A design thesis submitted to the Department of Architecture and Landscape Architecture of North Dakota State University

by

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in partial fulfillment of the requirement for the degree of Master of Architecture

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A new era is coming to St. Paul’s Hamline-Midway neighborhood on the rails of the new Green Line light rail extension. There is a potential for the Green Line expansion to bring about a flourish of growth and positive change in the neighborhoods it touches, and this thesis will seek to tap that potential and transform it into a new urban node for the Minneapolis - St. Paul metropolitan area. If quality design interventions take place here, the University Avenue corridor can begin to reflect the character of the neighborhood to which it belongs. Doing so will illustrate that connections between places can serve as more than conduits, generating their own unique places.

Our thesis explores the design of a public square and transit station at the intersection of University Avenue and Hamline Avenue in St. Paul, Minnesota. Our focus will be on responding to the need for transit-oriented development (TOD) through sustainable practices in the Hamline-Midway neighborhood. Our research methods in proving this hypothesis will be mixed-method with an emphasis upon a quantitative foundation, augmented by qualitative data.

Key Words: public space, transit, station, transit-oriented development, connections
‘But Douglas, standing on the lawn, was seeing how it would be
tomorrow, when the men would pour hot tar over the silver tracks so you
would never know a trolley had ever run this way. He knew it would take
as many years as he could think of now to forget the tracks, no matter
how deeply buried.’

Ray Bradbury, *Dandelion Wine*
CHAPTER ONE: TYPOLOGY AND LITERATURE REVIEW

ST. PAUL AND TRANSIT ORIENTED DEVELOPMENT
Our work explores the design of a public square and transit station at the intersection of University Avenue and Hamline Avenue in St. Paul, Minnesota. Our focus is on responding to the need for transit-oriented development (TOD) through exploration of the neighborhood placemaking principles of identity and growth. This focus upon growth and identity at the neighborhood scale allows us to define methods for improving transit corridor connections between major urban centers. Our secondary focus is on the collaboration of architecture and landscape architecture and how we work together to accomplish our goals.
INTRODUCTION

St. Paul, Minnesota’s University Avenue corridor defines the southern boundary of the Hamline-Midway neighborhood. Though the University Avenue corridor serves as the main traffic artery for the neighborhood, the corridor currently suffers from scars of urban blight. Buildings have been removed from the streetside to make room for at-grade parking.

Strip malls and fast-food restaurants have replaced locally owned and operated shops and stores, and vehicular traffic pervades throughout. Closely-knit and traditionally planned residential areas exist mere blocks away from the University Avenue corridor, but they are blocked from view by the retail zone in the corridor itself, which has been transformed by the influence of the automobile.

A new era is coming to Hamline-Midway on the rails of the new Green Line light rail extension. With rail transit connecting to both Minneapolis and St. Paul bringing more commuters than ever through the University Avenue corridor, there is enormous potential for economic development along the transportation corridor, or transitway.

With the influx of commuters comes an opportunity for the Hamline-Midway neighborhood to become a destination – a place to go to, instead of a place to go through. There is an opportunity to use this growth as a tool to develop the neighborhood itself. This development can be done through the application of smart growth, or transit-oriented, principles.
The research we are conducting involves the ways that inclusion of a public square and transit station can influence and encourage TOD. Our thesis investigates what scales of TOD are aided by public space design, and how to design to achieve the type of TOD we deem fit for Hamline-Midway.

Our thesis also investigates the best ways to fit new TOD into a community that was historically planned around a similar mode of transit. It seeks the best way to design public space for TOD in terms of providing optimal access and connectivity for the surrounding community, in order to design a space that has the widest possible appeal and the greatest possible effect.

This research will be used to help Hamline-Midway and neighborhoods like it to avoid acting only as a conduit between larger urban centers, such as the downtowns of Minneapolis and St. Paul. Our findings are applicable to neighborhoods in cities around the world that lie between the focal points in metropolitan regions.

At a societal level, our research serves to bolster the feasibility and reputability of rail transit expansion in urban areas. We live in a world with an exploding population and ever-dwinding reserves of natural resources. As such, developing design solutions that promote a shift away from fossil fuel consumption toward a future of resource conservation and renewable energy growth are favorable to those that perpetuate current standards in design and energy consumption.

Finally, our research examines the collaboration among architects and landscape architects. We work through an integrated system of collaboration between the two professions in order to create more holistic design solutions. These designs are therefore more complete and better able to serve the needs of their users. Our model is documented through the process of our design's development, and contributes to the collaboration of professionals in our respective fields.
The selection of our site began with the search for a metropolitan region that is currently focusing on expanding its rail transit infrastructure. Minneapolis-St. Paul appealed to us because of the recent installment of its light rail and commuter rail lines, and because of the fairly large amount of planned extension to both of those systems.

From there, we began to narrow down our search by investigating the planned light rail extensions in the Minneapolis-St. Paul region. The soon-to-be-opened Green Line unlocked a number of potential sites that met our criteria.

The Green Line is a brand-new transit corridor, a factor we include in our site selection, as our thesis uses new connections to foster old neighborhoods. It also connects two urban centers – Minneapolis and St. Paul – allowing us to choose a site that is between them.

Located along a very high-traffic corridor, the Green Line travels through several historic, transit-oriented residential neighborhoods, enabling us with further design opportunities. This also provides potential for using our design to spur economic development.

Once we selected the Green Line transitway, we continued weeding through potential sites to identify one that met our third and final criteria: a vacant space in an area that was both suffering from urban blight and lacked quality urban public space in the vicinity. We scoured the University Avenue corridor for such a site, and it was presented to us in the form of the intersection
of University Avenue and Hamline Avenue.

The opportunities on this site allow us to apply our chosen typology – public square and transit station – to the exact type of neighborhood we wish to work in. We will be able to explore ways in which our typology cannot only be integrated with the surrounding neighborhood, but also help it to flourish and develop its own sense of place.

Challenges of working at the intersection of University Avenue and Hamline Avenue are mainly site-level layout tasks. Incorporating a successful public square into a high-traffic corridor in a safe and effective manner will be one of our greatest obstacles. Addressing neighborhood scale with our design will be another challenge. To the south of University Avenue is a big-box retail development, while the north side of University Avenue contains a small strip of retail development.

Furthermore, a fully residential neighborhood lies but half a block to the north of the site. Finding a way to address all three of these scales will be another significant challenge to be overcome.
I. Transit and St. Paul: Historic Analysis

Many cities in the United States, particularly those that experienced their greatest growth from the 1880s to the mid-1940s, can be classified as streetcar cities (Condon, 2010). Streetcar cities are defined by their structure, which involved the implementation of rail transit in the form of streetcars. This allowed our nation’s first suburbs to expand outside of its crowded city centers. Before the advent of the streetcar, people were limited in the areas in which they could live by the distance they had to travel from work to home. Because of this, many of America’s largest cities suffered from overcrowded and over-polluted conditions (Condon, 2010). With the implementation of the streetcar came the invention of the streetcar suburb. Middle-class, working families could live in single-family homes just outside the city center because streetcar transit allowed them a means to travel to and from work at a speed much greater than walking (Condon, 2010).

This growth resulted in many of our cities being surrounded by a ring of closely-knit suburbs that were defined by the commercialized transit corridors that connected them (Condon, 2010). These streetcar cities were thriving metropolises where people were able to walk to most of the places they needed to travel to and were always within walking distance of a streetcar to take them to the places that were beyond walking distance (Condon, 2010).

Minneapolis and St. Paul are two such streetcar cities (Diers & Isaacs, 2007). The downtown areas of the Twin Cities were the
first in the region to install streetcar systems, and the University Avenue corridor was the first to carry a streetcar line that linked the two cities.

Originally no more than a patch of prairie between Minneapolis and St. Paul, Hamline-Midway eventually became the site of agrarian farmsteads, before giving way to out-growing streetcar suburbs when the University Avenue streetcar line was built in 1890 (Ramsey County Historical Society, 2012). With the growth of the Hamline-Midway neighborhood came the expansion of the streetcar system.

Additional lines were built in the neighborhood along Snelling, Lexington, Thomas, Hamline, and Minnehaha Avenues (Ramsey County Historical Society, 2012). A major streetcar servicing station was located to the south of University Avenue between Snelling and Hamline Avenues, on the site of the present day Midway Shopping Center (Ramsey County Historical Society, 2012).

During its peak year of performance in 1922, the streetcar system – owned and operated by the Twin City Rapid Transit Company – operated over 900 streetcars during rush hours and carried more than 200 million passengers annually (Lowry, 1979).

The 1940s saw the demise of the streetcar as a mode of transit though the introduction of buses and the sweeping popularity of the personally owned automobile in cities across America. The conversion to bus in the Twin Cities began in 1951 when Fred Ossanna took over as President of Twin City Rapid Transit Company (Lowry, 1979). General Motors financed the purchase of over 500 buses to replace the streetcars, and the conversion was complete by 1953 (Lowry, 1979).

In fact, General Motors, along with Firestone and Philips Petroleum, owned a company called National City Lines, which was indicted in 1949 for taking over U.S. street car systems in order to create a captive market for buses, and for conspiring to monopolize the bus market in the United States (Condon, 2010).

Whether the conversion of transit in the United States from streetcar to bus was a foregone conclusion or a corporate takeover is unclear. The fact remains that by the 1950s, the cities that the streetcar built were now stripped of their founding skeleton, and were
beginning to transform to the shaping of the automobile.

Even now, however, the underlying form of the streetcar city is not gone from the streetcar suburbs; even though the rails are gone from the streets, the urban fabric that defined a way of life a century ago is still able to inform a new way of life as we move into the future (Condon, 2010). By re-instituting at-grade transit in Minneapolis and St. Paul, the shift has already begun toward a new era of development oriented to public transit. The streetcar city, when embraced as a holistic concept, can help to revitalize our cities. By balancing density, land use, connectivity, transit vehicles, and the public realm, the streetcar city concept has a range of benefits for our neighborhoods (Condon, 2010).

These benefits include service of single-family homes by transit, ensuring that walking becomes a part of the urban citizen’s everyday experience. This induces substantial shifts from automobile use to public transit, and a dramatic increase in economic investment – an increase that is seen in neither bus nor subway transit (Condon, 2010).

Because Hamline-Midway was designed around the streetcar, it is primed and ready for a renaissance era with the re-introduction of the Green Line light rail extension on University Avenue. Looking to the past will provide a powerful example of successful transit-oriented development that is tailored directly to Hamline-Midway, and will help inform our design work. Designs molded to the existing urban form, rather than working against it, will prove to be more successful (Condon, 2010).

Transit-oriented Development: Goals + Values

Transit-oriented development (TOD) can be defined as a commercial and residential mixed-use area that is designed to maximize access to public transportation (Holmes & van Hemert, 2008). These neighborhoods are often centered around a transit station and include higher density housing and commercial mixed-use at their core that gradually recedes to lower density housing at their fringes. TOD neighborhoods are generally viewed as vibrant communities that center on transit access and reduced auto
Proximity to transit is not the only factor that influences TOD neighborhoods. In fact, many developments that claim to be TODs are in fact only located in close proximity to transit but are not designed to actively promote access and use of that transit (Holmes & van Hemert, 2008).

With thorough and thoughtful planning, however, developments in close proximity to transit can become true TODs, providing benefits at both the regional and local scale (Holmes & van Hemert, 2008).

Transit-oriented development can replace costly automotive infrastructure and funnel public transit investment into local retail and businesses, thus stimulating the local economy (Holmes & van Hemert, 2008). This translates to overall more sustainable travel habits of citizens, which can be seen and felt even at the regional level.

Bringing transit to an area alone is not enough to influence citizens to abandon automobile transit – TODs are essential to reducing the average vehicle miles travelled of any community. As much as forty-five percent of residents in TODs will walk, bike, or take public transit when travelling to their jobs (Holmes & van Hemert, 2008). This is contrasted by a meager fourteen percent of residents that live in neighborhoods that are simply located in proximity to public transit (Holmes & van Hemert, 2008).

The benefits of TODs continue. Because they do not require residents to own a personal vehicle, they provide a higher standard of living for people who are unable to drive for any variety of reasons. This includes those who cannot afford to own a personal vehicle, elderly residents who find driving to be difficult, and sick or disabled residents who are not able to drive themselves (Holmes & van Hemert, 2008). TODs can provide access to many of the services these people need, including a means of travelling to work, medical appointments, and shopping trips (Holmes & van Hemert, 2008).

Combine these groups with young urbanites who wish to live in a vibrant community with excellent street life and who do not wish to own a personal vehicle, and TODs soon become communities of economically diverse demographics. The traditional divides of race and income that define suburban neighborhoods fall away when TODs are implemented (Holmes & van
Hemert, 2008).

Further, TODs reduce the amount of money that governments at all levels spend on maintaining the automotive infrastructure. This reduction in spending can then be reapplied to transit expansion, which leads to further reduced spending on the automotive infrastructure (Holmes & van Hemert, 2008). This cyclical process can then lead to greater investment in improved housing for all socio-economic classes as well as public amenities such as parks and open spaces (Holmes & van Hemert, 2008).

The Twin Cities’ Metropolitan Council drafted a strategic action plan for the encouragement and planning of TODs in the metropolitan area this past summer (Bell, 2013). This plan outlines policy for implementing TODs along the newest transit corridors in the Twin Cities: the Red Line and Green Line. The plan can be used as a tool to aid in the development, planning, and funding of TOD projects in the Twin Cities region (Bell, 2013).

The strategic action plan calls for close cooperation between the public and private sectors. The general policy is for the government to encourage and subsidize TODs that are developed in the private sector (Bell, 2013). These TODs will be in areas specifically located by the Metropolitan Council as having a high priority for TOD development, in order to ensure their success after development (Bell, 2013). From a planning perspective, the plan calls for both corridor planning and station area planning (Bell, 2013), which apply directly to the Hamline-Midway neighborhood.

The Metropolitan Transportation Commission of the San Francisco Bay Area published a Station Area Planning Manual in 2007 (Metropolitan Transportation Commission, 2007). The manual defines seven types of station areas – urban areas that are located immediately adjacent to a transit station. The manual allows designers to compare characteristics across station area categories in order to more easily identify the type of development they are working with (Metropolitan Transportation Commission, 2007).

The seven station types fall under three categories in the manual: ‘Centers,’ ‘regions,’ and ‘corridors.’ The planning elements used to distinguish one type from the next
include: land use, transit mode, density, retail characteristics, and primary challenges (Metropolitan Transportation Commission, 2007). By using the manual to identify the area in which a TOD is going to be built, a designer can begin to tailor the TOD to its surroundings in order to gain maximum benefit for the community.

Public Square: Form + Function

The Charter of the New Urbanism (Congress for the New Urbanism, 2000) states in its twenty-fourth principle that, “Civic buildings and public gathering spaces require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form, because their role is different from that of other buildings and places that constitute the fabric of the city.”

In the writing of this twenty-fourth principle, Andres Duany, one of the founding members of the Congress for the New Urbanism, asserts that public squares are the root of public life in the neighborhood (Congress for the New Urbanism, 2000). He claims that they are necessary for democracy to flourish as they provide not only a forum for the public, but they also aid in adding hierarchy to important civic structures.

Duany finds the location of these spaces to be pivotal as well. The organization of neighborhoods is to be oriented around a central public square or plaza (Duany, Speck, & Lydon, 2010). Defining the center of a neighborhood is pivotal to its success, and a public square or plaza is the perfect neighborhood element for doing so. Duany asserts that every community should be designed around a public square or plaza as its primary public space, with other public spaces such as parks, commons, and greens being secondary, though still necessary, in the hierarchy (Duany, Speck, & Lydon, 2010).

Duany also makes the case for a public square in conjunction with a transit stop, saying that transit stops must be safe, dry, and dignified (Duany, Plater-Zyberk, & Speck, 2000). Because so many transit stops are in neglected locations and suffer from degraded conditions, many members of the public find them to be unfavorable, distasteful, or downright dangerous. This in turn leads to the only users of transit being those who can afford no other means of transportation - the underprivileged (Duany, Plater-Zyberk, & Speck, 2000).
One of the most effective ways to improve the quality of transit stops is through a public-private partnership. By including shop and business owners in the planning of transit station areas, overlaps can be created between public space and private space (Duany, Plater-Zyberk, & Speck, 2000). These private spaces, such as shops, restaurants, and coffee houses, create a feeling of civility and safety and provide a place where transit users can wait and rest in a more dignified setting while waiting for their transit to arrive (Duany, Plater-Zyberk, & Speck, 2000).
How can the design of a public square and transit station influence the growth of transit-oriented development in a historic transit-based neighborhood?

This is the primary question our research will seek to answer. We expect to find ourselves asking additional questions that accumulate to answer our overarching query. Such questions may include: What scale of public space is our site best suited for, what type of ownership/management works best for this type of development, what is the best way to manage the various types of traffic around the site, and what roles do architects and landscape architects play in the design of these spaces.

We believe that our primary question will be answered by designing a public space in an area that is defined more by a corridor than by singular nodes. We believe our findings will show that this will allow economic development to center around our new public space and transit station, because the design of such urban elements will create a higher-traffic node, ideal for attracting customers. Ownership of the space will be a collaboration of the public and private sectors, with the development zone being publicly planned to accommodate private uses on site. With the growth of economic development around the public space, our TOD will begin to spread, attracting more consumers, more retail, and eventually attracting higher-density residential development.
Rio Vista West

Construction of the 95-acre site was completed in 2006 under the authority of the City of San Diego Planning Department, the primary client (Inam, 2012). Rio Vista West was the first transit-oriented development to be designed in the city of San Diego after it instituted its ‘TOD Design Guidelines’ in 1992 (Calthorpe, 1993). It is a unique compromise of the ideals of transit and pedestrian precedent and the realities of modern automobile usage. This compromise occurs in the inclusion of a regional retail component, with a 120,000 square foot super-store and 700 adjacent parking stalls (Calthorpe, 1993).

It is interesting to view a TOD in such close proximity to a type of development that is uncharacteristic of standard TOD ideals. Even though this particular case does incorporate non-TOD planning elements, it still functions as a TOD and not as a faux-TOD (or close-proximity transit development). Its inclusion of a regional-scale retail development is a phasing opportunity for the neighborhood in order to draw consumers from other neighborhoods until the TOD can become fully developed enough to convert the regional-scale retail zone into a more locally oriented sector.
This same juxtaposition can be seen at the site we are investigating at the intersection of University Avenue and Hamline Avenue in St. Paul. Though the area to the north and east of our proposed site is a traditionally planned, historically transit-oriented residential neighborhood, the area to the south and west of our proposed site is a regional-scale shopping center, with multiple super-stores and their adjacent parking lots.

This mirrored similarity is an opportunity to build upon in both plan and policy. Using regional shopping centers to spur growth in TODs while intending to eventually convert them into local-scale retail is a tactic that could prove quite effective at Hamline-Midway.

Rio Vista West also incorporates two modes of transit into its design, bus and light rail, which intersect at a public square adjacent to the light rail station (Calthorpe, 1993). This public square functions as a center for the community, as it is not only the main transit hub for the community but the public/private partnership that exists creates a vibrant, pedestrian-focused neighborhood component. Emulating the conjunction of bus and rail transit, and the public/private partnership in our neighborhood may bring about similar success in Hamline-Midway.

Del Mar Station Transit Village
Del Mar Station Transit Village is a transit-oriented development in Pasadena, California along the Gold Line of the Los Angeles Metro Rail (Lubell, 2011). Del Mar Station, which sits on a relatively small 4-acre site, was completed in 2007 at a cost of $77 million (Moule & Polyzoides, Architects and Urbanists, 2013). This TOD was designed by Moule & Polyzoides, Architects and Urbanists, and the primary client was Urban Partners, LLC (Moule & Polyzoides, Architects and Urbanists, 2013).

Del Mar Station incorporates retail development, high-density residential development, and a public square with a high-volume transit station (Moule & Polyzoides, Architects and Urbanists, 2013), much as our design at Hamline-Midway will attempt to do. With the public square directly adjacent to and interacting with the transit station, the design creates instant potential for an excellent public/private partnership in design. This partnership has manifested itself as retail development in the station.
itself, another goal we have for our design.

A loop of positive feedback exists at Del Mar Station between the vibrancy of the public square and the success of the retail in the transit station. As the retail element draws in consumers, those consumers tend to also become users of the light rail. And as the public square brings riders through the station area, they tend to utilize the adjacent retail. Positive feedback of this nature will be essential in creating success at Hamline-Midway.

This feedback loop also includes the adjacent high-density residential development. The vibrant public space created by the public square and transit station attracts not only shoppers and riders, but also residents. In the case of our project at Hamline-Midway, our proposal will not include a residential portion, but will provide the basis for private developers to begin building high-density residential developments on adjacent lots, just as the residential development at Del Mar Station is located in close proximity to the transit station.
CHAPTER TWO: METHODOLOGY

EXAMINING THE TRANSITWAY
Our research embodies a mixed methodology approach, utilizing mainly qualitative analysis with portions of quantitative research used to augment this. A literature review and case studies are used to set the stage for the research, defining three main sections to compose the framework of the thesis. We begin our research with historical analysis of the site, in terms of both economy and culture. From there, we move into a geospatial analysis of the site's context on multiple scales, ranging from neighborhood to regional. Next we present an indexing of form and use study, where we seek the uses and forms we need to apply to our site in order to achieve the results we desire. Finally, we end with the isolation and delineation of forms to derive design principles for applications to our site intervention.
Our research is composed in a linear fashion, with the theories and ideas explored in one section leading to the theories and ideas explored in the subsequent section. Because our research relies primarily upon the discovery of forms and functions that work in contexts similar to those of our thesis, the means of our research was based heavily in literature from the field.

The works we examined spanned a number of genres, from historic records and analyses to progressive town planning manifestos to detailed observation reports of pedestrian activity in public spaces. By pulling our ideas, theories, and design principles from both past and present, we have based our thesis in practices that have been shown to be successful in the past while adapting these practices to fit modern contexts.
The site we have chosen for our project is a former used car lot and auto repair shop. The lot is located on the southern edge of St. Paul, Minnesota’s Hamline-Midway neighborhood, along University Avenue.

Here, the new Green Line light rail corridor is in the final stages of its construction and will soon be providing rail transit service to Hamline-Midway, connecting it with both downtown Minneapolis and downtown St. Paul. This was the primary factor that we took into account when we began searching for our site.
Zoning Map Project Site

residential
local retail
transitway
regional retail

RESIDENTIAL
LOCAL RETAIL
TRANSITWAY
REGIONAL RETAIL
ZONING MAP
An aerial map with zoning overlays reveals a number of clear reasons why this site was ideal for our project typology. Of the four land-use types on the map, three of them are specifically required for the design of a transit-oriented development: residential, local retail, and public transit.

The site itself provides its own opportunities and challenges. As the site is vacant, we will be able to treat it as a mostly clean slate when beginning our design work. Also, its direct connection to the Green Line is ideal for creating a transit station.

On the other hand, we will face challenges in dealing with the immense amount of traffic that utilizes University Avenue. We will also be challenged to cope with three very different scales of development near our site - residential, local retail, and regional retail.
Though there is an existing light rail platform at Hamline Station already (Figure 1), it will need to be improved in a way that ties it more closely to the urban fabric of the neighborhood in order to support transit-oriented development.

The line between residential and retail is sharp and clear, as evidenced by this photo (Figure 2). On one side of an alley, there is nothing but garages and trees. The other side of the alley tells of old brick stores and back-door parking spaces.

This physical map of the new Green Line and all of its stations (Figure 3) represents the heightened connectivity that Hamline-Midway will soon experience. Our design should capitalize off of these connections.

This photograph (Figure 4) gives an accurate sense of place for the regional retail zone located to the south of the site. What is a two-lane road north of University Avenue becomes a five-lane road to the south as it enters the retail development of Midway Shopping Center.
Though there is an existing light rail platform at Hamline Station already (Figure 1), it will need to be improved in a way that ties it more closely to the urban fabric of the neighborhood in order for it to be the center of a transit-oriented development.

The line between residential and retail is sharp and clear, as evidenced by this photo (Figure 2). On one side of an alley, there is nothing but garages and trees. The other side of the alley tells of old brick stores and community.

This physical map of the new Green Line and all of its stations (Figure 3) shows that Hamline-Midway will soon benefit from all of these connections.

This photograph (Figure 4) gives an accurate sense of place for the regional retail zone located to the south of the site. What is a two-lane road north of University Avenue becomes a five-lane road to the south as it enters the retail development of Midway Shopping Center.
As our design is projected to be a collaboration between public and private owners, the client for the project will be multi-faceted. The City of St. Paul and the Metropolitan Council will be the primary clients for the transit station and public space design, but collaboration with private developers, as well as local shop and business owners, will be necessary.

Public/private collaboration in transit-oriented development design in the Twin Cities is specified in the Metropolitan Council’s TOD Strategic Action Plan (Bell, 2013). While the Metropolitan Council specifies sites for potential TODs in the Twin Cities region, and provides planning for those sites, it relies on private developers to see these plans come to fruition. As such, a public/private client in this case is optimal not only for the needs of our project, but per the recommendations of the Metropolitan Council (Bell, 2013).

Users of the site, as an overarching group, will be residents of the Hamline-Midway neighborhood. The residents of the neighborhood break down into several distinct categories: Age (under 18, 18-65, over 65), Household status (family and non-family), Place of employment (local or non-local), and primary transport (personal vehicle, public transit, other) (Minnesota Compass, 2011).

**Age**

The under 18 age group has a very unique set of needs in terms of transit and public space. Because the majority of these users are too young to own and operate a personal vehicle, their demand for public
transit is inherently higher than their parents’ (Duany, Plater-Zyberk, & Speck, 2000). In addition, because of their lack of personal transportation, they act as pedestrians in higher ratios than their parents. Because of this, they help to define the quality of the street life of the neighborhood (Congress for the New Urbanism, 2000). Catering to this age group, even though it is not the primary economic cornerstone of the neighborhood, is key, simply because of their tendencies toward pedestrianism and ridership (Duany, Plater-Zyberk, & Speck, 2000). Providing spaces for athletic activity, as well as leisure shopping and general social activity, will be necessary to account for this age group.

The 18-64 age group is the key economic cornerstone of the community. These are the citizens that make mortgage payments or pay rent, that travel to and from a job every day, that shop to provide for their families’ needs. They have achieved a certain level of education and are applying it at their job in order to contribute to the local economy. Providing for the needs of this age group is different than the under 18 group. Because they already have established means of transportation to their place of work - be it public transit or, more likely, personal vehicle - the design of the TOD at Hamline-Midway will need to prove to this group that public transit is preferable to personal vehicular transportation (Congress for the New Urbanism, 2000).

Furthermore, rather than providing space for social activities like the under 18 age group, the TOD will need to provide essential shopping and retail – staples of everyday life that will keep the business of this age group in the neighborhood (Congress for the New Urbanism, 2000). Groceries, butcher shops, barbers, bakeries, drug stores, and many other retail amenities can be used to keep the business of this age group local (Congress for the New Urbanism, 2000). Public spaces will need to be designed to allow for efficient pedestrian circulation – any semblance of inconvenience could prove a hindrance to engaging this age group.

The over 65 age group has a set of needs that is a hybrid of the first two groups. ADA accessibility will be more prevalent here than the other age groups due to the higher percentage of infirm and disabled citizens (Congress for the New Urbanism, 2000). Housing located in close proximity to the transit station will provide easy access
to the amenities provided there. Much like the 18-65 age group, the necessities of everyday life need to be provided in order to accommodate the over 65 age group. In this case however, not only do these amenities need to be provided, but they must be located in close proximity — or walking distance of — residential development (Congress for the New Urbanism, 2000). And, much like the under 18 age group, access to reliable transit must also be provided because of the lack of personal vehicular transportation in this age group.

Household Status

There are two primary types of household status that will affect the design of our TOD: Households with children, and households without. Households are usually broken down into more categories, but those breakdowns are better suited for consideration in other categories such as age and employment location.

Households with children are most notable because of their need for one thing: space (Duany, Plater-Zyberk, & Speck, 2000). The residences that house these families need to be bigger in order to accommodate the larger family size. These families also require more room for transportation — be it bigger vehicles or more space on public transit. Finally, they require more open space for their children to enjoy outdoor activities and engage with the world around them (Duany, Plater-Zyberk, & Speck, 2000).

The best way to accommodate for households with children is to provide safety and ease of circulation/pedestrian travel at every possible instance (Duany, Plater-Zyberk, & Speck, 2000). Confusing public spaces could cause families to hesitate for fear of losing children in a crowd. Overall navigability of public space, therefore, is paramount for facilitating this group.

Households without children, conversely, do not necessarily need the same amount of space. They are generally more willing to live in higher density housing such as apartments or condominiums, which are a significant component of TODs — and which, in this case, will be planned and built by the private developers that serve as the client for the project. They require close access to transit and retail because they do not necessarily need to own personal vehicles, as they do not have children that require transportation (Duany, Plater-Zyberk, & Speck, 2000).
Place of Employment
User groups defined by place of employment are important because they specify which modes of transit are likely to be the most effective on site (Condon, 2010). Users who work near to the site will be more likely to use walking, biking, or busing to get to work, whereas users who work further away are more likely to use the light rail or a personal vehicle (Condon, 2010).

Providing for both of these groups will involve, again, excellent circulation design, as well as the creation of a healthy, welcoming atmosphere around transit stops and interchanges, including bus stops (Duany, Speck, & Lydon, 2010). Encouraging and enabling residents of Hamline-Midway to utilize the transit opportunities presented by the design of a TOD in their neighborhood is paramount to the success of the TOD itself (Condon, 2010).

Primary Transport
Understanding current transportation usage trends in Hamline-Midway will be useful to assess what measures are needed to improve ridership and reduce vehicle miles travelled. Proving that public transit can be more cost- and time-effective than personal vehicle transportation will likely be the largest challenge in this area. Close cooperation with local businesses, developers, and neighborhood activist groups will be helpful in educating the public on the advantages of TODs.
Two scales of inventory are examined - neighborhood scale and site scale. Examining the site at a neighborhood scale allows us to fit our design to the greater urban fabric of the city by tailoring our interventions to the existing social, economic, and environmental dimensions of Hamline-Midway. Examining the site at a site scale allows us to make decisions based on the physical dimensions of the site, such as access, connectivity, sun/shade patterns, built environment, existing materials, and climate.

The base map of Hamline-Midway at right depicts its extents. It is bounded by Pierce Butler Route on the north, University Avenue on the south, Lexington Avenue on the East, and Transfer Road on the West. The Green Line serves the neighborhood’s south edge as it passes through the University Avenue corridor.

The neighborhood contains several parks, highlighted here in green. They are spread mostly throughout the north half of the neighborhood.

Apart from the University Avenue corridor, major traffic access to the site occurs via Lexington and Snelling Avenues, which have controlled access ramps to Interstate 94, which passes just two blocks south of the neighborhood.

Opposite: Figure 9
Four stations on the Green Line fall within the boundaries of Hamline-Midway. The stations are located 1/2 mile apart from each other, which equates to a walk of approximately 5 minutes. Though the Green Line is not located within a 5-minute walk of the entire neighborhood, this diagram reveals a corridor of walkability that surrounds the expansion rail line.
As University Avenue passes through Hamline-Midway, it forms the boundary between two very distinct urban settlement patterns. North of University Avenue, the gridded streets form relatively small, rectangular blocks. South of University Avenue, street definition ceases and the blocks meld together to form super-blocks, some equivalent to three or four of the smaller blocks to the north of University Avenue.
Three principal user group breakdowns are pictured: ethnicity, age, and income. The graphic representations of these breakdowns reveal the majority groups that make their residence in Hamline-Midway. The primary ethnicity in Hamline-Midway is white, with black, hispanic, and asian comprising most of the remaining residents. Most residents in Hamline-Midway fall between the ages of 18 and 64, with only a small amount below 18 and above 64. Income levels in Hamline-Midway are spread across the lower and middle classes, with most residents making under $50,000 annually.

Above: Figure 12
Opposite: Figure 13
CLIMATESTUDY

Temperature

Precipitation

Humidity

Snowfall

Sunshine

Wind Speed
Introduction
The results of our research are laid out in a linear fashion and arranged purposefully into three distinct sections, each of which works with and develops from the research of the section(s) before it. The research begins with a historical analysis of public transit and its presence in the city of St. Paul. This first section begins to inform the direction of research as it moves into the second section, based around the goals and values of transit-oriented development (TOD). The cumulative indications of the first two sections direct the research as it enters its final phase. This third section examines the forms and functions of public squares and how they can be applied within the context of the first two sections of research.

Each section is divided into a series of sub-sections, which remain the same throughout the main research sections in order to simplify the organization of the research results and maintain coherence throughout the document. Each sub-section was chosen based upon a specific focus of the overarching thesis and research questions.

Ownership + Development examines the planning, building, and management involved in each section of the research. The opportunities and challenges presented by different approaches to development and different ownership arrangements are here laid out for examination.

User Benefits examines the values offered by the focus of the research in each particular section. From the historic benefits provided by transit in St. Paul to the benefits of new
transit-oriented development and public square design, this sub-section shows the advantages given to site users on multiple levels.

Identity + Culture examines the influence of each research section on the identity of urban spaces and the culture that they inspire. Historic implications of transit on identity and culture, the identity needed and culture provided by transit-oriented development, and the creation of identity and culture through public space design are researched under this sub-section.

Growth + Economy examines the influence of each research section on economic successes and growth trends. Historic economic influence of transit, the economic possibilities of transit-oriented development, and the possibilities for growth around public squares are researched here.

Spatial Delineation, Spatial Accommodation, and Spatial Features are sub-sections that exist only in the third research section, Public Square: Form and Function. These are the three sub-sections of criterion identified by the research of public square design. Here, the specifics of the design of public squares are laid out and separated into public square layouts, amenities, and special elements.

I. Transit and St. Paul: Historical Analysis
i. Ownership + Development
Transit development in St. Paul began with the growth of residential suburbs outside of the city’s downtown center in the late 19th century. Development and ownership went hand-in-hand here, as the primary developers of the city’s streetcar transit lines were also the owners of vast tracts of real estate that were being developed for housing (Lowry, 1979). Because the personal automobile had not yet come into its own, travel for citizens to and from work, shopping, and home was restricted to walking or horse-drawn carriage. In order for any housing development outside of the city’s center – and therefore beyond walking distance of work and retailers – to be successful, it would need to provide transit for its residents. And that is just what the developers of these suburban communities did (Condon, 2010).

Though the first streetcar lines in St. Paul were owned and developed separately, they were soon coalesced under a series of different ownerships. Eventually, the St. Paul streetcar system was purchased by Thomas
Lowry, who, at the time, was also the owner of the Minneapolis street car system. Lowry combined the two systems to form the Twin Cities Rapid Transit Company (TCRT). At its heyday in the 1920s and ’30s, TCRT was one of the best run, most ridden, and most successful streetcar systems in the nation (Lowry, 1979).

Thomas Lowry expanded his company into all reaches of the young metropolitan area. The Twin Cities were first connected by the Minneapolis-St. Paul line, which ran from downtown Minneapolis to downtown St. Paul via University Avenue. Additional lines extended not only throughout Minneapolis and St. Paul, but also into more distant suburbs such as Stillwater and Minnetonka (Lowry, 1979).

The private ownership of TCRT was ideal for nearly the entire life of the company, though it lacked government subsidy assistance in its infancy, it became a profitable company that served its users needs faithfully throughout its lifespan, and, until the advent of the automobile, the citizens of the Twin Cities relied upon TCRT for almost all of their transportation needs (Diers & Isaacs, 2007). The company was able to meet those needs both efficiently and affordably. In fact, the fare was never raised above five cents per ride (Diers & Isaacs, 2007).

Only at the end of its lifetime did the market economy fail TCRT. Corruption at the hands of the Goodyear Tire, General Motors, and Philips Oil companies brought about the demise of streetcar systems in cities across the United States, and TCRT was no exception (Lowry, 1979). These companies came together to buy out streetcar companies, and then proceeded to shut down the streetcars and remove the systems entirely in order to make way for the transit of the future: buses, a transit mode that Goodyear, GM, and Philips would all profit greatly from (Diers & Isaacs, 2007).

Had the streetcar lines in the Twin Cities been run by the public sector, or by some public-private cooperative, there is a chance that they would not have been shut down and could have continued to serve the residents of Minneapolis and St. Paul into the future.

ii. User Benefits

The primary function of the Twin Cities Rapid Transit Company was mobilizing the residents of the Twin Cities by providing
them with safe, reliable streetcar transit (Diers & Isaacs, 2007). Because of TCRT, residents were able to move throughout the metropolitan area at an affordable rate. This enabled them to complete daily tasks, such as commuting to work, shopping, and going to school, without having to live within walking distance of all three. It also allowed them to travel to the downtown city centers to shop for non-essential items. Additionally, this mode of transportation allowed residents to attend entertainment venues and pursue recreational activities in the metropolitan area’s extensive park network (Diers & Isaacs, 2007).

Initially, TCRT gave residents the advantage of being able to live outside of the crowded city center. It allowed them to own their own single-family home on their own piece of land: Thus the modern perception of the ‘American Dream’ was formed (Condon, 2010). Single-family housing, a pedestrian-oriented street system, and a reliable, accessible transit system combined to create an efficient and effective urban lifestyle, allowing the residents of the city to live both comfortably and within their means (Condon, 2010).

When the personal automobile began to take hold of the transportation market, TCRT began to see its ridership and profits decrease. Nonetheless, it continued to serve the residents of Minneapolis and St. Paul as reliably as ever. It allowed those who could not afford or did not wish to own automobiles to continue living a well-connected lifestyle within the city (Diers & Isaacs, 2007).

iii. Identity + Culture
Streetcars elicit strong feelings amongst residents of some American cities that never lost their original streetcar systems, such as San Francisco and New Orleans. Most Americans can immediately identify these cities with their iconic streetcars, but few know that the majority of the younger U.S. cities were shaped around streetcars that no longer exist today (Condon, 2010).

Because the streets, blocks, and neighborhoods that compose Minneapolis and St. Paul were planned around the availability of streetcar transit systems, the cities reflect a streetcar-based pattern to this day (Diers & Isaacs, 2007). The neighborhoods are composed mainly of long, rectangular blocks with houses that face the street, as well as alleys that provide access for parking personal automobiles and collecting municipal waste.
Commercial development is concentrated in linear corridors rather than central nodes, revealing the former routes of the streetcar system. Streetcar lines, because they increased pedestrian traffic in their immediate vicinity, were usually lined with commercial, rather than residential, development (Condon, 2010).

This identity, however, is overshadowed by the automobile-dominated culture of the mid to late 20th century (Condon, 2010). The expansion of the interstate highway system in particular has transformed both the look and feel of the Twin Cities. Most visitors experience the city via automobile trip on the interstate highways, rarely venturing off of them into the historic, streetcar-shaped neighborhoods. These same interstates wiped out blocks upon blocks of residential neighborhoods when they were built (Diers & Isaacs, 2007). Additionally, the interstates wide right-of-way provides extensive barriers between neighborhoods, estranging places that were formerly closely related.

This stands in stark contrast to the growth patterns of the automobile-centered city. New growth after the advent of the personal automobile was focused on the city’s edges, rather than it’s center (Dittmar & Ohland, 2004). Density began to decrease drastically as one entered this new ring of suburbs. Because the automobile enabled residents to travel and commute longer distances, the city was able to spread out further (Dittmar & Ohland, 2004). This, coupled with much cheaper land prices at the city’s fringes, led to the rapid expansion and de-centralization of Minneapolis and St. Paul (Condon, 2010).

Furthermore, the automobile allowed the widespread separation of uses in the suburbs (Duany, Plater-Zyberk, & Speck, Suburban Nation, 2000). Residential areas are completely separate from retail areas,
which are completely separate from work areas. Automobiles are required for residents to do nearly everything, including daily tasks that, in a streetcar system, were done on foot (Duany, Plater-Zyberk, & Speck, Suburban Nation, 2000).

The economy of urban areas was also re-shaped by the automobile. Under the reign of the streetcar, locally-owned shops, businesses, and restaurants dominated the economy (Duany, Plater-Zyberk, & Speck, Suburban Nation, 2000). Residents of adjacent neighborhoods owned and operated the companies that supplied those same neighborhoods with their daily needs. Money was both spent locally and earned locally (Duany, Plater-Zyberk, & Speck, Suburban Nation, 2000).

With the separation of uses that the automobile brought to the Twin Cities, the dawn of regional retail shopping centers soon followed. Big-box chain stores, owned and operated in remote locations, took over the economy. Because these regional retail centers served much larger areas than the streetcar commercial corridors, they became exponentially larger and larger, taking business away from the locally-owned shops that could not compete with the regional stores' wholesale pricing (Duany, Plater-Zyberk, & Speck, Suburban Nation, 2000).

This automobile influence was all enabled by affordable homes, cheap fuel, and no foresight of climate change. Today, our urban areas, including the Twin Cities, face a much different set of circumstances. Suburban housing is no longer affordable to most Americans, fuel for automobiles is no longer cheap, nor will it be indefinitely available, and the realization of human-caused climate change has begun to cause a re-consideration of automobile usage (Dittmar & Ohland, 2004).

This new set of circumstances has presented the Twin Cities with the challenge of changing and adapting with the times in order to be able to continue providing for its residents into the future.

For historic images and maps pertaining to the Historic Analysis section, refer to Appendix A.

II. Transit-oriented Development: Goals and Values
A few of the primary benefits of Transit-
oriented Development (TOD) were discussed in the Literature Review section of Chapter One. In order for these benefits to be realized for any associated neighborhood or community, TOD needs to have a clear definition, appropriate scale, and set of goals defined before any development can begin (Dittmar & Ohland, 2004). Failing to do so will cause any subsequent development to belie the title of ‘Transit-oriented Development’ by not providing the actual benefits of TOD (Dittmar & Ohland, 2004). This is not only a loss to the community that was promised those benefits, but it is also a blow to the credibility of any future TOD that a city may wish to establish.

There are five goals that transit-oriented development should seek to fulfill: Location efficiency, mix of choices, value capture, place making, and resolution of tension between node and place (Dittmar & Ohland, 2004). The reaching of the goals of location efficiency, mix of choices, and value capture is discussed in the Ownership + Development sub-section. The goals of place making and node and place resolution are discussed in the Identity + Culture sub-section. The benefits that the neighborhood can realize as a result of these goals being met is discussed in the User Benefits sub-section (Dittmar & Ohland, 2004).

i. Ownership + Development
In the Twin Cities, the Metropolitan Council, a governing body that oversees urban planning in the five counties that comprise the metro area, directs all transit-oriented development (Metropolitan Transportation Commission, 2007). The Metropolitan Council stipulates that the public sector and the private sector should form a close cooperative throughout all stages of planning, designing, and building a TOD. The Council is designated the task of locating potential sites for TOD implementation and finding private developers that could invest in and build the development. It is also responsible for a small portion of the planning and designing for the TOD, as well as completing community outreach and citizen commentary during the planning process (Metropolitan Transportation Commission, 2007).

This action undertaken by the Metropolitan Council fulfills the goal of achieving location efficiency. True location efficiency requires a station area to have appropriate density for the proposed station type (high households per acre ration), proper transit accessibility
(a combination of service frequency and proximity to station), and pedestrian- and bicycle-friendly design throughout the TOD (Metropolitan Transportation Commission, 2007).

After a station area has been established, private developers are brought in and/or encouraged to begin building up the TOD. They are given a range of subsidies and tax credits to incentivize smart growth in the TOD station areas, but from that point on most of the development is left in the hands of the private sector (Metropolitan Transportation Commission, 2007).

This cooperation of public and private sector is on par with TOD precedent in metropolitan areas across the country. With the public sector providing reliable transit, aptly-chosen station areas, and start-up funding for developers, the TOD’s stage is set for a private-sector takeover. The elements of a TOD that the private sector cannot provide for itself have been established by the public sector, and all that is left is for the private sector to begin capitalizing on the benefits of the new TOD (Dittmar & Ohland, 2004).

At this point in the building of a TOD, the private sector begins to work towards meeting the goals of value capture and a mix of choices. Value capture is the process of assuring that all user groups attain the maximum economic benefit from the building of a TOD. The first step to achieving value capture is assuring frequent, high-quality transit – which the public sector has already provided. From there, private sector developers need to assure that the transit is well connected with the community, that the community is provided with the proper number and types of amenities, that there is a dedication to place making, and that financial returns are given special attention throughout the growth of the TOD (Dittmar & Ohland, 2004).

The mix of choices goal also falls to private sector development. Developers should strive to bring as many different retail options and activities as they can to the TOD, and place them carefully within walking distance of the station area and a majority of the residential development. Developers also need to provide a range of housing options, including multi-family residential buildings, lofts, townhomes, and single-family housing. Finally, a full range of mobility options should be provided for in the TOD,
including pedestrian and bicycle access, vehicle transport and car sharing programs, secondary (bus) transit and paratransit, and primary (rail) transit (Dittmar & Ohland, 2004).

ii. User Benefits

Each of the five goals of TOD is developed in order to bring specific benefits to the neighborhood and its residents, as well as the other users of the TOD. Though some of the benefits are achieved through a combination of two or more goals, all of the goals are necessary in order for all of the benefits to be fully realized.

To begin with, location efficiency provides two main benefits to the neighborhood: lower vehicle miles travelled (VMT) for the residents of the neighborhood, and a semblance of economic justice through the availability of transit and amenities in the TOD. If the station area is located correctly, the need for personal automobiles is significantly decreased. Residents of the neighborhood – the primary users of the site in most TOD situations – do not need to drive to reach their jobs or their daily errands or even school (Dittmar & Ohland, 2004). Not only does this reduce dependence upon the automobile and reduce the number of miles travelled in vehicles for the whole neighborhood, it also allows those who cannot afford a vehicle to go without one, as they no longer need to drive to complete their daily tasks. This type of economic justice allows neighborhoods to have a rich mixture of income levels, rather than segregating the classes (Dittmar & Ohland, 2004).

The main benefit of having a mix of choices within a TOD is also this same type of economic justice. By providing the full spectrum of options in housing, transportation, activities, and retail, the TOD is able to accommodate nearly all types of users, regardless of age, economic class, household type, job location, or primary transit preference. Again, by providing for all user groups, the TOD allows a rich mix of not only uses, but people as well, providing a greater sense of justice and community within the development (Condon, 2010).

Value capture is all about providing economic benefits for all of the actors in the planning, building, and growth of a TOD. Value benefits come in both the short term and the long term, and different actors receive their benefits at different times.
Short-term benefactors include landowners, funders, developers, design professionals, investors, management agents, and the public sector. Long-term benefactors include developers, design professionals, investors, occupiers, the public sector, and the affected neighborhood (Dittmar & Ohland, 2004).

Place making has three main benefits: the creation of a healthy pedestrian-oriented environment, a pleasant aesthetic experience for the pedestrian, and a greater likelihood of public funding for the TOD. To start with, the creation of a healthy pedestrian-oriented environment is not only a benefit but also a means for achieving a number of the other goals of TOD, which leads to further benefits. The benefit of an aesthetic experience for the pedestrian not only creates a vital public space that attracts neighborhood users, but it can also begin to create a draw for off-site users to begin using the neighborhood, leading to further growth. The effects of place making on public funding are thus: when public funding is scarce, a well-designed project has a greater likelihood of securing tax credits, subsidies, and grants than a project that is less well-designed (Dittmar & Ohland, 2004).

Finally, resolving the tension between node and place is mainly used for helping to identify the scale of market and projected uses for the TOD. By resolving this tension and defining these two key elements, planners and developers can begin working towards meeting a number of other goals, including value capture and mix of uses. Identifying the scale of the TOD also assures the long-term success of the development efforts by ensuring that the plans are not too small or large for the projected market and usage (Dittmar & Ohland, 2004).

iii. Identity + Culture
The goals of place making and place-node tension resolution are key players in bringing the benefits of identity and culture to the TOD. Place making is an extensive goal, but it also brings some of the most extensive benefits to the TOD (Dittmar & Ohland, 2004). Proper place making involves the creation of places designed for people, the enriching of existing settings, the creation of physical and visual connections, working with the landscape, mixing uses and forms, designing for change, and managing the investment (Condon, 2010). Place making is a very thorough and pervasive goal – it reaches into a number of other goals – making it one of the most
important not only for the successful creation of identity and culture, but for the success of the TOD itself (Dittmar & Ohland, 2004).

Resolving the tension between node and place is a very metaphysical goal, yet it is pivotal to defining the scale, market, and uses of the TOD. The foremost task in resolving the tension between a node – a space used for the arriving, departing, and moving of people – and a place – a space designed for people to occupy and actively use – lies in creating synergy between issues of urban development and issues of transportation. By identifying the main issues in each of those categories and attempting to solve the issues of both with the same solution, urban spaces and transportation infrastructure can work together seamlessly to make a node feel like a place, and a place feel like a node. When the two can successfully come together, the roots for a successful TOD have been set (Dittmar & Ohland, 2004).

Furthermore, the resolution of node and place will identify the appropriate uses for the TOD. Depending on what type of station area is intended, the solution for tension resolution will identify a different set and mix of uses for the site. This includes the types of residential development to be included, the types of retail and service industries intended for development, and the size and scale of public space in the neighborhood (Dittmar & Ohland, 2004).

When this tension can be resolved and a proper station type can be matched with a properly scaled market for the TOD, a true sense of place can begin to emerge for the development, leading to the creation of a distinct identity for the neighborhood within its greater urban context.

iv. Growth + Economy
The main component to achieving successful, targeted economic growth in a TOD is accurately identifying a proper scale and its related amenities. Hamline-Midway neighborhood, the location of our site, identifies as an ‘Urban Neighborhood’ (Bell, 2013). This is due to its roots as a streetcar suburb, its medium-level access to urban and downtown centers, its combination of primary and secondary transit (light rail and bus) and its corridor-oriented commercial development. When an ‘Urban Neighborhood’ station type is fully functional, it can provide a range of benefits including: Providing a majority of the metropolitan
region’s high-density and affordable housing, remarkable accessibility to employment and entertainment, active street live, and the creation of an entertainment destination (Bell, 2013).

Hamline-Midway, however, falls short of this full functionality, as it lacks a number of assets that belong in ‘Urban Neighborhood’ station types (Bell, 2013). To raise itself to this higher level of functionality, the neighborhood needs to begin planning towards better pedestrian and bicycle orientation, it needs to ensure the correct transit frequency (10 minute intervals during peak hours, 20 minute intervals during off-peak hours), and it needs to begin working towards developing medium-high density affordable housing (Dittmar & Ohland, 2004).

III. Public Square: Form and Function
The research to this point has revealed that all the tenets of successful transit-oriented developments, and all of the possible neighborhood benefits thereof, hinge upon the creation of an attractive, pedestrian- and bicycle-centered, well-connected environment. This speaks not only to the streets of a neighborhood but to a centrally-located transit station and the public space adjacent to it.

This section is centered upon researching what it takes to design successful public squares in urban environments. This research covers a range of topics, from the broader urban and neighborhood contexts of a public square to the nuances of the users of such a square, and how a square can be properly designed to accommodate the correct contexts and user groups. Finally, the research will examine various forms of public squares and the ways that these forms should respond to the intended functions of the squares.

i. Ownership + Development
Because TODs are planned by the public sector, there are a number of features that it needs to provide before the private sector can begin its work. Most of these features are concentrated in the development of the station area – the transit station and the adjacent public space that links it to the neighborhood. Though zoning and TOD requirements are set out by the Metropolitan Council to govern the way the private sector develops a TOD, a heavy amount of place making is needed before any private sector development can be fully successful

Because of this, public ownership and development of the station area (station and public square) are needed, but these public spaces can be planned to include private use. For example, public squares that have adjacent retail building frontage or vendor stalls can provide space for outdoor café or eating areas. Furthermore, a publicly owned and developed transit station can provide square footage for retail development within the building (Dittmar & Ohland, 2004).

This type of public-private cooperative creates the necessary foundation for a successful TOD and will lead to more private sector investments and development, as the success of the cooperative will breed more growth in the purely private sector developments. Such a cooperative is key to a TOD realizing the benefits it promises for the neighborhood (Dittmar & Ohland, 2004).

ii. User Benefits

The development of a public square at Hamline-Midway does more than help reach the five principal goals of a TOD. Even once those goals have been achieved, a well-designed public square can begin to turn Hamline-Midway into a destination, not just a development. This means that, rather than the neighborhood serving only its own needs through the implementation of TOD, it can begin to draw new users to the site from other parts of the metropolitan area (Dittmar & Ohland, 2004).

If the public square is designed properly, it can become a location that is so attractive and desirable to be at that it begins attracting users who come there not to live or work, but simply to peruse the retail shops or attend an entertainment venue that has sprung up in the TOD. In a case of success breeding success, the more outside users Hamline-Midway can bring in, the more retail shops, restaurants, and entertainment venues will be able to open up in the neighborhood. And the more economic development of this type that can happen in the neighborhood, the more outside users the neighborhood will bring in (Dittmar & Ohland, 2004).

This not only provides benefits to the new users of the site through the creation of a new cultural hub in the metropolitan area, it also provides benefits to the residents of the neighborhood - more outside users means...
more economic development, which means there will be a greater and greater mix of retail, transportation, and housing options available to them (Dittmar & Ohland, 2004).

iii. Identity + Culture
The purpose of public squares the world over is to act as a portal (Moughtin, 1999). The term portal implies travel in two directions. Though treatment of a public square at Hamline-Midway as a destination has many benefits for the neighborhood, the square must also be viewed equally as a place of departure. It is not only an end goal for those who come from outside the neighborhood to seek, it also serves as the gateway through which the residents of the neighborhood arrive and depart, most on a daily basis (Moughtin, 1999).

Though all public squares can function this way, the idea of a portal at Hamline-Midway holds especially true when we consider that the public square is to be treated as the foundation of a TOD, and will be functioning in close conjunction with a transit station. The integrated transit focus emphasizes the uses of the square as not only a destination, but a departure terminal as well (Moughtin, 1999).

Like user benefits, identity and culture are the subject of positive feedback, especially in terms of treating the TOD as a destination. Proper design of the public square that pays attention to place making and identity creation for the neighborhood will lead to the development of an iconic space in the metropolitan area. This, as discussed in the context of user benefits, will allow for the creation at Hamline-Midway of a destination for outside users (Dittmar & Ohland, 2004).

The more successful the TOD at Hamline-Midway can become as a destination, the more people will be able to identify the development as a cultural hub in the metropolitan area – again, success breeds further success for the TOD. Here, identity and culture go hand-in-hand. Identity allows success to grow, and as success grows and the development becomes iconic, the type of active street life it creates will begin to inform a type of culture that will be uniquely identified with Hamline-Midway (Dittmar & Ohland, 2004).

The physical creation of identity and culture at Hamline-Midway will depend mostly upon the design decisions taken when developing the transit station and public square.
Guidelines for the successful creation of identity and culture through public space design are researched in the sub-sections of Spatial Delineation, Accommodation, and Features.

iv. Growth + Economy
As has been shown in the research of the past few sub-sections, the design of a successful public square as the foundation of a TOD at Hamline-Midway is pivotal to bringing maximum user benefits of TOD as well as identity and culture to the neighborhood. This is because economic growth in the TOD cannot happen without having a proper foundation established – a foundation that is provided by a well-designed transit station and public square (Dittmar & Ohland, 2004).

The success of any retail or residential development in a TOD at Hamline-Midway depends upon it. People will not choose to come to Hamline-Midway for their shopping or to live if they have no incentive to do so. There are many other communities in the metropolitan area that are equally as suitable. Successful place making for the public square will create a space that people will want to visit, use, and generally be in. This first step to success is key – it brings people to Hamline-Midway (Dittmar & Ohland, 2004).

Once people begin using the place, economic growth – the opening of new shops, stores, restaurants, services, and entertainment venues – becomes justified. And this is where the cycle of positive feedback begins – Identity causes growth, growth creates culture and strengthens identity, and the full benefits of TOD can be realized by the neighborhood (Dittmar & Ohland, 2004).

A final way that the public square can influence growth in the neighborhood is by identifying a specific public space typology that fills a need for the city. The public square does not have to be a replicated form from other transit-based public spaces, it can have defining features that make it unique and distinctive, allowing it to provide something to the city of St. Paul and the metropolitan area that no other public square does. In this way, the public square can become a ‘one-and-only’ by definition – it will draw people from across the metropolitan area without competition from public squares and neighborhoods in other districts (Dittmar & Ohland, 2004).
v. Spatial Delineation

Physical design of the public square has been proven to be of paramount importance to all of the above sub-sections. In order to design a public square that effectively serves the needs of the above criteria, a designer must consider how to lay out the space, how to detail the space in order to accommodate for its various intended users, and what features to include in the design that may set it apart from others. Spatial Delineation examines the layout of the overall square.

Great public spaces are linked to the context of feeling (Moughtin, 1999). That is to say, even though design professionals may critique various aspects of a public space, the common layperson experiencing that space does not know what it is that makes such a space either great or poor. They rely only on their instinctive feelings about a certain place, and allow those instincts – often sub-consciously – to dictate whether or not they use the space in question. It is up to the designer to identify what instinctively makes people use or avoid a given space (Moughtin, 1999).

Archetypical urban designer William H. Whyte, in his iconic film ‘The Social Life of Small Urban Spaces,’ states that the most important thing about a public space is its relationship to the street. One of the greatest assets of successful public spaces is the vigorous street life associated with them. This street life not only takes place along their edges, but also flows within the space. As many people enter, tour, and leave public spaces as can be found on a busy sidewalk (Whyte, The Social Life of Small Urban Spaces, 1979).

Whyte also states the importance of catching the eye of passers-by along the street. In referencing observations outside of Paley Park in New York City, Whyte said that about half of the people on the street will turn and look into the Park, and half of those will smile. Whyte states that this secondary use is just as important as the primary use. Paley Park is not just a place to be, it is also a place to see – it is a sight, not just a site. It is a place for people to point to, to discuss, to be intrigued by, or merely to think about in passing (Whyte, The Social Life of Small Urban Spaces, 1979).

Whyte continues on to observe that the vestibule – the small space that comes between the sidewalk and the park – is a social
space in its own right. It not only functions as a conduit between the street and the park, as it embodies a very distinct set of social actions and interactions. Altogether, Whyte assesses that a strong relationship between public space and the street is the key to bringing people into that space. Going too far out of the way to separate the two would be of great detriment to the vitality of the social life of the public square (Whyte, The Social Life of Small Urban Spaces, 1979).

Once the user is inside the square, two main factors affect their feeling of comfort therein: The scale of the space and the sense of enclosure it lends to the user. Enclosure is a factor determined by a series of elements, beginning with the buildings that line the square. The height of the sky – or ceiling – above the square is imagined by the user as being around four times as high as the tallest building adjacent to the square (Childs, 2004). Therefore, a height-to-width ratio of 1:4 should be established in order to maintain a comfortable sense of enclosure in the square (Moughtin, 1999).

Also influencing the sense of enclosure is the continuity of the buildings lining the space. Long, continuous building faces are pivotal to making the space feel secure and enclosed – separating buildings along a façade breaks down the strength of enclosure (Childs, 2004). Furthermore, these faces should not only be continuous but should also display some semblance of architectural unity. Styles among buildings can vary to some degree, but styles with dramatic differences should not be juxtaposed, as this further breaks down the sense of enclosure the buildings can potentially lend to the users (Childs, 2004).

The final way in which outside buildings can affect enclosure in a public square is the level of corner build-up (Childs, 2004). The more built up the corners of the square are, the more enclosure is given to the space. For this reason, streets should lead away from the sides of the square, not the corners. If an empty corner is necessary, some form of decorative structure such as an arch or gateway can be placed in the corner of the square in order to mitigate the loss of enclosure (Childs, 2004).

Finally, William Whyte suggests that tree placement in a public space have a great effect on the sense of enclosure that such a space can have. He recommends planting
trees in closely-knit groves in order to
develop a well-defined canopy. Trees have
the advantage of providing a ceiling without
walls, so that a user can gain a sense of safety,
shelter, and enclosure from the perceived
ceiling, while still finding the space to be open
and inviting in the horizontal plane – thus not
separating square from street (Whyte, The

Scale is the final factor to be considered in
spatial delineation. The research has thus
far examined the defining of a market scale
for the TOD at Hamline-Midway. This scale
definition is key to defining a physical scale
for the public square that the TOD will be
founded upon. By defining the scale of the
market, a designer can decide how many
users and usage types need to be provided
for, and can begin to feel out a size for the
public square (Dittmar & Ohland, 2004).

The size of the public square must be based
upon public distances and perceptual
distances – how far apart the users of the
space are in the square and how those users
perceive the space between them. Mark C.
Childs, in his book Squares, divides public
spaces into five types based upon these key
distances: Intimate nooks (public distance
of <12 ft.), neighborly courtyards (12-40 ft.),
town forums (40-80 ft.), spectator squares
(80-450 ft.), and civic fields (>450 ft.).

By identifying the needs of the users on site,
a designer can then identify which particular
size and scale of square works best to
provide for those needs in a manner that is
comfortable for and attractive to the users.

vi. Spatial Accommodation

William Whyte’s most successful and
influential work was on the ability of spaces
to accommodate for their users. Though he
asserted that public spaces must have a
strong connection to the street in order to
bring them into the public space, there are
many other steps that must be taken not
only to strengthen that attraction, but to
hold the users in the space and provide for
their needs while they occupy it (Whyte,
City: Rediscovering the Center, 1988).

Steps, as a potential first site element
encountered as a user enters as site, are
one of the most important design elements
to consider. Whyte observes that successful
steps are shorter in rise and longer in run.
This allows them to serve doubly as both
a travel corridor and a place for people
to comfortably sit. He documents this at Seagram’s Plaza in New York City, showing footage of a long set of broad steps that are so full of people sitting that only narrow lanes are available for people to actually traverse the steps (Whyte, The Social Life of Small Urban Spaces, 1979).

The rise of the steps is also important to consider, and it falls in close conjunction with the separation of the square from the street by raising or lowering the level of the square. Whyte find that fewer, shorter steps are more effective for inviting people into a space. They provide less of a mental barrier for users that are deciding whether or not to enter the square: the fewer and shorter the steps, the less weighty the decision. He notes that the steps at Paley Park are so insignificant that they barely seem to pose a decision for the users at all (Whyte, The Social Life of Small Urban Spaces, 1979).

Whyte also cautions against sinking or raising the public space too far above or below the level of the street. He cites numerous examples of plazas that are inexplicably empty, simply because they have been moved too far away from the life of the street (Whyte, City: Rediscovering the Center, 1988).

This does not mean, however, that raising or lowering a public space is always ineffective. Numerous examples of successful sunken squares can be found, such as the Hancock Building Plaza in Chicago or Rockefeller Center in New York City. These spaces work because they put a focus upon the activity in the center of the square, creating a mezzanine effect for the sidewalk and turning the whole space into a quasi-amphitheater. By focusing people’s attention on the center, this not only allows for organized activity such as street theater or ice skating to occur there, but it also allows people to observe other people, who are likely, in their turn, observing other people. Whyte stresses that people observing people is one of the most common and all-pervasive activities of public spaces, and it is an activity that is overlooked by many designers (Whyte, The Social Life of Small Urban Spaces, 1979).

The placement and design of ledges should be given importance equal to the inclusion of designed seating, according to Whyte. People use all varieties of structures and surfaces for sitting, leaning, and congregating that were never intended or specifically designed
for such uses. Rather than designing to deter these unintended uses, Whyte advocates for designers to embrace this phenomenon by specifically designing ledges, walls, and planters to be accommodating for lounging on and about (Whyte, The Social Life of Small Urban Spaces, 1979).

Keeping obstructions such as spikes and plants away from ledges and edges is a first step to accommodating for people. Whyte states that these surfaces should also be made flat and broad, two people deep whenever possible, in order to maximize potential usage. Keeping these surfaces around a proper sitting or leaning height is the final element that designers should account for, rather than designing them too low or too high for comfortable sitting (Whyte, City: Rediscovering the Center, 1988).

As for planning for seating as an intended use, Whyte makes a curious commentary on the park bench. In numerous locations, he exhibits benches functioning as nothing more than accents for the adjacent architecture, as the benches are neither designed nor placed for effective usage. By examining the use of unfixed seating in Paley and Greenacre Parks in New York City, Whyte advocates for their use over fixed seating (Whyte, City: Rediscovering the Center, 1988).

By allowing users to use movable tables and chairs, the designer is presenting them with their own choice of where to sit. No longer relegated to only the locations of benches and other fixed seating, users can roam the square with their chairs and choose whichever space may be most desirable to them. In the sun, in the shade, in the action, in a secluded spot, alone, or with a group of people, unfixed seating allows a greater range of uses and has been shown to be far more effective than fixed seating in many public places. Furthermore, many places have found that providing unfixed seating does not lead to a loss of property due to theft of vandalism – people are generally very trustworthy, even in situations where stealing is made easier (Whyte, The Social Life of Small Urban Spaces, 1979).

The final site element that a public square must accommodate for is the inclusion of street vendors. Food carts, food trucks, and merchandise vendors all add to the vitality of the life of the street and the public space, and designing to accommodate them can help to enhance their effectiveness in doing

Because many of these vendors are temporary, they bring with their own self-contained systems. Trucks, carts, and racks are all they require to do business – no particular structure is required. As such, they do not need stalls or shelters of any kind, they simply need, as Whyte puts it, ‘campsites.’ These campsites are places that are specifically designed to accommodate vendors when they are present, but will simply blend into the public square when the vendors are not around. Placing these spaces at strategic entrances or junctions throughout the site will help to increase the flow of people into and through the plaza as well as provide the best possible location for aiding the sales of the vendors (Whyte, The Social Life of Small Urban Spaces, 1979).

vii. Spatial Features
The final group of elements needed to complete the design of a public plaza are the features that make it distinctive and iconic. By failing to incorporate some element of design through which a public square can distinguish itself from all of the other public places in a city, a square can fall into a rut of under-use due to lack of identity within the metropolitan area. Though some means of creating an icon for the square are so site-specific that they cannot be researched, there are a couple of elements that have been proven to be successful in helping public squares begin to develop a distinctive sense of place. These elements are water and food.

Water features provide three primary benefits for users: visual stimulation, audio stimulation, and tangible interaction. The varieties of water features are seemingly endless: fountains, jets, streams, pools, walls, waterfalls, and cascades are just a few. Though primarily thought of as visual attractions in terms of public square design, the benefits of audio stimulation and tangible interaction are equally important to the creation of sense of place (Whyte, The Social Life of Small Urban Spaces, 1979).

The feature itself, depending upon its design and grandeur, can become the iconic figure that the plaza develops its identity around – this is the primary benefit of visual stimulation. Audio stimulation, however, is important to consider. The amount of noise the feature makes and how it affects the surrounding
spaces can greatly increase or decrease the success of those spaces. A certain level of noise is needed to block out undesirable noises, such as traffic noise, and when water noise is used to do so the effect is pleasant - water noise is calming and blends easily into the background, effectively creating a more intimate feeling for a space while still allowing conversation to take place (Whyte, The Social Life of Small Urban Spaces, 1979).

Tangible interaction is a difficult tenet of water feature design to work with. A number of water features in parks across the country have been shut down or re-designed because they were deemed too dangerous - they allowed too much interaction, and put users in danger of losing their lives. When this risk is mitigated, however, water features can become very effective tools for entertaining people. The Victoria and Albert museum in London, for example, contains a central courtyard that is centered upon a shallow pool that has a series of upward-shooting water jets around its edges. The pool is a huge attraction for children, and when they step or sit or lay on one of the jets, the pressure on that jet is reduced and the water re-directs to the other jets around it, causing them to shoot higher (Whyte, The Social Life of Small Urban Spaces, 1979).

This interaction provides endless entertainment for children, and the courtyard takes on the feel of a beach in the summertime, with parents chasing and scolding and laughing at their children all across the courtyard. A very vibrant public space is the result.

William Whyte advocates for the inclusion of permanent cafes into public spaces, particularly cafes with a significant outdoor seating element. Adding food, he totes, will see a place become seething with activity. It is a staple in nearly every lively public space.

Whyte observes that the optical leverage of including an outdoor café in a public square is very persuasive. With a few basic elements - tables, chairs, umbrellas - a plaza can include an outdoor café, and subsequently pull exponentially more people from the street side and into the public space. Whyte observes that people who are sitting and eating usually attract far more people to a space than people who are not (Whyte, The Social Life of Small Urban Spaces, 1979).
I. How our work is similar to other work in the field
Transit-oriented developments the world over seek to bring a similar set of benefits to their respective neighborhoods and users. No matter the context of these TODs, their associated communities take on a particular set of sustainably-minded values. We wish to bring these same values to the community at Hamline-Midway through the creation of a pedestrian- and bicycle-focused neighborhood environment - the same means by which many TODs aim to achieve similar values.

Our work stems from the expansion of transit into the neighborhood, and this is a similarity shared by many such design interventions. Transit-oriented design, by its very nature, seeks to aid neighborhoods in capitalizing upon transit development by helping those neighborhoods realize the full range of benefits that come with transit expansion. We hope to do the same for Hamline-Midway.

II. How our work is different from other work in the field
Our research has found that much work in transit-oriented development has taken place in either new-growth towns or in the retrofitting of suburban areas. Very little recent TOD has been attempted in well-established urban neighborhoods that have a historic base in mass transit.

Because of this, our work seeks to build upon the neighborhood framework that was laid out in the historical context of streetcar transit. Our design intervention does not need to create a transit-oriented
development completely from scratch so much as it needs to resurrect the forms and functions of transit-oriented development from the past. Site-specific history has a much greater pull on our design intervention that it does on most TOD work today.

Our work also differs from other work in the field through our attempt to combine the fields of architecture and landscape architecture in an urban design effort. Though these collaborations may be common in a real-world context, they are less common in an academic context, allowing our work to have a unique angle. The combining of our two disciplines will enable us to explore new avenues for cooperation and hopefully aid us in paving better routes to quality design work.

III. How our work adds value to the field

Our work displays the ways in which public investment in transit stations and public squares can form the basis for a successful TOD. We seek not only to achieve success in Hamline-Midway, but to develop a principle – that public investment in public space – that can be applied across the various types of transit-oriented development.

Our work also shows how a combination of planning for both growth and identity can create a destination. We seek to use the main principles of growth creation and identity development in order to create the success we desire. This again will develop a principle that can be applied and adapted to any transit-oriented development that seeks values and benefits similar to ours.

Finally, our work shows how urban neighborhoods – as a type of station area – can work seamlessly with other TOD station area types along a transit corridor within the same metropolitan area. Our work seeks to bring out the benefits specific to urban neighborhood station areas and apply them to the Hamline-Midway community without diminishing the value of other station areas along the Green Line light rail extension. Indeed, the successful development of a station area at Hamline-Midway ought to provide the basis for other such development not only within the Twin Cities metropolitan area, but within other metropolitan areas that set similar goals.
Saving and recording the process and evolution of our work will be the key to documenting our collaborative design process. Because of the unique situation that our cross-disciplinary collaboration creates, it will be beneficial for us to keep close records of the ways in which we divide and delegate the tasks of designing our site, and the methods we use to combine our own, individual design ideas and intentions.

We will also be preparing a separate deliverable for our final thesis submission in order to clearly display our documented collaboration. This will provide not only a basis for future collaborative designs, but will also provide an additional design result for our thesis – not only will we have provided solutions for our design questions, we will also have provided solutions for our collaborative process questions as well.

In order to successfully display our collaborative process, we will need to pay close attention to saving our work – notes, sketches, overlays, conceptual plans, etc. – throughout the design process, from beginning to end. We will need to take note of the different ideas we come up with and how we sort through them – which we discard, which we keep, which we combine, which we refine. Finally, we will need to keep careful meeting minutes when we discuss our design evolution with our various advisors.
I. Theoretical
The overarching theoretical goal of our design intervention in Hamline-Midway is to turn a mere space in the city into a place where people want to be - a destination. The purpose of creating a destination in Hamline-Midway is to use the arrival of light rail transit along University Avenue to revitalize and improve the neighborhood. By creating a destination here, Hamline-Midway can become more than just a conduit between urban centers.

II. Social
Our design intervention seeks to create an inclusive, accessible transit-oriented development for the residents of Hamline-Midway, where amenities and services are equally available to all. We seek to turn Hamline-Midway from a neighborhood with a decaying retail corridor into an urban neighborhood with a defined neighborhood center that attracts users from off site, as well as serving the current residents of the neighborhood.

III. Physical
Physically, we intend design a transit station and an adjacent public square in order to create a definite neighborhood center, as specified in our social goals. The transit station and public square will provide a foundation for further growth of the TOD at Hamline-Midway by providing an attractive and walkable core for the neighborhood, as well as influencing a shift in planning from orientation towards the automobile to orientation towards the pedestrian and bicycle.
CHAPTER FOUR: DISCUSSION AND LIMITATIONS

TRANSIT FOR THE PEOPLE, THE PLACE, THE CITY
Introduction
Our research began in the historic roots of the Hamline-Midway neighborhood, and our results began to guide the direction of our research from there. Our findings in the overall history of streetcar transit and the history of transit in St. Paul led us to research transit-oriented development (TOD), in order to investigate how TOD could help us use the historic roots of the neighborhood to create an urban destination. The findings of our TOD research showed us the need for a well-designed public space at the heart of a transit-oriented development. This led to the third and final part of our research, the designing of a quality public place.

Our research has shown not only that our typology was well-chosen, but it has also pointed to a series of values that our design intervention can bring to the neighborhood. Along with these values, we have uncovered a number of methods for allowing the neighborhood to achieve these values.

The values, together with the methods of achieving them, answer our initial research question, ‘How can the design of a public square and transit station influence the growth of transit-oriented development in a historic transit-based neighborhood?’ These values, what they mean for Hamline-Midway, the ways in which they can be achieved, and the limitations of doing so are all discussed in this chapter.

I. Transit and St. Paul: Historical Analysis
Analysis of the history of public transit in St. Paul focused on the ways that the streetcar helped to shape the physical form of the city,
and how that form continues to influence the lives of the city’s residents. The research shows that a city shaped by streetcar transit is, by its very nature, primed for re-introduction of rail transit. It goes on to suggest that the re-introduction of rail transit is best served by considering the ways in which rail transit formerly served the residents of the city and by attempting to re-introduce many of those same benefits.

The major opportunity here is that the physical form of St. Paul is already arranged for rail transit to easily serve the city’s residents. No large-scale adaptation of street and block pattern is necessary for light rail transit to take maximum effect. The research suggests that the benefits formerly provided to the residents of the city by the streetcar lines are just out of reach — that the only thing standing between the city and re-gaining those benefits is re-instating rail transit.

The major limitation suggested by the historical analysis of transit in St. Paul is the fact that, because rail transit has been gone from the metropolitan area for so long, many people have adapted well to life without it. Most residents use personal automobiles to commute to and from work, to do their shopping, to go to school, and to pursue recreational activities. Convincing these residents of the value of rail transit and creating an actual drop in automobile usage will be the biggest challenge to our design.

i. Ownership + Development
The research here suggests that private ownership of transit can be very effective — as it was for decades in the Twin Cities — but that it has its limitations. High start-up costs, susceptibility to ridership and worldwide economic market fluctuations, and other outside forces do not allow long-term reliability here.

However, private-sector development of residential and retail amenities in the neighborhoods of the city was shown to be very effective. The interaction between private development and rail transit was shown to be beneficial to both parties, as the success of one drove the success of the other.

With the new transit system being owned and operated by the public sector, long-term reliability can be assured. Because of this, private-sector development can be
counted on to move in and begin seeking the benefits of the light-rail expansion. If the station area is zoned correctly, this private sector development can be guided in order to benefit the neighborhoods in which it takes place.

ii. User Benefits
The research done in the area of historic benefits brought to users of St. Paul’s streetcar transit points to a series of values that the new light-rail expansion can and should aim to achieve. The primary opportunity here is that rail transit could eventually create a significant reduction in the need for personally owned automobiles – a value that is the primary goal of most TODs. Historically, residents of the Twin Cities did not need automobiles, as they relied upon the streetcar system to provide their transit needs.

In the beginning, the light-rail expansion will likely serve mostly those users who cannot afford to own a personal automobile. Eventually, however, with the continued growth and success of TOD, rail transit will be extensive enough in the metropolitan area to be able to provide these same benefits to all residents. Providing an automobile-free lifestyle, and all the benefits that entails, should be a primary goal of transit expansion and any TOD in the Twin Cities. Time is the only limiting factor in achieving this goal.

iii. Identity + Culture
The research here shows a major opportunity for rail transit and TOD to forge a new and iconic identity for both Hamline-Midway and the Twin Cities metropolitan area. By integrating transit into the everyday life and culture of a city, that transit becomes a symbol for the city to proudly display to the outside world. Like the Subway of New York City, the Underground of London, the trolleys of San Francisco, and the streetcars of New Orleans, the light rail has the potential to become one of the most identifiable features of the Twin Cities.

The major limitation here is removing the scars that the culture of the automobile has wrought on the city. The Twin Cities need to completely re-brand themselves in order for transit to fully reshape their culture, and with over half a century of automobile influence, that will prove to be a long-term challenge indeed. Starting at a local level with neighborhood-scale TODs is the best way to begin this long, sweeping change.
iv. Growth + Economy
The best opportunity in this category of research is the chance that rail transit expansion has to return economic development to locally-owned shops and businesses. Under the influence of the automobile, both physical and economic growth patterns have caused local economies to evolve into retail economies. Large shopping centers in the suburbs serve huge areas, where once retailers were locally-owned and served much smaller areas.

If the transition from the automobile back to rail transit can be completed, local economies can be revived. Not only does this keep the spending of residents within the communities in which they live, it significantly reduces the amount of travelling they need to do in order to complete their shopping. Because they don’t need to travel a long distance to a retail shopping center and only need to travel a short distance to a local shop or store, the need for a personal automobile is significantly reduced.

The biggest limitation here is, once again, fighting the influence of the automobile and its hold over society today. The initial success of the light rail expansion and its associated TODs is pivotal to beginning this culture shift. Local implementation of TOD values is the best way to help ensure that success.

II. Transit-oriented Development: Goals and Values
The research in historical analysis pointed to the need for neighborhood-scale TOD in order for the metropolitan area to reap the benefits of an expanded rail transit system. The goals and values of transit-oriented development were therefore researched in the next section.

Overall opportunities presented here involve bringing the benefits of TOD to the Hamline-Midway neighborhood. Hamline-Midway currently lacks a number of assets that could help it bring those benefits to its residents. The neighborhood has an opportunity to seek and design those assets in order to capitalize upon TOD expansion. The methods of doing so—better pedestrian and bicycle orientation, achieving correct transit frequency, and development of medium-high density housing—are the opportunities that the goals and values of TOD present to Hamline-Midway.

Overall limitations here involve mainly the
same limitations found in the historical analysis section – time and success. Time is needed for any TOD to begin showing signs of success – of giving significant benefits to the neighborhood. However, if success is not achieved soon enough, the TOD can founder and growth can become stagnant. Proper design of the TOD is the key to creating timely success and overcoming the limitations.

i. Ownership + Development
The major opportunity presented here is the chance for the public sector to develop a well-designed station area in order to facilitate private sector development in the TOD. It is the public sector that wants to see TODs expanding in the metropolitan region, so the public sector needs to have a strong hand in influencing their growth.

The best way for the public sector to do so is to provide quality public space to draw people to the neighborhood. This increased usage will create a market for retail expansion, which in turn creates a market for residential expansion. This growth leads directly to the creation of benefits for the residents of Hamline-Midway – benefits discussed in the research and the literature review.

Limitations here involve the creation of a public-private cooperative. The public sector can identify a station area and develop it out fully, but if they fail to create interest for private developers then the TOD will fall flat before it has even begun. This is a risk that any development takes, however, when it involves the private sector. If the Metropolitan Council takes steps to ensure that the station area they have identified for TOD expansion is an appropriate market for private sector development, then the effects of this limitation will be mitigated.

ii. User Benefits
This section of the research is where we begin to find significant indications of the need for a well-designed public space. In order to reap the benefits of TOD in Hamline-Midway, not only will a station area need to be developed by the public sector, but it will need to embody a number of sustainable design principles, as laid out by the five goals of TOD.

Even though the five goals are distinct in what they hope to achieve, the means of reaching those goals have a significant amount of overlap. Designing and planning for equal access to transit and other
amenities, creating a pedestrian- and bicycle-oriented environment, and designing for a pleasant aesthetic pedestrian experience are overarching methods for achieving the desired benefits for the neighborhood.

The great opportunity here is that everything seems to be connected, that achieving one goal will achieve or aid in achieving a number of others. By compiling a list of elements that need to be included or planned for, a design solution can be reached that not only includes those elements, but subsequently accomplishes most if not all of the goals a TOD hopes to reach.

Limitations of user benefits include, as in some previous sections, the inability to communicate these benefits to all potential users of the site. If not all of the design requirements are met, or not all of the benefits are realized, then the TOD will not be fully effective. Any plan for proceeding with development on the site will need to be comprehensive in its goal-setting and its design for achieving those goals.

iii. Identity + Culture
The opportunities of the research results in this category are similar to those in the previous category. We see that many of the benefits of reaching the five goals of TOD are linked, and that accomplishing one will accomplish or aid in accomplishing multiple others.

And again, as in the previous category, the limitations of this research are only realized when not all of the goals of TOD are set, striven for, and reached. Choosing from among the five goals is not an option, if full success of the TOD is desired.

iv. Growth + Economy
The major opportunity presented by this phase of the research is the positive identification of Hamline-Midway as an ‘Urban Neighborhood’ station area type. By being able to pinpoint where Hamline-Midway sits on the spectrum of station area types, we are able to begin looking at what the characteristics of a successful TOD of this station area type are and how we can use the existing characteristics of the neighborhood to get there.

The major limitation here is that Hamline-Midway, while it does identify as an ‘Urban Neighborhood’ station area type, does not meet all of the qualifications of an ‘Urban
Neighborhood’ just yet. While it has the potential for exhibiting all the traits of such a station area type, it will need to achieve the goals set in the previous research categories before it can realize all of the benefits of becoming an ‘Urban Neighborhood.’

III. Public Square: Form and Function
The research in the previous section lays out five goals that a TOD needs to reach before it can bring its full range of benefits to the neighborhood in which it exists. It also examines the methods that would help a TOD reach these goals, and in so doing bring the benefits of TOD to the neighborhood. The key method it identifies is the design of a public square, upon which to center and found a TOD at Hamline-Midway.

The research in this section takes the idea of a public square and examines the ways in which it can bring these benefits to the neighborhood. It then searched for a set of proven design principles to apply to the design of the public square in order to reach the proposed goals of the TOD.

The main opportunities discussed here involve the chance to tie all of the various goals – both large and small – of the thesis together in one design. The research points to this opportunity – it has led us through the history of regional transit in the Twin Cities and set regional-level goals, it has led us through the benefits of neighborhood-scale TOD and set neighborhood-level goals, and now it all comes to a head by leading us through the benefits of public space design and will set goals for the design of such a space at Hamline-Midway.

i. Ownership + Development
The results of this section of the research are especially important to the design of the public square. Though it has been stipulated that the public square would be designed and built by the public sector as part of the station area, its purpose is to aid in the growth of private sector development in the TOD.

The design of the public square is an excellent opportunity to begin the public-private cooperative. Because the public square will include areas that are intended to accommodate private uses – such as outdoor cafes – the public sector, while leading the planning of the square, will need to be in close consultation with private sector developers in order to assure that development will occur
This, however, also acts as a small limitation. Because private-sector developers will have a list of desires and needs, there is not an unlimited amount of freedom for the designers of the space. This is not to say that a public-private cooperative will prevent the design of a public square from being realized – the success of the square is pivotal to the interests of both the public and private sectors – but it will narrow the options the designers have, in some form.

ii. User Benefits
The main opportunity described here is the chance to bring new users to the site, and therefore increase the benefits given to existing users. As in the previous section, the results of user benefits and identity and culture are closely linked – creating identity and culture gives the users benefits, and these benefits further the creation of identity and culture. This positive feedback is another opportunity of the research, in and of itself.

iii. Identity + Culture
As stated in the research, the creation of identity for the neighborhood helps bring new users to the site, crafting a new culture for and increasing the identity of the neighborhood. The new opportunity presented here is the chance to create the guise of a portal at the public square and transit station.

By identifying the square as not just a ‘transit stop’ but as a place where riders leave their neighborhood and return to it after completing some task elsewhere, designers and developers can plan accordingly to provide for and accommodate the specific needs of those leaving and arriving from the site. These needs may differ depending upon the user group, but by exploring the different types of users of the site, most amenities can be correctly identified.

iv. Growth + Economy
The major opportunities of growth and economy that are brought to the neighborhood by a public square are based upon one thing: people. The creation of a public space, a common area for people to gather and participate in community events where they can enjoy themselves and have a positive experience is key to bringing people to Hamline-Midway.

Though at first the influx of people may not be significant, growth of private sector
development in the TOD will eventually lead to the creation of a particular culture and identity for the square – and all of the benefits of identity and culture that the research uncovered will be brought to the users of the site and the neighborhood itself.

v. Spatial Delineation
The great opportunities of this sub-section, and the next two alike, are that there are proven methods of public space design that will achieve exactly what the public square at Hamline-Midway requires. The results are comprehensive – from the size and scale of the square, its relationship to the street, its relationship to other buildings, the size and scale of those buildings, and the ability of the space to appeal to users instincts, the results of this section detail very closely how a public square should look.

vi. Spatial Accommodation
The research in this section begins to break down the design of a public square even further. While the spatial delineation section looked at how to design the overall space of the public square, this section examines methods for designing more detailed portions of the square. The opportunity here is to create a square that works on all levels. Not only do the spaces instinctively draw people inside from the street, but they also accommodate those people once they have arrived within the square. They feel comfortable in the space because of the overall square design, but they find the square to be usable and functional – even though they may not notice this, or know why – at all levels.

vii. Spatial Features
The opportunity presented by the research here is essentially to put the final touches on the public square. The previous two sub-sections showed that a square can be both inviting and accommodating, and the inclusion of well-designed spatial features shows that the square can brand itself within the minds of the users. The space is instinctively attractive, it is intuitively functional, and with the inclusion of the appropriate spatial features, it has its own unique identifiers that set it apart from other squares in the city.
While the main headings of this document thus far have been divided into three main sections, these three main sections will only be discussed once each within the next two headings.

This heading, applications of research results to the program, is about the larger ideas of our thesis and how the research indicates we can bring those ideas to fruition. The next heading, applications of research results to the site, is about how we can design our site in order for it to embody the larger ideas of our thesis.

It was decided to organized the remainder of Chapter Four in this way because the results of the first two sections of research apply directly to the program of our thesis, while the results of the third section of our research applies directly to our thesis site. Attempting to apply all three sections to both program and site would be a stretch – there are some smaller connections that are discussed, but each section has strong applications to either the program or the site, not both.

I. Transit and St. Paul: Historical Analysis
It is time for St. Paul to begin looking into its past in order to shape for itself a brighter future. Together with Minneapolis, the city once boasted the nation’s greatest streetcar transit system. Though the corruptive influence of the free market may have driven the streetcar from the streets of St. Paul, the tracks that built the city still lie beneath the tar that was poured to hide them.

With a shining example of rail transit providing the foundation for the city, a bright future
could lie ahead for St. Paul. By looking to the successes and failures of the Twin Cities Rail Transit Company (TCRT), designers can begin to adapt and, in places, re-shape the city for rail transit to be effective once more.

i. Ownership + Development
The expansion of rail transit by the public sector is the most effective option for the city to lead the push for sustainable transportation. Waiting for the free market to adapt to the times is a folly – the market would not be able to provide effective rail transit in time to replace the automobile. Though TCRT was an effective means of supplying transportation in the past, its growth was too drawn out and unstable to be effective in the present day.

The public sector, however, cannot do everything. The advantages of a free market economy are that as soon as a demand is created, the market conspires to fulfill that demand. Planning a public rail transit system that encourages private growth is an excellent method for the public and private sectors to share a mutual benefit – something that is not often recognized in society today (though it happens more often than most people realize).

ii. User Benefits
The reduction of vehicular transit in the Twin Cities is a goal that should be near the top of the cities’ planners’ lists. Not only will this result in better physical and psychological health for the residents of the city, it will mean less pollution and resource consumption for the metropolitan area. The money not spent on fossil fuels can be re-invested in the economy by consumers, and the money not spent on building and maintaining an extensive highway system.

The more money that can be invested now in rail transit expansion, the sooner these benefits can be realized. It is difficult for a city to begin embracing rail transit and abandoning automobile transit when that rail transit is not extensive enough to serve a large portion of the population. By beginning with those who need rail transit the most – those who cannot afford personal automobiles – and working up to those who could do without automobiles, and finally on to those who can afford but don’t necessarily need automobiles, the city can see success in its rail transit development.

iii. Identity + Culture
Identity and culture, along with growth and
economy, forms the cornerstone of our thesis. Transit is not only a means of mobility, it is a means of experience. People experience a city through the means they use to travel throughout it. What would London be without the Underground and the double decker bus? What would New York be without the Subway and the Staten Island Ferry? Though transit is often viewed as a workhorse, a utility, something to be placed out of sight and used only as a practical means of transportation, in the end it becomes so much more.

When a transit system becomes ingrained in a city’s culture is when it transcends its role as a utility and becomes an icon, a symbol of the city it serves. For rail transit to reach maximum effectiveness in the Twin Cities, it needs to become as much a part of the city’s culture as the Subway or the Underground. This should be another long-term goal of designers in the Twin Cities, and it is a goal that our design solution will build towards.

The Twin Cities once identified very closely with its rail transit system. It is time for a return to that close association between a city and the way in which it is experienced.

iv. Growth + Economy

The best chance for rail transit to inspire private sector growth is to literally build upon the former transit system’s foundation. By using the former routes of TCRT for new transit expansion, the same system of residential neighborhoods centered upon retail/transit corridors can once again re-emerge as a successful means of serving the city’s residents.

Encouraging local economic growth is a key to a sustainable, economically stable future for the metropolitan region. By keeping production, sales, and ownership local, more money that is spent in the city will actually stay in the city. Wholesale retailers that operate from regional shopping centers only provide jobs to the city, they do not keep the majority of profits in the region. Most of their profits are sent off to corporate offices, which are usually - but not always - out of state. Locally owned retail keeps these profits local, strengthening the city’s economy.

II. Transit-oriented Development: Goals and Values

Transit-oriented development (TOD) is the best way for St. Paul to begin capitalizing on its new light rail expansion. The issues and goals expressed in the previous section
need to be addressed at a regional scale in order for them to be effectively solved and achieved.

TOD can be implemented at this regional scale through a series of local interventions. TOD traditionally addresses station-area planning. But by embracing the goals and ideals of TOD at selected station areas throughout a transit network and metropolitan region, TOD can transform from a local intervention to a regional solution.

Because of the poly-centric nature of the streetcar-based city planning that shaped St. Paul, this TOD-based regional approach is an effective means of addressing the regional issues that face the Twin Cities today.

i. Ownership + Development
Neighborhood-scale TOD is where the public-private cooperative begins to become more detailed. Private space abuts, and in some cases overlaps, public space at this scale. Deciding where to draw the line, of which sector gets to plan which spaces, is pivotal to the founding and future success of the TOD.

Because the light rail network and its stations are developed by the public sector, the associated public square should also be developed by the public sector. This will ensure continuity in place making and design principles throughout the TOD and will allow those principles to begin informing a neighborhood character.

As has been stated in the research and opportunities, the design of a public square around which to found the TOD is pivotal to the success of the neighborhood’s development. Public squares form some of the most vital and lively urban spaces in cities around the world, and the creation of such a space here will lead to the creation of a similarly vital and lively street life for the neighborhood of Hamline-Midway.

ii. User Benefits
The benefits that TOD can bring to Hamline-Midway form the heart of our thesis. These benefits seek to embody a culturally, economically, and environmentally sustainable lifestyle that we hope to inspire in the neighborhood and, eventually, in the metropolitan area. This way of living, which so closely resembles the way of life in historic, streetcar-based St. Paul, brings about positive change at all scales, from helping individuals lead healthier lives to
reaching the regional-scale goals set out in the first section.

The goals set out here are pervasive. They reach into all portions of our thesis – they are the means to achieving all the results we seek, and they direct the site-scale design research that seeks to meet them. Everything in our thesis revolves around these goals – location efficiency, mix of choices, value capture, place making, and resolution of tension between node and place. They embody everything we intend to achieve, and bring about all of the benefits we seek.

iii. Identity + Culture
Again, identity and culture, along with growth and economy, form the cornerstone of our thesis. They create a loop of positive feedback – identity creates growth, growth creates culture and thus bolsters identity. If the five goals of TOD are what we seek to achieve with our thesis, then identity and growth are our means for achieving them.

Identity creation is just as important at a neighborhood scale in Hamline-Midway as it is at a regional scale in Minneapolis-St. Paul. In order to create a distinct culture and sense of place for the neighborhood, it must be easily identifiable – potential users must place some positive correlation and iconography with the name Hamline-Midway.

This creation of identity will be a key focus of our design solution for Hamline-Midway.

iv. Growth + Economy
As the other portion of our cornerstone, creating economic growth in Hamline-Midway is a means of achieving the five goals of TOD – it is necessary to bolster neighborhood identity, and it is essential for creating the rich mix of choices and equal access needed for a successful TOD.

Designing for growth will be just as important for us as designing for identity. Our designs must define and embrace a well-crafted identity while simultaneously accommodating and boosting economic growth in the neighborhood. Planning for the loop of positive feedback between identity and growth will be key.
I. Public Square: Form and Function
The research in this section examines site-level methods for achieving the goals listed in the above sections. The methods detailed here form the very base of our thesis. These are the design principles that will allow the goals of the second section to be realized, which in turn allow the goals of the first section to be realized. Each section of research leads into the one before it – everything is connected.

Even though the issues addressed by the methods presented in this section are smaller in scale, when addressed and solved together, the design accumulates a strength great enough to overcome the challenges uncovered by the research and neighborhood and regional scales. Even though the main focus of the thesis is on those larger scale issues, they cannot be solved if we do not first solve the smaller-scale issues addressed here.

i. Ownership + Development
The overlap between public and private space reaches its most detailed level here. We believe that the primary overlap will be in the providing of space in the public square and transit station for private development. Specifically, retail space could be incorporated into the transit station, while outdoor areas for vendors and street cafes would be provided in the public square. Allowing for great access from privately developed areas adjacent to the square will be key for the square to positively affect the growth of the TOD.

ii. User Benefits
The design of the public space affects the users of the space in both direct and indirect ways. Directly, it provides a set of benefits that is fairly straightforward – the public square gives the users of the site an open space in an urban setting where they have an opportunity to enjoy the outdoors and a space where they can pursue a range of activities, both in groups and alone. If the square is designed properly, it will create a vital street live that creates a pleasant and comfortable atmosphere for the site’s users, encouraging use.

Indirectly, proper design of the public square will lead to the reaching of the five goals of TOD and, subsequently, the larger regional goals listed in the first section. Ensuring that the public square is properly designed, therefore, is of great importance to the success of our design intervention.

iii. Identity + Culture
One possible means of beginning to create a specific identity for the transit station area at Hamline-Midway is the embracing of a ‘portal’ mentality for the neighborhood. By keeping in mind that the plaza is not only a destination, but a place of arriving and departing, we can begin to craft it as a gateway to the neighborhood, and a gateway to the city that lies outside of it.

Though the trips that begin and end here may not be epic quests – only a small portion will likely be leaving the city – the creation of a safe haven at Hamline-Midway can give the neighborhood a feeling of comfort and homeliness.

A big challenge – or point of debate while designing – will be balancing this creation of a ‘safe haven’ with the creation of an ‘urban destination.’ Deciding what scale of retail development, compared to residential development we wish to have will be key to determining just exactly what type of identity we wish to give to Hamline-Midway.

iv. Growth + Economy
As was discussed in the opportunities of the research, people are the key to growth in the neighborhood. Attracting them to the public square, accommodating them while they are there, and ensuring that their experience in Hamline-Midway is memorable enough that they will return again. The next few sub-sections discuss how to bring users into the square and provide for their needs thereof.
v. Spatial Delineation
As the research discusses, these are the means of creating a public square that is designed intuitively - a space that people are instinctively drawn to, that their subconscious minds push them into without a conscious thought. Creating a feeling of warmth, of comfort, of enclosure, of welcoming - this is what spatial delineation is all about.

The public square has to speak to people even without their realizing it. There should be no question in their minds as they pass by the space that it would be an enjoyable place to be, to enter, to explore. It must even, for that matter, be enjoyable simply to look upon and remark about in passing, for not all users will have the time to enjoy what the public square provides.

This is about speaking to people on an individual level, about influencing single people by creating a space so memorable that it impacts their day - the experience they have here should be worthy of remark even after they have left the neighborhood entirely. It must warrant second, third, and fourth visits. It must incur word-of-mouth advertising at barber shops and coffee houses and water coolers.

Spatial delineation moves beyond critical evaluation by peers in the design field. We must not design only to impress those who work in our field, we must design to influence the lives of those who do not.

vi. Spatial Accommodation
This portion of the research is about providing for the needs of users once they have entered and engaged the public square. Here, we must design the square to be usable and functional. Kevin Lynch’s performance dimensions call for vitality and fit, and those dimensions must be met in this section.

Meeting the correct performance level for vitality calls for human-scale design - designing for the biology of the human users of the site, for the physical requirements that they bring to the site. This is not simply providing seating, for example, but providing the correct type of seating, and the correct amount of seating. It is about paying attention to how humans function at a basic level - even their subconscious actions - in order to accommodate for these most basic of needs.

Meeting the correct performance level for fit calls for the square to be designed correctly
according to the uses we intend for it. By identifying just what it is we want users to do in the public square – lounging, eating, watching, performing, or simply moving – we can begin to shape the square to meet those uses. This also includes designing for future changes that may occur, including growth of the square, station, or private developments around it.

vii. Spatial Features
The design of special spatial features ties in directly with the creation of identity for the TOD and for Hamline-Midway. This section allows us to look specifically at what innovative design idea we can bring to our design intervention to make it stand out among the other public spaces in the metropolitan area.
CHAPTER FIVE: SITE INFORMATION

A NEW ERA AT HAMLINE-MIDWAY
The writing of our thesis began with the idea of the collaboration between architecture and landscape architecture. In exploring the typologies that would work best for harboring such a collaboration, we arrived at the idea of transit-based urban design.

We like the idea of transit because it allows us to investigate issues at multiple scales—regional, neighborhood, and site. As we began looking into the opportunities of transit-based urban design and some possible options for sites, the idea of using new transit development to spur new growth latched on. We found out about the Green Line expansion in Minneapolis and St. Paul, and the more we looked into the possibilities in the Twin Cities, the more we liked the direction we were going.

As we examined a series of sites along the Green Line for the need of an urban design intervention, the long stretch between the two major downtown centers beckoned to us. We became interested in what was happening in the long corridor that connected the two cities, and what it could mean for the green line to soon be operating there.

After a site visit and the beginnings of an exploration into the issues that the neighborhoods between downtown Minneapolis and St. Paul faced, we began to see that our skills as environmental designers could be put to good use here. We saw that the main focus of the Green Line was in connecting downtown St. Paul to the existing light rail network, and that it would be very easy for all of the neighborhoods between the two downtowns—the neighborhoods
that the Green Line passed through – to be completely overlooked.

And thus our topic was born, as we wondered how we could help a neighborhood located between urban centers to capitalize on the benefits of expanded rail transit and help prevent it from serving only as a conduit for travellers to pass through.

To begin our research, we keyed in on the fact that the neighborhood we identified as having a good amount of potential for our site – Hamline-Midway – was founded on a system of rail transit. We looked into the history of the streetcar in Minneapolis and St. Paul and how it helped to shape the two cities and the suburbs that grew around them.

We looked at how people used to live when the streetcar was the primary mode of transit in the Twin Cities, and we examined what the benefits of that way of life were. We identified certain ideals of that lifestyle that we found to be still applicable in Hamline-Midway, ideals that would allow us to develop the site in a way that moved towards our original idea.

Our research next moved into an investigation of modern transit-oriented development. Here we discovered that successful TOD required a specific, tailored definition and a set of goals that it must seek to achieve. We found that the benefits of achieving these goals were exactly what we were looking for in developing our site – they would help the neighborhood capitalize on the benefits of transit access by improving that access so that all could use it, and by bringing more users to the site, that economic growth might occur in the neighborhood.

Finally, we looked at the ways in which the spaces we intended to design – a transit station and adjacent public square – could be designed to meet the goals of TOD. We searched for design principles to bring people to the site, principles to accommodate for people on the site, and principles that would help make the site create a lasting impression in the minds of users.

The research, when completed, revealed a set of prevailing criteria for the development of our site. We decided to structure the research and the subsequent discussion around these criteria in order to increase the clarity and linear development of our thesis. These
criteria include: Ownership + Development, User Benefits, Identity + Culture, Growth + Economy, Spatial Delineation, Spatial Accommodation, and Spatial Features.

The opportunities and limitations of the research were then discussed in terms of these criteria. The research, and its opportunities and limitations, were finally analyzed for applicability to both the program and the site of our thesis. Together, these portions of the thesis come together to form a unified idea for the site and a clear plan for moving forward.

The research and discussions in Public Square: Form and Function form the foundation of the thesis. The various parts of this section clearly show a set of design principles that can be applied to our site at Hamline-Midway in order to create a very successful, well-loved public space. The success of this public space is determined by its ability to meet Kevin Lynch’s five performance dimensions of good city form: vitality, sense, fit, access, and control.

Should the public space be able to perform well in all five of these dimensions through embracing the design principles uncovered by the research, it will be able to create a public space that not only accommodates the current users of the site - the residents of Hamline-Midway - but it should also be able to draw new users to the site.

The ability of the public space to do this is key to the next section of the research and discussions: Transit-oriented Development: Goals and Values. This section forms the heart of our thesis - it embodies the goals we most wish to seek, those of place-making and destination creation for the neighborhood of Hamline-Midway. The goals and their resulting benefits set out in this portion of the thesis help us fulfill the original intentions of our thesis.

However, the implications of our thesis do not stop there. So far, we have been able to develop a program that achieves the original goals of our thesis, as well as achieves a series of smaller-scale goals in the form of quality public space design. Yet, the implications of bringing TOD to Hamline-Midway do not stop at the neighborhood scale, as we guessed.

Our research in the historic implications of an extensive rail transit network in the Twin Cities uncovered a number of regional-
scale benefits that the automobile-oriented culture of the metropolitan area no longer embodies. The discussion of this section showed how meeting the goals set forth by TOD could begin moving the Twin Cities in the direction of realizing these historic benefits once again.

Should the Twin Cities take the example we set forth at Hamline-Midway and apply similar concepts and designs to other station areas on the light rail network, the benefits realized by the residents of Hamline-Midway could be realized by residents throughout the metropolitan area. This opportunity for our design to begin influencing other designs is where our thesis makes its mark upon the field of environmental design.

Though transit-oriented development is nothing new, the methods we use to apply it in the specific context we have chosen make our work both unique and valuable. Using TOD to achieve a set of design principles and goals that span the full range of sales from site to region is a concept that, while it has been discussed, has not been applied in any widespread fashion. Moving the Twin Cities towards a future that embraces TOD in order to bring a new set of benefits and a new lifestyle to its residents could improve not only the lives of the residents of the metropolitan area, but the economy of the entire region.

As we move forward with the design of our site at Hamline-Midway, we must keep in mind that this is the strength of our thesis – that the goals we set forth exist at no single scale, but at all levels of urban development, from site to region. We cannot design to fit the needs of only one scale, we must ensure that our design meets the needs of all three. Our research and discussions indicate a methodology for making this possible, but a significant challenge of ours will be maintaining this multi-level focus throughout the design process.
A BASE IN THE PAST, A GESTURE TO THE FUTURE
Figure 17
Opposite: Figure 18
SITELOCATION

THEORETICAL PREMISE

Our work explores the design of a public square and transit station at the intersection of University Avenue and Hamline Avenue in the Hamline-Midway neighborhood of St. Paul, Minnesota. Our focus is on responding to the need for transit-oriented development (TOD) through the exploration of the neighborhood placemaking principles of identity and growth. This focus upon identity and growth at the neighborhood scale allows us to define methods for improving transit corridor connections between major urban centers. Our secondary focus is on the collaboration of architecture and landscape architecture and how they work together to accomplish environmental design goals.

PROBLEM STATEMENTS

How can the design of a public square and transit station influence the growth of transit-oriented development in a historically transit-based neighborhood?

What defines identity, and how can environmental design capitalize on it to influence transit-oriented development in a historically transit-based neighborhood?
Figure 19
Opposite: Figure 20
GOALS OF TRANSIT ORIENTED DEVELOPMENT

- MIX OF CHOICES
- PLACE-NODE TENSION RESOLUTION
- PLACE-MAKING
- LOCATION EFFICIENCY
- VALUE CAPTURE
Though our design is a site-scale intervention, its intention is the creation of growth and identity in Hamline-Midway. This Visioning Plan displays the development zone (green underlay) surrounding our site that our design will influence. It shows the existing amenities in this development zone and projects the patterns in which the induced growth of the TOD will occur.
The collaborative effort on our thesis was highlighted not by the separate duties we each took on as joint designers, but by the tasks we accomplished collectively. Site selection, conceptual work, layout development, and foundational programming were not separated into ‘architecture’ and ‘landscape architecture’ duties. Instead, we worked together as environmental designers to create a place that reads as one unified design. It was not until the development of site forms - the step after programming - that we took on our respective roles as architect and landscape architect. Even as we moved forward with specialized tasks, we continually consulted each other on our design decisions, and constantly revised our plans through discussion with each other. The collaboration was not always smooth - we encountered disagreements at nearly all stages of the design. Yet through our combined experiences, we were able to identify the better answer - or compromise - in every difficult decision.
Figure 25

Opposite: Figure 26
THOMAS LOWRY MEMORIAL FOUNTAIN

Figure 29
Opposite: Figure 30
SPRING AT MIDWAY STATION

Figure 31
Opposite: Figure 32
SUMMER AT MIDWAY STATION
WINTER AT MIDWAY STATION
Dain is a graduate student at the University of Minnesota and is working towards a masters degree in civil engineering. He lives in a studio apartment in Hamline-Midway, a few blocks away from Midway Station. Dain bartends at a small pub in downtown St. Paul and is able to take the Green Line from his house to both work and school. On the weekends, Dain likes to take his dog Sydney to the Mississippi River to go for a run by grabbing the bus from Midway Station to meet up with the regions extensive set of recreational trails.

Francis lives in a low-income apartment building on University Avenue, next to Midway Station. He works at the Archer Daniels Midland elevator in St. Paul, and commutes to work using both the Green Line and bus transit; though, he looks forward to the proposed street car on Seventh Ave. Francis is taking night classes at Hamline University to finish his teaching degree, and the bus allows him to commute from Midway Station to the university in the evenings. Francis enjoys also enjoys his close proximity to the fresh, local produce available in the Market at Midway.

Grace and Allison met in college at the University of Wisconsin. They moved to Minnesota in 2009, and were married in 2013. They have adopted two kids since moving to Minnesota, Gabe (6) and Emma (4). They live in a house in Hamline-Midway, close to Galtier Community School, where Gabe and Emma attend. Grace works as a loan officer at 1st National Bank in downtown St. Paul, and takes the Green Line to work. Allison works as an analyst for Metro Transit, and works in their offices located on the second floor of Midway Station.

Ole, a long time employee of the Ford factory in St. Paul, and his wife Harriet, a former school teacher, are now retired and live in an old, historic house in Hamline-Midway. They are active members of the H-M Neighborhood Association, and are involved with organizing events that bring neighbors together. Some of their favorite events include art and food fairs and seasonal festivals at Midway Station. They are also avid gardeners, and enjoy selling their produce at the weekly Midway Station farmers’ market.

Rosie grew up in the Como neighborhood of St. Paul, where her parents still live. She is a flight attendant for Delta Airlines, and is based out of the Minneapolis-St. Paul International Airport in Bloomington. Rosie chose to live in the Apartments at Midway Station because it was more affordable than many other locations in the Metro and it was also close to her aging parents. Thanks to the quick transition from the Green Line to the Blue Line in Minneapolis, she is easily able to utilize the full capacity of the light rail system for work.

Shaun is a folk singer and songwriter from Fargo, ND who came to St. Paul to launch his music career. At night, Shaun performs gigs in small venues all over town, and likes to take the light rail when heading to his shows. When he isn’t singing, Shaun works at Wheels Bike + Repair, where he builds, fixes, rents, and sells bikes. Shaun lives in a residential high-rise in downtown St. Paul, and rides his bike to the Station whenever weather permits. Shaun also enjoys the proximity of Midway Station to his favorite shopping outlet, Midway Center.
BIBLIOGRAPHY


The Strategic Action Plan details the plan of the Metropolitan Council for implementing TODs in the Twin Cities region. It lists strategies for locating, developing, planning, funding, and making policy for TODs.

The Next American Metropolis is a how-to book that lays out plans to redirect current (to the book) trends in American town planning. The strategies suggested range from regional-scale to block-and-building scale. A number of case studies, most designed by the author, are provided.

Squares: A Public Place Design Guide for Urbanists presents a design process workflow for urban designers working with public spaces. Design principles are also introduced for effective and successful public space design.

Condon, P. M. (2010). *Seven Rules for Sustainable Communities: Design Strategies for*
Seven Rules for Sustainable Communities does just what its title suggests: it outlines seven rules to help planners design more sustainable communities. It speaks at length about the history of transit in American and makes the case for a return to the 'streetcar city'.

The Charter of the New Urbanism is a document set out by the fourth Congress for the New Urbanism, an organization that seeks for a return to traditional town planning in America. The document lays down twenty-seven principles for the development of traditional towns. These principles range from architectural detailing to form-based zoning to regional planning measures.

Twin Cities by Trolley is a historic account of the streetcar and its influence and extents in the Twin Cities region. Using extensive photographic documentation courtesy of the Minnesota Historical Society, it gives a sharp and accurate vision of everyday life in streetcar-era Minneapolis-St. Paul.

The New Transit Town presents the best current practices in transit-oriented development, describing how to define TOD, what goals to set for it, and what benefits to expect from those goals.

Suburban Nation exposes the flaws in current city planning trends in America
and lays bare the downfalls of suburban sprawl-type developments. It outlines how planning came to be this way, what and who poor planning affects, and begins to describe what changes need to be made to remedy the situation.


Holmes, J., & van Hemert, J. (2008). Transit Oriented Development. The Rocky Mountain Land Use Institute. Denver: Rocky Mountain Land Use Institute. Transit Oriented Development is a report that analyzes the challenges met by TODs and begins to outline solutions to those issues. These suggestions range from public policy, development and funding ideas, and form-based improvements.

Inam, A. (2012, Summer). From Intentions to Consequences: San Diego TOD Design Guidelines and Rio Vista West Project. American Planning Association Division of Urban Design and Preservation Newsletter. This paper examines the successes and failures of the Rio Vista West project in San Diego, California. It breaks down the design elements of the TOD there and analyzes which portions of the design have proved effective and successful, and it describes why other elements have not performed as well.

Lowry, G. (1979). Streetcar Man. Minneapolis, MN: Lerner Publications Company. Streetcar Man is a biography of Tom Lowry, the owner and founder of the Twin Cities Rapid Transit Company - the company that operated all of the Twin Cities’ streetcar lines. It is an informative historic account of not only the company’s founder, but of the company itself.

Metropolitan Transportation Commission. (2007). *Station Area Planning Manual*. San Francisco: Center for Transit Oriented Development. The *Station Area Planning Manual* identifies a range of different neighborhood types that transit stations can be located in. It lays out criteria for identifying and comparing/contrasting station area types, and lays out suggestions for the planning and design of the communities in each station area type.


by the architecture firm that designed it. It gives a brief outline of the project and some quick referential facts about it.


This web page, developed by the Ramsey County Historical Society, gives a brief historic outline of the Hamline-Midway neighborhood with some facts, figures, and dates about its origins and development.

Whyte, W. H. (1988). City: Rediscovering the Center. New York, NY: Doubleday. City: Rediscovering the Center is a book that looks at all facets of urban downtown renewal, from larger planning policies to detailed design elements. Though the work is dated, much of its content is still very relevant to design today.

Whyte, W. H. (Director). (1979). The Social Life of Small Urban Spaces [Motion Picture]. The Social Life of Small Urban Spaces is an iconic work by William H. Whyte that analyzes public spaces, both successful and unsuccessful, and the people that use or avoid them. It examines the habits and behavioral nuances of urban space users and pedestrians and explores what it is that makes a good urban space.
APPENDIX A: HISTORIC TWIN CITIES TRANSIT

Figure 37, Below: The St. Paul-Minneapolis Interurban line gracefully curves through Seven Corners in Minneapolis. The tracks diverging to the right carry the Ft. Snelling, E. 28th St., and 28th Ave. S. lines onto Cedar Avenue.

Figure 38, Opposite: The Masonic Temple, now the Hennepin Center for the Arts, and West Hotel filled the block of Hennepin Avenue between 5th and 6th streets, the bustling heart of the ‘prairie metropolis’ of Minneapolis.
Figure 39: Northbound Snelling Avenue cars entered from the right, turned right onto Como Avenue and shared the Como-Harriet line tracks for two blocks to Pascal Street, where they turned left and continued to the end of the line at Hamline and Hoyt avenues.
Figure 40, Left: An Eastbound PCC car on Minnehaha Avenue crosses Snelling Avenue.

Figure 41, Below: A Southbound Snelling car crosses the Hamline line at Minneahaha Avenue.
These maps show all track and major TCRT facilities in Minneapolis and St. Paul during the electric streetcar period of 1890 to 1954. The year of construction appears next to each track segment or facility. The lines appear on a modern base map, including freeways, in order to highlight changes to the cities.
APPENDIX B: SITE INVENTORY PHOTOS

Figure 43, Below
Figure 44, Opposite, Above
Figure 45, Opposite, Below
Figure 48, Opposite, Above
Figure 49, Opposite, Below
Figure 50, Below
Autumn 2010 | Prof. Kathleen Pepple | Intro to Landscape Architecture
Tea House | Fargo, ND
Sons of Norway Parking Lot | Fargo, ND

Spring 2011 | Inst. Jay Kost | Parks & Open Spaces
Orlady Park | Jamestown, ND
Lions Conservancy Park | Fargo, ND
Woodlawn Park | Moorhead, MN

Autumn 2011 | Prof. Stevie Famulari | Site Planning & Design
Fargo Public Library | Fargo, ND
Snow Symposium Sculpture | Winnipeg, MB
East River Esplanade | New York, NY

Spring 2012 | Inst. Jay Kost | Community Planning & Design
Sundance Village - Greenfield Neighborhood Development | Fargo, ND
Roosevelt Neighborhood - Greyfield Neighborhood Development | Fargo, ND
Autumn 2012 | Inst. Jay Kost | Urban Design
Sense of Place Sculpture | Canary Wharf, London, UK
Figure/Ground Study | Trafalgar Square, London, UK
Trasect Study | Fargo, ND
Union Square Market | Denver, CO

Spring 2013 | Prof. Dominic Fischer | Site Remediation & Planting Design
Owaka Park - Pig's Eye Dump Reclamation | St. Paul, MN

Autumn 2013 | Prof. Dominic Fischer | Environmental Planning
Douglas Creek Progressive Watershed Management Area | Garrison, ND

LEAN Forward: A New Lifestyle for Sulphur Dell | Nashville, TN
Autumn 2010 | Prof. Darryl Booker
A Place for Tea: Tea House | Fargo, ND
Minneapolis Rowing Club: Boathouse | Minneapolis, MN

Spring 2011 | Prof. Joan Vorderbruggen
Montessori School | Fargo, ND
Pritzker Architect Birdhouse
Unconventional Dwelling | Cripple Creek, CO

Autumn 2011 | Prof. Regin Schwaen
Zombie Safe House | Monument Valley, UT
Snow Symposium Sculpture | Winnipeg, MB
Artist in Residence: Artist Cabins & Studios | McCanna, ND

Spring 2012 | Prof. Milton Yergens
Agriculture Research Facility: Sunflower | Goodland, KS
Urban Infill: The Ivy Lounge | Fargo, ND
Summer 2012 | Inst. Jay Kost | Parks & Open Spaces
Unicorn Park: Urban Prairie | Fargo, ND

Autumn 2012 | Profs. Cindy Urness, Don Faulkner, & Bakr Aly-Ahmed
High Rise Competition | San Francisco, CA
DLR Design Competition

Spring 2013 | Profs. Don Faulkner & Frank Kratky
Hope’s Journey School Campus | Jema, Ghana
Marvin Windows Competition | Jema, Ghana

Autumn 2013 | Prof. Mark Barnhouse
Water Resource Experiment Station | Ulen, MN

LEAN Forward: A New Lifestyle for Sulphur Dell | Nashville, TN
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‘Home is behind, the world ahead / and there are many paths to tread / through shadow, to the edge of night / until the stars are all alight.’ - J.R.R. Tolkien, The Fellowship of the Ring

Above: Figure 51
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‘Do what you can, where you are, with what you have.’ - Teddy Roosevelt

Above: Figure 52