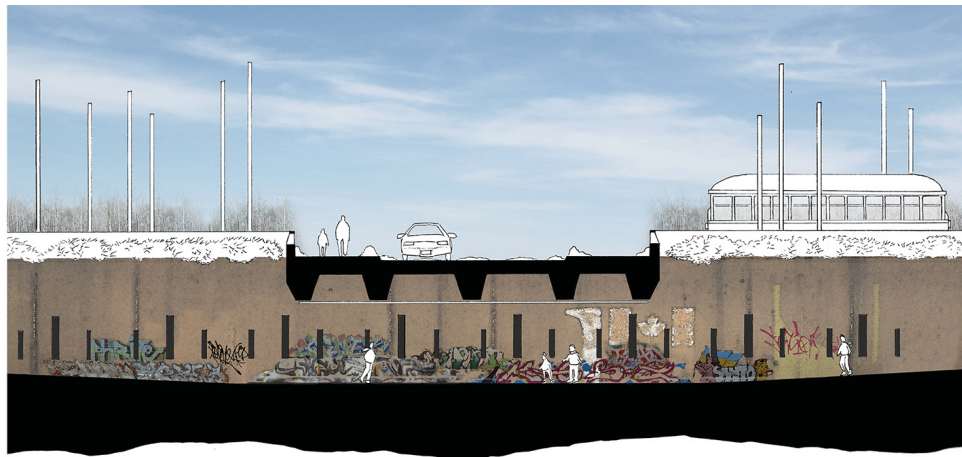
Kyle and Taylor's route

Kyle and Taylor are two neighbourhood boys. They're coming from their homes in the Lord Selkirk Neighbourhood, just north of the yard, to see if anyone's playing shinny on the pond. It's early on a weekend afternoon, and they'll head to the pavilion to warm up after they skate.



View of the new toboggan hills under the Slaw Rebchuck Bridge

As Kyle and Taylor enter the yard, they walk past the toboggan hills that were built up underneath the Slaw Rebchuck Bridge. A bunch of the earth they dug out to bury the train line was piled here and planted with new grass. In dead-flat Winnipeg, this is one of the only places to go sledding, other than Garbage Hill in the West End, the site of an old land fill.



Elevation of the train tunnel wall next to the sheltered skating trail

The boys put on their skates and take off down the ice trail that runs from the playground to the pavilion, near the pond. The train runs parallel to the main streetcar and pedestrian road, and in the summer is mainly used by cyclists. As it slopes down to pass under a road, the thick concrete wall of the train tunnel is exposed, and narrow windows let you glimpse inside. Graffiti artists have made their mark on this wall over the years, much like they did to the train cars that used to cover this place in the past.



View down the pathway approaching the pavilion from the east

After skating, Kyle and Taylor head down the path towards the pavilion diner to grab a bite and warm up a bit. The diner is reached from either side by a gradual slope, and an elevator connects it to the main pavilion building above. As the path descends into the ground, it shelters them from the cold wind blowing from the north.



View of the train tunnel from the pavilion diner window

The boys order sandwiches and sit at a long wooden table with some other folks, looking out the large window that faces the train tracks. They feel a rumble and look up as a locomotive slowly passes by, but the sound is quieter than you would expect from a train so close. Taylor gets up to stand by the window and motions to the conductor to blow the horn. “He’s not gonna do that” says Kyle, but to his surprise there comes a quick blast from the train. The people in the diner look up, Taylor comes back to the table with a grin.

CHAPTER 5: CONCLUSION

In formulating my approach to redeveloping the rail yards, I proposed that development would occur incrementally over time, preferably through grassroots community involvement. But, once the train tracks are removed, and the soil cleaned up, what would be built first? What would be the next moves in reclaiming this land? The biggest struggle for me was getting into the master plan of a place that I had argued should not be master planned.

The conceptual site model and diagrams (p. 24-25) are meant to convey the strategy behind what gets built, not to specify what exactly those things would be. The idea is that these primary moves of cutting into the ground, providing many crossings, and laying events and amenities overtop would guide the future development of the site in whatever form that took. My intention with the detailed site plan (p. 36-38) and the ensuing narratives is to suggest one way that reclamation of this place could occur based on that strategy, but not the only way. The ideas I came up with - the gardens, toboggan slopes, and skating trails - are a first pass, and they stem from my desire to create a kind of place that would be primarily an amenity to the surrounding neighbourhoods. The outdoor amphitheatre and pavilion are features that are meant to be an amenity to the city as a whole, and capitalize on the idea of the train being used to transport cultural events across the country.

While I stand behind my ideas, I recognize that many people have their own ideas for how the rail yards should be redeveloped. I find that fact to be very exciting, and the way that the yards would truly be made valuable to everyone in the city would be through a collaboration of ideas, and an incremental development of programs.

One idea that many people seem to agree on is that the yards should be filled in with new affordable housing. Could a kind of 'housing-in-the-yard' be designed that would follow with the overall site strategy I've created? Could it be made to be affordable? I believe that this would be a unique architectural challenge to attempt, but I've left that discussion out of the scope of this thesis. While doing my research, I discovered that while the neighbourhoods surrounding the yards were certainly in need of more affordable housing units, they were also shrinking in population and growing in numbers of vacancies (p. 13-

14). This seemed to support my initial idea that what the neighbourhoods really needed was not new housing in another location, but within the neighbourhoods themselves. I see the greatest opportunity for infill development to be in the blocks of low-density warehouse and manufacturing buildings immediately adjacent to the yard. These industries initially set up next to the yards due to their dependence on rail services, and it follows that if the rail yard operations were moved to the outskirts of the city, the industries could be re-located as well, leaving room for new housing in a prime location next to the redeveloped yard.

The idea to redevelop the rail yards has come up in the news again quite recently, with the suggestion by the incumbent provincial government that Winnipeg re-route all its rail lines around the perimeter of the city (Lett 2015). While I can't speak to how this idea would impact local industry and businesses that rely on the use of rail, I do think it has exciting implications for revitalizing the city's rail lines and yards. I can imagine a city-wide park system, using old rail lines as parkways, or bike and pedestrian corridors that connect redeveloped yards in various parts of the city (see map on p. 19). I think that if Winnipeg does eventually relocate its rail lines, a serious attempt should be made to adapt them to a new use. In this way, a vestige of the railroad infrastructure that had such a powerful impact on the growth of Winnipeg, the Prairies, and Canada as a whole would be retained.

APPENDIX: LIGHT POLES & SOUND SENSORS

My design of the yards included a feature which was mentioned very briefly in Chapter 4, and that is a series of light poles that are activated by the sound of a passing train (see p. 48). The idea is that since the train line has been moved underground, the act of a train passing is largely unseen. These light poles would be a visual cue to the surrounding city that highlights the continued use of the site as a rail corridor, while also serving to playfully illuminate the yard at night. I explored this detail as part of an elective course during the fall term, when I was still only formulating my approach to redeveloping the rail yards. The course asked us to develop a detail in response to a set of specific data that we were to collect, and I began by investigating the sonic characteristics of trains and train yards. This ultimately led me to produce a proof-of-concept model in which a sound sensor caused a field of poles to light up and sway in response to the sound of a train.



Conceptual rendering of light poles activated by a passing train

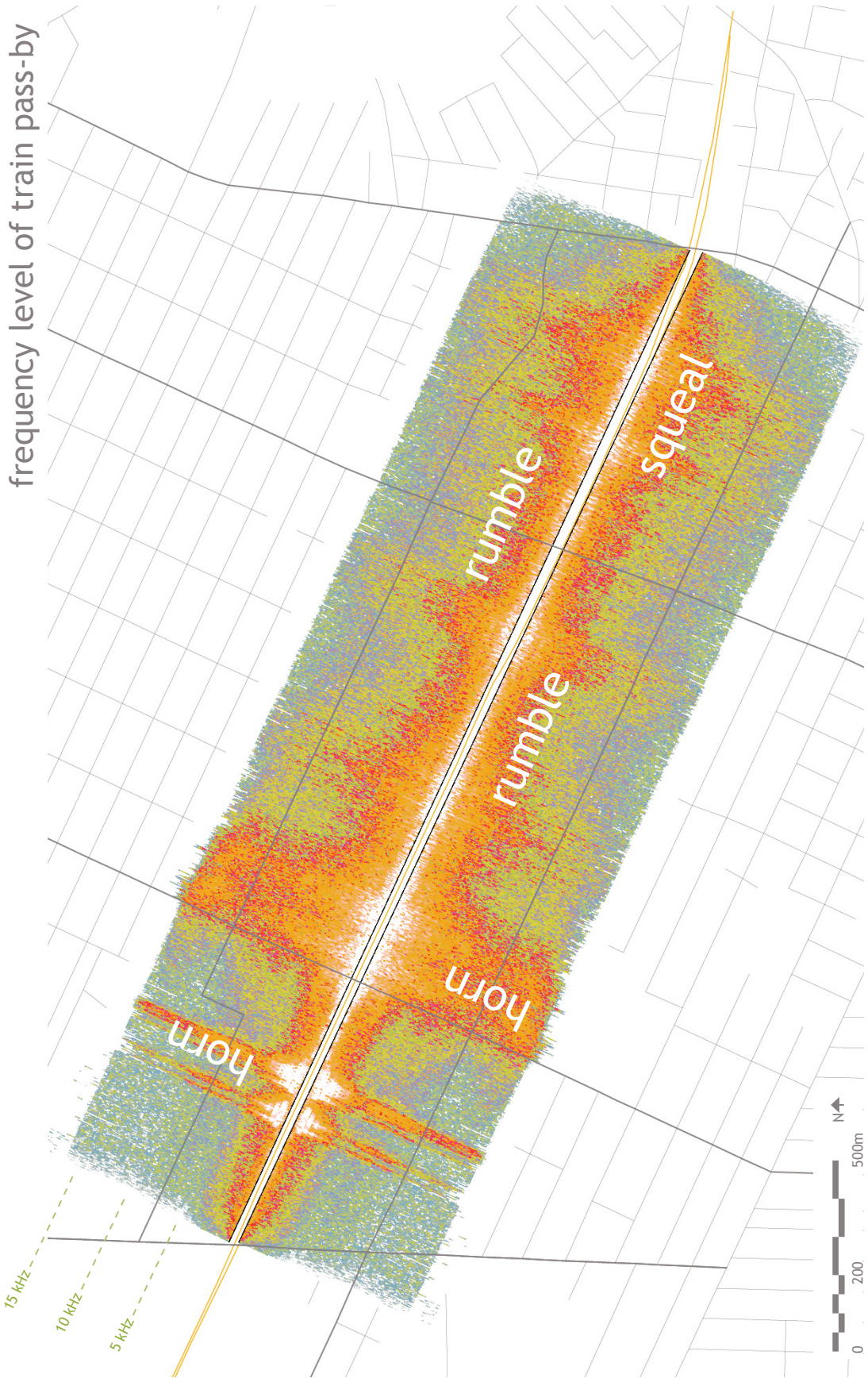
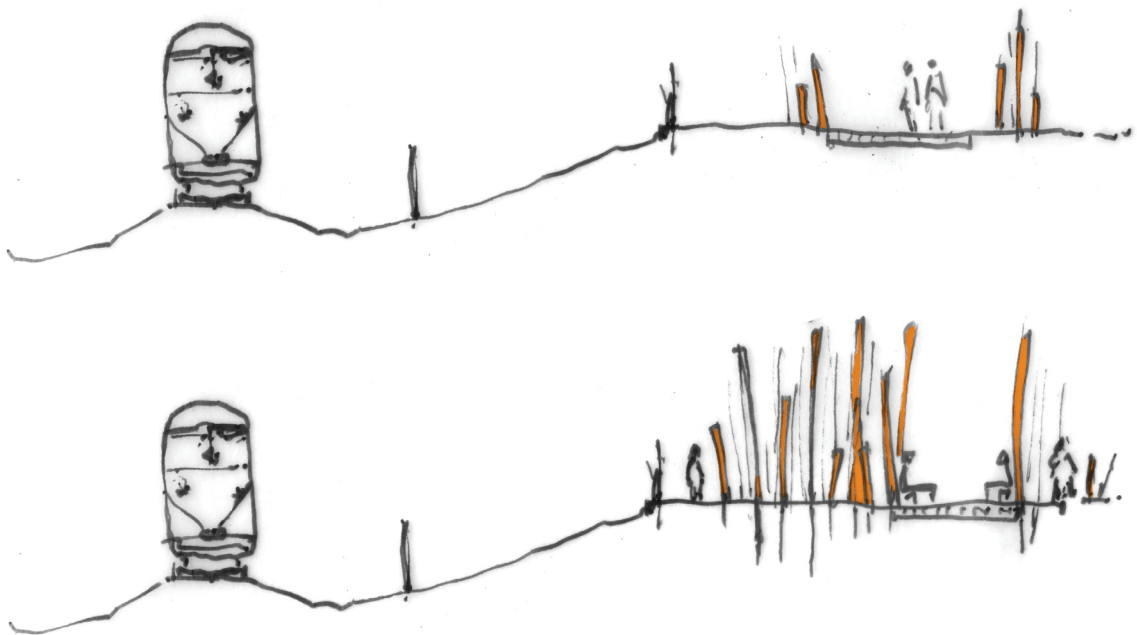


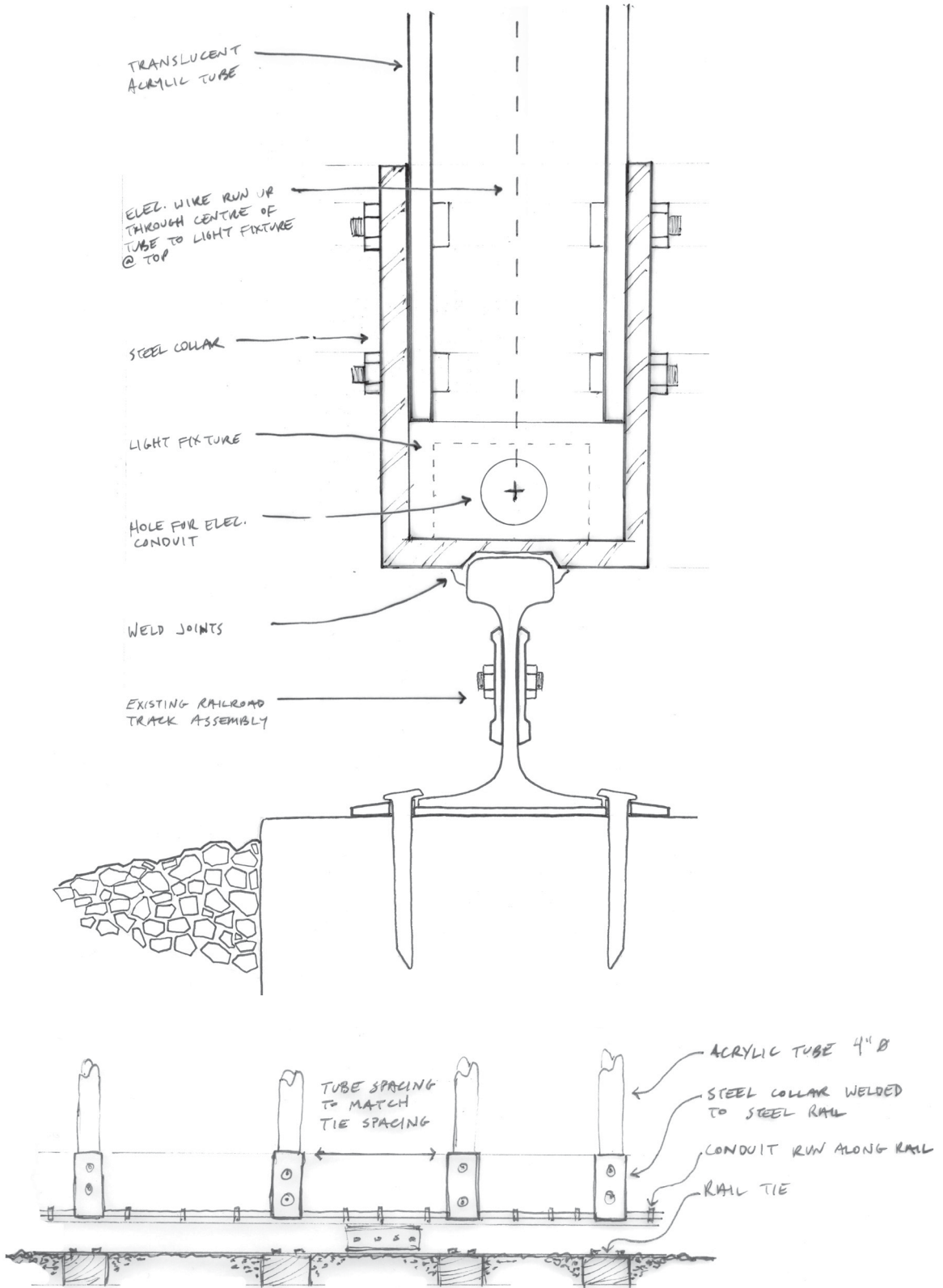
Diagram showing the frequency level of particular train sounds (data from Canadian Transportation Agency 2015)



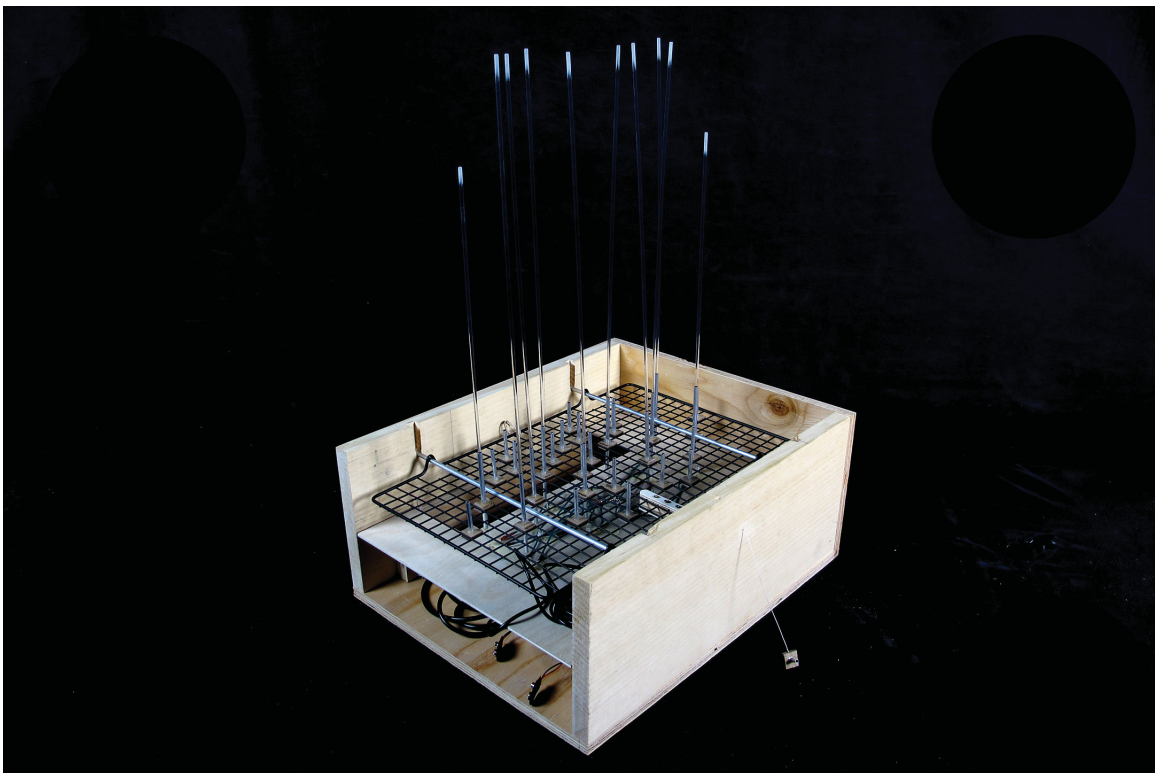
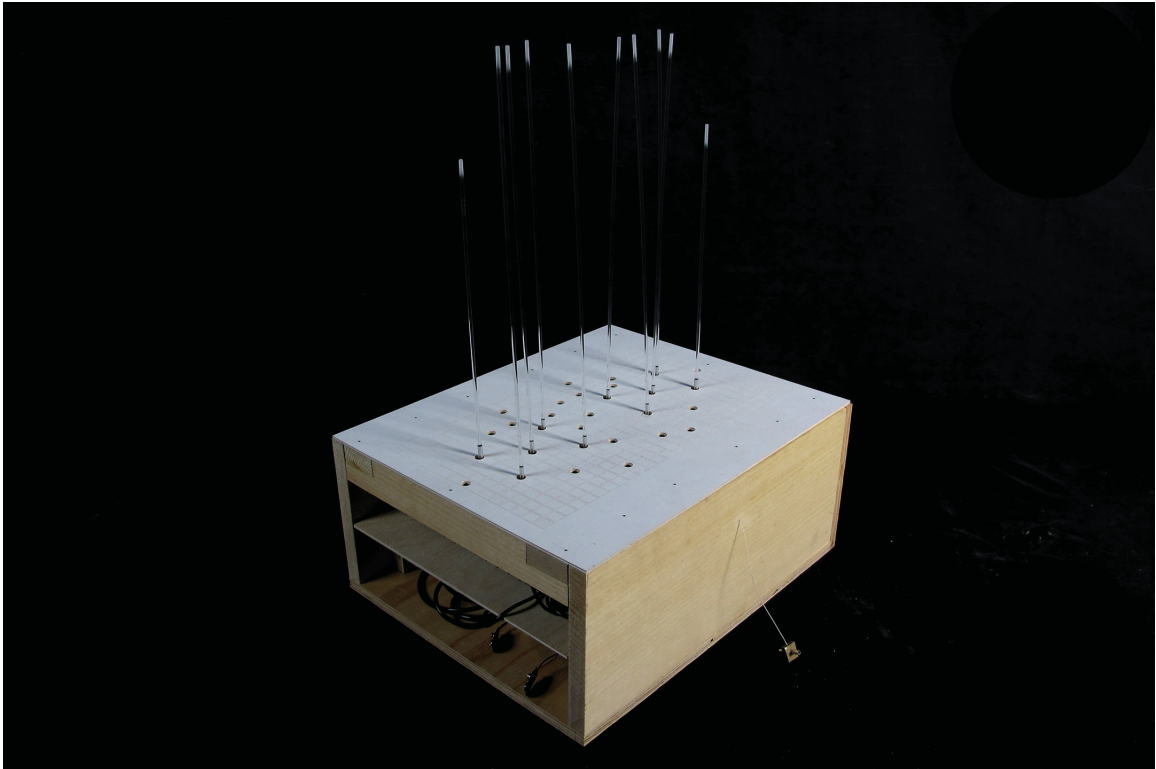
Sketch models for an idea of a “thicket” that could be a visual or acoustical buffer between the rail line and a pathway



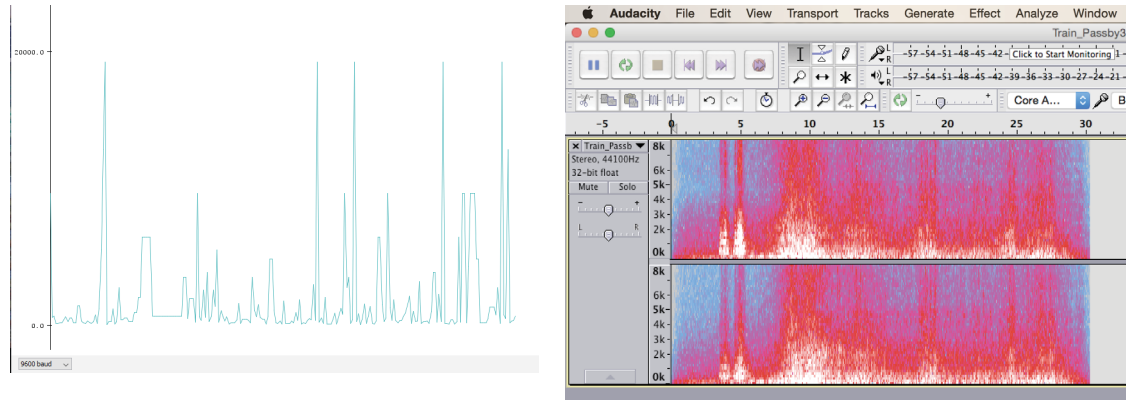
Sketches of the pathway and “thicket”



Sketches of an idea for a pole base mounted to existing railroad tracks



Images of the proof-of-concept model, which caused a field of acrylic rods to illuminate in response to the sound of a passing train



A side-by-side comparison showing the frequency that was detected by the Arduino circuit (left) and the frequency spectrogram from the audio program Audacity (right). The script programmed into the circuit responded to a desired set of frequencies that were prevalent in the audio clip of a train passing

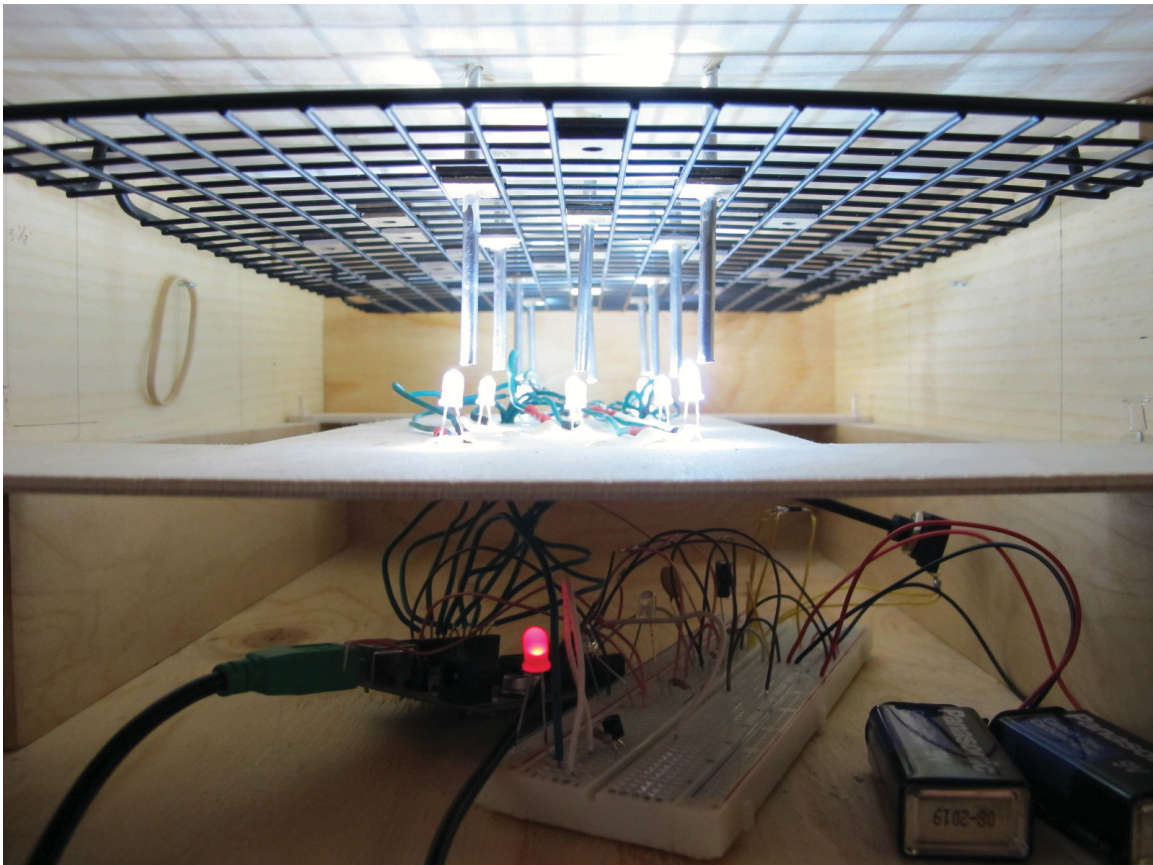


Image of the proof-of-concept model. The Arduino circuit analyzed an audio clip of a passing train and triggered the LED lights, which were mounted below acrylic rods built onto a customizable grid

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