Towerside Innovation District Parking Framework

Prepared for Metro Transit and the Prospect North Partnership

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Contents

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Executive Summary

Metro Transit, in partnership with the Prospect North Partnership has developed a district-wide parking framework for a 370-acre planned Transit Oriented Development (TOD) district in Minneapolis and Saint Paul, commonly known at the Towerside Innovation District. The Framework explores innovative parking strategies that align with near- and long-term (re)development efforts. The Framework also lays the foundation for implementing various district-wide parking approaches. In essence, a district-wide parking approach allows all users (vehicles) within a geographical area to utilize parking reservoirs. Each approach takes into consideration a reduction in parking to support active modes of transportation (e.g., walking, biking, transit, and carpooling). Overall, this approach to parking helps reduce the need to build parking facilities for each individual development. In turn, land is utilized for its highest and best use.

This Framework is built on existing planning efforts, best practices, precedent examples, and research. The Framework is also designed to serve as a resource for other neighborhoods and TOD districts within the region that may be candidates for a district-wide parking approach.

Planning Process

The planning process was guided by a Technical Advisory Committee (TAC), which included representation from the Metropolitan Council, City of Minneapolis, City of Saint Paul, University of Minnesota, and the Prospect North Partnership. Stakeholder interviews were also a contributing factor to the planning process.

Broadening our Understanding

The Framework provides a comprehensive overview of the District's existing conditions. This section highlights the District's land use patterns, future development initiatives, parking utilization rates, transportation networks, zoning requirements for parking, and Travel Demand Management Plans (TDMP). The future development assumptions play an important role in determining the District's future parking needs. However, it is important to recognize the development assumptions are a snapshot in time. As development occurs and new initiatives are discovered, the District should evaluate their potential impact on parking and future needs.

Future Parking Needs

The Framework established a range of future parking needs based on a set of known development assumptions. These assumptions included approximately 2,500,000 sq. ft. of new commercial, office and mixed use space, and over 2,500 new units of residential. Findings concluded three different types of parking estimates using the following scenarios:

- Industry Standards (Institute of Transportation Engineers (ITE) parking demand estimates: 8,500
- City Parking Requirements: 5,000 – 10,000
- District Wide Parking Model: 3,000 – 4,250

The District Wide Parking Model provides a more accurate picture of potential parking needs from a district-wide parking perspective. These scenarios take into consideration the District's current parking utilization, customized parking generation rates, and the District's mode share goals (short-term goal: 35 percent of the district will use active modes of transportation).

Parking Reservoirs and Future Site Selection

The Framework explores potential parking reservoirs that coincide with the District's changing land uses. The potential sites are intended to accommodate known redevelopment efforts and adjacent land uses. The Framework used a 1/8 mile walking radius to determine the appropriate distance a parking reservoir could serve. Future sites also took into consideration existing parking facilities, past planning efforts (e.g., the Green 4th District Systems and Green 4th Concepts) that identified potential sites, and existing plans to build parking within the District. This section also provides guiding principles for future parking reservoir site selection.

Parking District Models

The Framework highlights various district-wide parking examples to demonstrate the various approaches applied to communities throughout the nation. These precedent examples helped shape the Framework's recommendations on how the District may approach parking from a district-wide perspective. Each of the following approaches were evaluated to determine their applicability within the District:

- Enterprise Funds
- Development Authorities
- Improvement Districts
- Transportation Management Associations
- Public-Private Partnerships

At this point in time, the most applicable model falls under the "Public-Private Partnership." This finding is largely based on city policies that are limiting local resources (dollars) to the construction of new parking facilities. It is also not in the city's current interest to operate or maintain any new parking facilities. Based on this finding, the private sector will largely be responsible for addressing future parking needs in the District. However, it is important to recognize the cities are open to finding solutions that will make it feasibly for the private sector to address the District's future parking needs. These solutions include incentives, zoning modifications and public-private partnerships.

Regardless of which district-parking model is pursued, each one requires a large emphasis on TDM measures.

Phasing Plan and Recommendations

The Framework provides a phasing plan and recommendations broken into two categories: Short-Term Initiatives and Ongoing Activities. The short-term initiatives provide guidance and direction on how to move towards a district-wide parking approach. These initiatives over time will help solidify a preferred Parking District approach. However, there are ongoing activities that need to occur regardless of the preferred district-wide parking approach. The Ongoing Activities should be viewed as tools and best practices that can be applied or implemented at any given time.

Various entities (e.g., Prospect North Partnership, local agencies, Metro Transit, and private developers) will need to continue collaborating and working towards a preferred district-wide parking approach. The Framework provides a foundation for helping continue these conversations.

The Framework's phasing plan and recommendations are summarized below:

- Short-Term Initiatives
  - Continue to partner to create a Parking District.
  - Build the case and support for shared parking.
  - Demonstrate the financial benefits to consolidate parking reservoirs.
  - Modify the zoning code to support district parking.
  - Equalize the attractiveness of taking transit, walking, and biking as compare to driving and parking through Travel Demand Management (TDM) strategies.
- Ongoing Initiatives
  - Utilize the Framework's shared parking agreement templates and best practices.
  - Build on today's TDM strategies and explore new TDM strategies.
  - Enforce or monitor TDM Plans by implementing performance measures.
  - Embrace adaptable reuse principles into future parking structure designs.
  - Continue to explore innovative solutions to parking, such as vertical/stacked parking that utilizes mechanical lifts to maximize space and minimize land impacts.
  - Monitor on-street parking in residential neighborhoods and apply appropriate strategies if parking is spilling over from the commercial areas.

Action Items

The Framework explored various ways to approach district-wide parking. Today, the public-private partnership approach has the most applicability given the current climate. As the District works towards this approach or another, fundamental strategies need to be implemented to help with this effort. Action items for the City of Minneapolis and Saint Paul, and the Prospect North Partnership include:

- **Create a District Parking Task Force** – The Task Force will help coordinate the implementation of the Framework's recommendations between agencies, building stronger coordination and collaboration between the City of Minneapolis and Saint Paul, Prospect North Partnership, University of Minnesota, and other stakeholders. The Task Force will also help oversee the process in moving towards a preferred district-wide parking approach.
- **Monitor On-Street and Off-Street Parking Utilization** – It is important for the District to continue to monitor parking utilization on a regular basis for both on-street and off-street parking.
- **Enforce or Monitor Travel Demand Management Plans (TDMPs) –** Each city should implement an enforcement or monitoring program to track the success of a TDMP.
- **Modify the Zoning Code –** Modify zoning requirements to align with the District's customized parking generation rates, while fostering a reduction in parking by emphasizing the use of active modes of transportation.
- **Develop Performance Measures -** Developing performance measures will be critical in enhancing the Districts.
- **Implement Shared Parking Agreements –** Continue to explore shared parking agreements before building new parking facilities. Monitoring the District's parking utilization will help inform this effort.

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Introduction

Metro Transit, in partnership with the Prospect North Partnership has developed a district-wide parking framework for a 370-acre planned Transit Oriented Development (TOD) district in Minneapolis and Saint Paul. The Framework explores innovative parking strategies that align with near- and long-term (re)development efforts. The Framework also lays the foundation for implementing various district-wide parking approaches. In essence, a district-wide parking approach allows all users (vehicles) within a geographical area to utilize parking reservoirs. Each approach takes into consideration a reduction in parking to support active modes of transportation (e.g., walking, biking, transit, and carpooling). Overall, this approach to parking helps reduce the need to build parking facilities for each individual development. In turn, land is utilized for its highest and best use.

This Framework is built on existing planning efforts, best practices, precedent examples, and research. The Framework is also designed to serve as a resource for other neighborhoods and TOD districts within the region that may be candidates for a district-wide parking approach.

Setting the Stage

The District has undergone a wide range of planning efforts, including land use plans, parking and traffic studies, redevelopment concepts, and design guidelines. The Green Fourth District System and Green Fourth Concepts (2014) has played a pivotal role in setting the stage for a district-wide approach for various planning elements, including parking, stormwater, energy and

The District

The District (study area) is bound by the University of Minnesota, Highway 280, the Burlington Northern Santa Fe (BNSF) railroad, and single family residential (see Figure 1).

The study area includes a wide range of land uses (e.g., industrial, office, mixed use, retail and multifamily) that is supported by light rail and a comprehensive network of active transportation modes (e.g., bus, sidewalks and trails).

The study area is also now known as the Towerside Innovation District. For the purposes of this Framework, the study area will be known as the “District.”

Previous Studies

- University Avenue District (2015)
- Stadium Village/ University Avenue Parking and Transportation Study (2012)
- Prospect North District Framework and Guidelines for Development (2015)
- Building A Healthy Community: Implementation Guide and Toolkit Prospect North Innovation District (2014)
- Green Fourth District Systems and Green Fourth Concepts (2014)
- Granary Corridor Strategic Vision (2015)
- East Gateway District master Plan (2009)

green/sustainable practices. A district-wide approach provides a wealth of opportunities for planning elements to coalesce with one another, while supporting a vibrant and prosperous environment.

As part of these past planning efforts, a clear vision has emerged. The vision recognizes the District as a premier location for development that can support and leverage its proximity to light rail transit. This new development is closely tied to district-wide planning initiatives, higher density and TOD principles, with parking systems continuing to be a key component of its vitality. Understanding that single occupancy vehicles should be secondary to other modes of transportation in this area, greater emphasis will be put towards a district-wide parking approach and Travel Demand Management (TDM) strategies.

Parking themes and recommendations are also identified in past planning efforts. This framework has embraced these themes and recommendations as “building blocks” in shaping its strategies and recommendations. These “building blocks” serve as another step towards implementing a district-wide parking approach. General themes and recommendations identified in past plans include:

- Complete concept planning for district parking that identifies the ownership structure, financing and mechanism for ongoing operations and maintenance of parking facilities.
- Create more walkable pedestrian environments, provide district parking that will allow individual properties to reduce parking requirements, and increase usable density.

- Create district parking that results in walkable distances for people between the parking facility and their destination.
- Develop connections between parking facilities and businesses that create safe, lively and enjoyable environments.
- Create a district that supports healthy living.
- Hide parking structures and avoid blank walls with underground garages and parking structures in the middle of blocks. Alternatively, if parking ramps must be placed on street, the first floor should be designated for active commercial use.
- Parking structures need to be designed with adaptability, including: midblock entrances, ground floor commercial to create livable street environment, flat parking floor and tall ceilings to allow for adaptation later if necessary.
- Financing, ownership, and implementation needs to be determined for future parking needs.

Planning Process

The planning process occurred over a five month period (January – May 2016). During this time, a Technical Advisory Committee (TAC) was formed to guide the study process and inform the framework's recommendations. The TAC included representatives from Metropolitan Council/Metro Transit, City of Minneapolis, City of Saint Paul, and Prospect North Partnership (see sidebar).

Stakeholder Interviews

The planning process included a series of key stakeholder interviews. The interviews helped confirm and identify potential redevelopment sites, parking needs and issues.

Technical Advisory Committee (TAC) Members

- Denise Currie
  Suntide Properties
- Richard Gilyard
  Prospect North Partnership
- Haila Maze
  City of Minneapolis
- Hilary Holmes
  City of Saint Paul
- Julie Kimble
  Prospect North Partnership
- Michael Krantz
  Metro Transit
  (Project Manager)
- Ross Allanson
  University of Minnesota

(The TAC also included support from the City of Minneapolis Public Works and Saint Paul Staff.)

Stakeholder Interviews

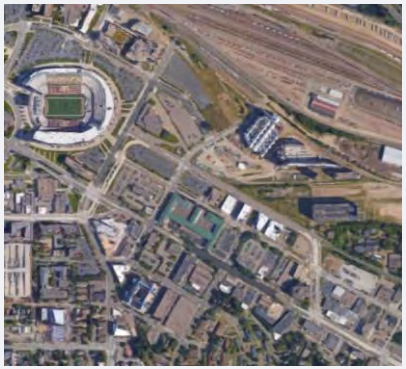
- Andrew Caddock
  University of Minnesota
- Benton Schnabel
  University of Minnesota
- Denis Currie
  Suntide Properties
- Richard Gilyard
  Prospect North Partnership
- Julie Kimble
  Prospect North Partnership
- Omar Ansari
  Surly Brewing
- Damian Goebel
  Saint Paul Smart Trips
- Representatives from
  United Properties

Stakeholder input was instrumental in shaping the planning process and informing the recommendations within the Framework. Information gathered was also used to help confirm future redevelopment assumptions, which was necessary in helping establish a general sense for future parking needs.

Stakeholder interviews included key business/property owners and members of the TAC. TAC members who participated in the interviews were selected based on their long-standing relationship in the Prospect Park Neighborhood and their continued effort and commitment in overseeing planning efforts within the District.

Key themes or message from the stakeholder interviews included:

- Parking is seen as an amenity for office space and is needed to compete with the downtowns.
- New development on the western edge has become much denser and TOD focused with the presence of light rail.
- The eastern edge of the District is seeing a range of redevelopment initiatives; however, the majority of land uses are established with large/buildout office space.
- A shared parking approach can provide the necessary parking required to support new development and meet the district's parking needs.
- Safe pedestrian and bicycle friendly environments are crucial to supporting businesses and creating a vibrant street life.
- Concerns have been expressed regarding "park-and-hiders." Park-and-hiders do not live or work in the District, but park in the area and take advantage of light rail.
- There is a strong desire to see new development that fosters "makerspace." Makerspace is commonly defined as space where people can gather to create, invent and learn.



Broadening our Understanding

It is important to have a broad understanding of today's existing conditions from a parking perspective. Therefore, this framework explores (at a high-level) how parking is being managed and utilized, the Travel Demand Management (TDM) strategies in place, and how all modes of transportation interact with one another. This information helped inform the various district-wide parking approaches applicable to the District and the Framework's recommendations.

Existing Land Uses

Over the years the District has seen a significant change in land use. Historically, the District has been home to a mix of industrial land uses along the railroad and office space along Highway 280. Situated within the District is also a mix of land uses, including residential neighborhoods dating back to the 1900's. The District's proximity to the University of Minnesota has also played an important role in shaping today's land use patterns (e.g., student housing and TCF Bank Stadium). Combined, these land uses provide a wealth of options for activities, events, living, and working within the District.

The District's land uses (see Figure 1) will continue to transition towards a more vibrant TOD district. This transition has resulted in denser developments situated within proximity of the light rail line. More recently, developments are being planned at larger scales, including a mix of uses ranging from residential, commercial, office, and hotels. Future campus master planning efforts will also transform the District by offering medical/research facilities. Some of these developments may be long-term in nature; however, they support the District's vision in being a TOD environment that is supported by a mix of high-density uses.

Figure 1 and Table 1 depict the transitions occurring based on known redevelopment efforts. For example, 53 percent of the district's land (acres) serves industrial uses and is expected to decline by 27 percent. This state of transition has been more evident with the presence of light rail. Meanwhile, multifamily, retail and commercial, and mixed used developments are expected to double based on known redevelopment efforts.

Figure 1: Existing Land Uses and Known Redevelopments

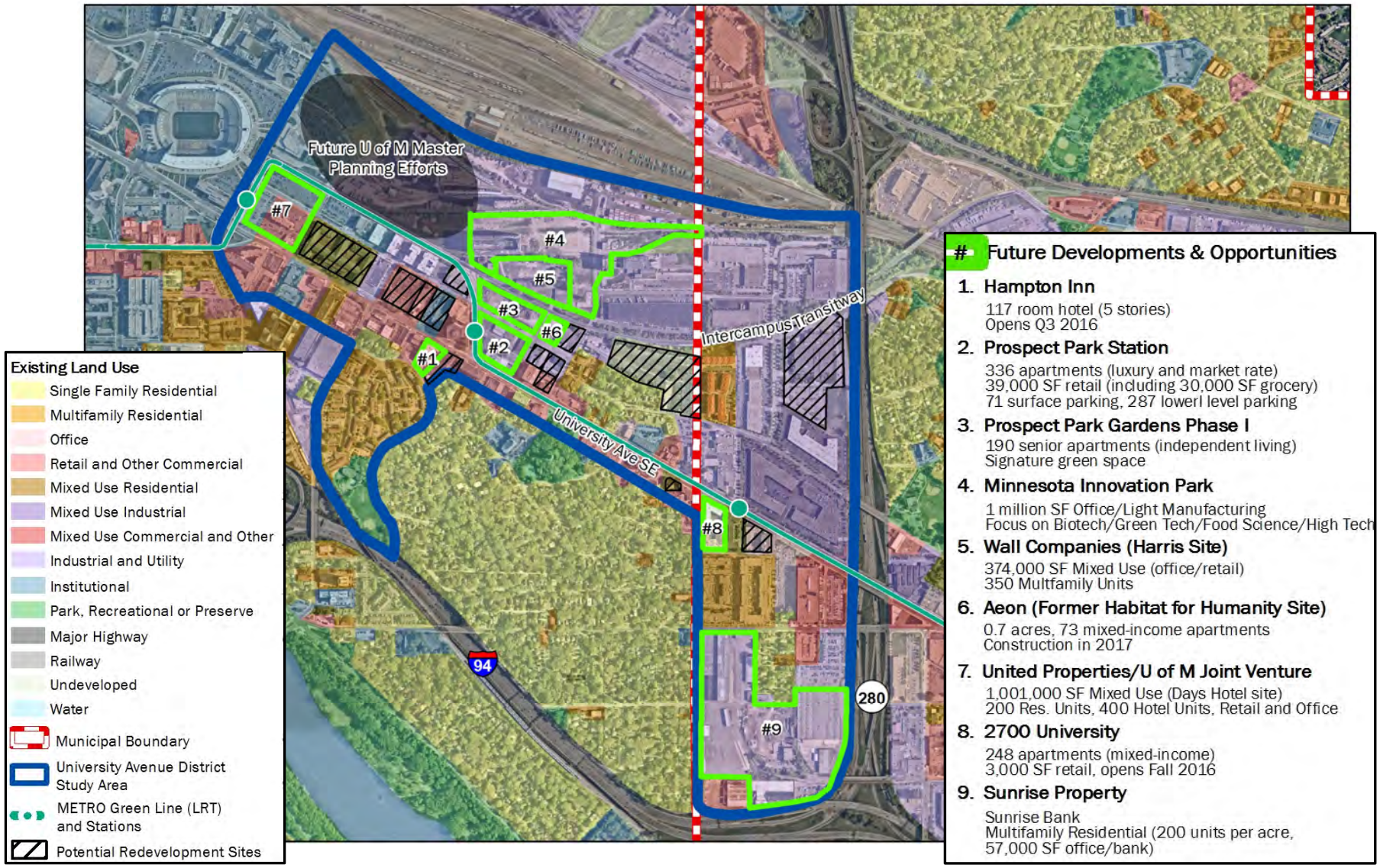
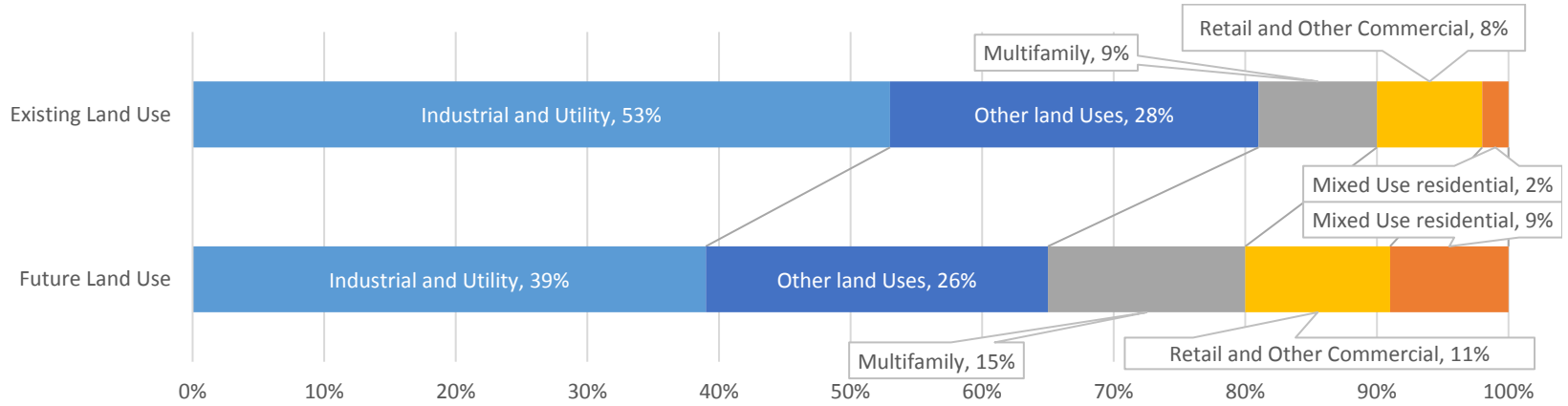


Table 1. Existing and Future Land Use Assumptions (2020+:based on known redevelopment efforts)



Future Land Uses (2020+)

The District will continue to transition towards denser land uses that support TOD. As part of this transition, the District is redeveloping in several forms. Respectfully, these developments are occurring in three different parts of the District. Figure 2 depicts the development patterns and are discussed below. Findings from this assessment will serve as a foundation for understanding future parking needs, which is discussed later on in this Framework.

Developed Land Use Patterns

The "Developed" land use patterns primarily reflect office uses located on the eastern edge of the District. This part of the District includes established footprints and large surface parking lots (approximately 7,000 parking spaces). In some respects, these land use patterns will not change. The largest opportunity for significant development is located near Interstate 94, which is planned for residential and office uses. The Court International Building provides the only structured parking within the area (approximately 700 spaces).

Redeveloping Land Use Patterns

The “Redeveloping” land use patterns reflect the majority of new development envisioned within the District. Known redevelopments include large mixed use developments at higher densities. For example, a development (Figure 1 – Development #7) being planned near the light rail is for over a million square feet of hotel, residential and commercial space. Additionally, the Prospect North Partnership sees opportunities to attract development that supports “makerspace” in this area and throughout the District. Makerspace is commonly defined as space where people can gather to create, invent and learn. Types of makerspace may include research or fabrication laboratories, libraries, and tech shops.

As part of these development efforts and others, planned parking structures are being considered. The Green Fourth District System and Green Fourth Concepts (2014) has identified three potential locations for structured parking. The University of Minnesota’s Master Planning efforts has also identified structured parking within the area. Today, parking is served in the area by surface parking and one parking structure (400 spaces), which is not open to the public.

Transitional Land Use Patterns

Land uses positioned between the “Developed” and “Redeveloping” areas are in flux. North of the Intercampus Transitway is industrial land uses and Surly Brewing. South of the University of Minnesota Transitway is a pocket of residential homes, commercial, and office uses. Smaller redevelopments have occurred along the light rail; however, at this time, redevelopment efforts are long-term in nature. Parking is primarily served on-site and supplemented by on-street parking. Surly Brewing provides the most parking within the area and is shared with adjacent businesses.

Residential Land Use Patterns

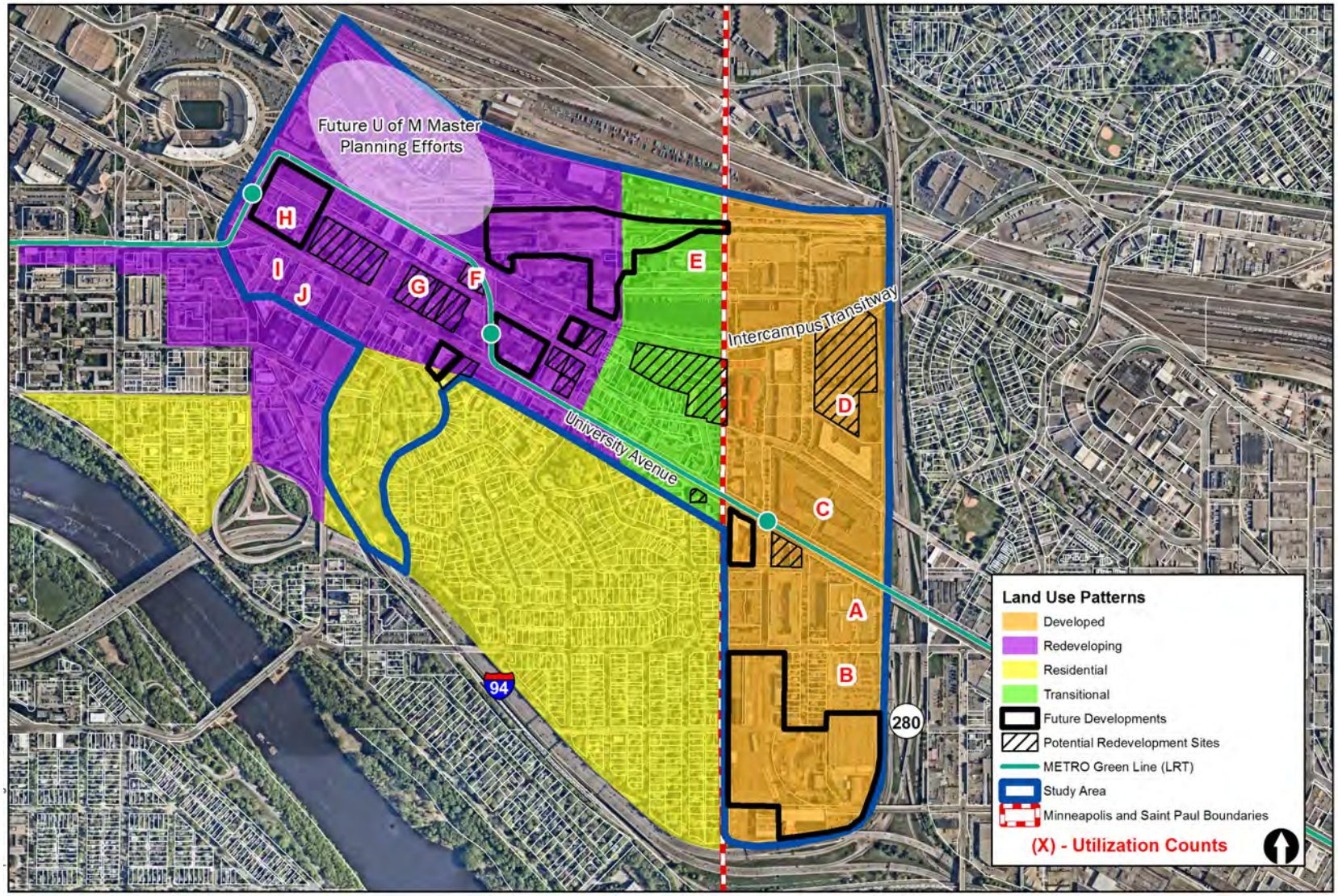
The “Residential” land use patterns are within the Prospect Park Neighborhood and bound by Interstate 94. This neighborhood is not anticipated to change or redevelop over time. The neighborhood will continue to be part of the District’s vitality. However, parking will continue to play a role as concerns arise regarding “spill over” from adjacent land uses.

Land Use Findings

The four land use patterns will function differently from a district-wide parking perspective. Findings from the land use analysis include:

- Little change is expected to occur within the “Developed” area and surface parking will continue to serve the District.
- Surface parking may present opportunities for shared parking between land uses within the District.
- Structured parking will likely coincide with new development that is being concentrated at higher densities within the “Redeveloping” area.
- Structured parking will provide opportunities for larger parking reservoirs that can accommodate portions of the District.
- The “Transitional” land uses will be within proximity to these parking reservoirs and can also leverage shared parking opportunities within the “Developed” area.
- No changes are anticipated within the “Residential” area. However, on-street parking will need to be restricted to ensure parking from adjacent areas do not spill into the neighborhood.

Figure 2: Land Use Patterns and Utilization Counts



Parking Utilization

The land uses within the District generate a range of parking needs. Understanding today's parking demand is important in helping inform the implementation steps in moving towards a district-wide parking approach. Parking utilization counts were conducted at key locations on Wednesday, January 20, 2016 (under normal weather conditions for this time of year). The information gathered for this Framework is also a starting point in shaping a parking model for the District (see "Future Parking Needs" section). The locations selected for utilization counts represent a range of land uses (e.g., office, restaurant and entertainment uses) (see Figure 2). Findings from the utilization counts are summarized in Table 2.

Table 2: Utilization Counts

Property	10:00 am Utilization Rate	2:00 pm Utilization Rate	6:00 pm Utilization Rate
Court International: Visitor Lot	83.9%	98.7%	29.9%
Westgate III/IV Business Centers	69.1%	69.3%	7.7%
University Enterprise Laboratories, Inc.	41.2%	42.4%	9.4%
Surly Brewing Co. + Adjacent On-Street	18.0%	62.7%	75.0%
Premiere Parking Pay Lot	27.3%	28.4%	13.6%
North Star Professional Center	80.2%	93.1%	24.4%
Days Hotel + Tea Garden	22.2%	19.8%	25.3%
Caspian Bistro	19.2%	35.6%	21.9%
American Cancer Society Hope Lodge	60.0%	60.0%	61.8%

Cells highlighted in red indicate parking facilities experiencing heavy utilization.

Understanding Parking Utilization

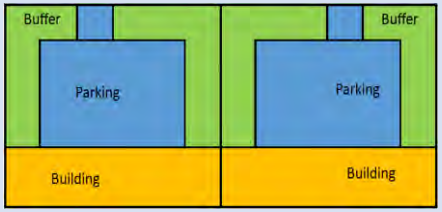
Utilization counts are typically captured during peak periods of the day (morning, lunch, and evening hours). Parking utilized above 85-90 percent indicates the parking facility is reaching capacity.

In general, a parking facility should maintain 10-15 percent supply cushion to allow for parking availability and traffic circulation. In the District today, two parking facilities exceed a 93 percent utilization rate at peak, which is considered at full capacity.

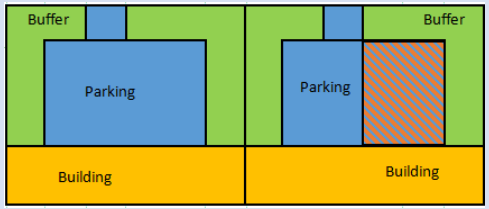
Parking Requirement Scenario

1.) This scenario demonstrates inefficiencies in parking requirements that are commonly seen in city codes across the nation.

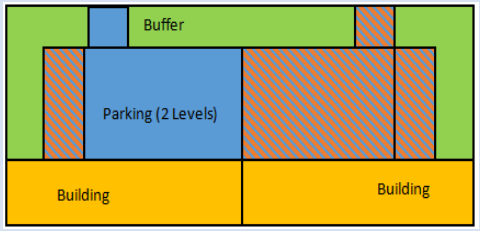
For example, two adjacent lots are required to provide adequate parking, a buffer, and a driveway - resulting in the duplication of requirements (see image below).



2.) The model below depicts the same two lots with a 50% shared parking reduction. The striped area represents the land gained from this approach (see image below). However, land is still required on both parcels for buffering and a driveway.



3.) The model to the right depicts the same two lots with a shared parking structure. The striped area shows the additional land that can be utilized for other uses (e.g., parks and development) if zoning code requirements are modified to provide flexibility in setback requirements.



This snapshot in time determined parking was not being over utilized, with two exceptions (i.e., Court International and North Star Professional Center). Findings from this assessment also helped establish customized parking generation rates for the District.

City Parking Requirements

The City of Minneapolis and Saint Paul have adopted a minimum and maximum parking requirement to help ensure adequate parking is provided for a particular land use, without overbuilding parking and jeopardizing the fabric of the community. It is also important to recognize that the City of Minneapolis also allows lower parking minimums at station areas. However, parking requirements across the District and throughout the metropolitan area do not necessarily account for the reduction in parking demand and land requirements that are achieved through a district-wide parking approach. This finding suggests recommendations for revisions or updates to city parking requirements that better support a district-wide parking approach.

For example, parking is generally required onsite for each property within the District with a few exceptions. The site specific approach to parking requires each individual development to meet site design standards including

minimum/maximum parking spaces, buffering/landscaping, screening, and access. This does not account for, nor promote, visitors to park once and visit multiple nearby locations.

While current city codes are good at regulating individual sites, they lack the nuance that is needed when multiple individual sites coalesce into one district and can all benefit from one parking reservoir. The current parking requirements support some aspects of a district-wide parking approach. Both cities have adopted shared parking reductions, which allow complementary uses to share parking such as residential (evening peak demand) and office (day time peak demand uses). Shared parking reductions only apply to multiple uses on the same site or immediately adjacent to a site.

Further parking reductions are available for bicycle parking, proximity to transit, and shared vehicles. Various overlay districts in the City of Minneapolis and Saint Paul also contribute to parking reductions. These parking reductions are applied to site specific evaluations. These types of parking requirements help set the stage for shared parking opportunities; however, they do not overcome the issues with "site specific parking" demonstrated on page 12.

Existing Transportation Network

Understanding the existing transportation network is important to determine how all modes of traffic access the District. Vehicular traffic accesses the District from the regional network at Interstate 94 and US Highway 280, and via local arterials (i.e., University Avenue and 4th Street). The relatively direct regional access has made the District prosperous and attractive to developers. Recent investments in active modes of transportation (see Figure 3) has made the District even more accessible to alternatives. For example, transit options through bus and light rail provide viable options between downtown Minneapolis and Saint Paul. These investments have shifted travel patters to transit vs. single occupancy vehicles.

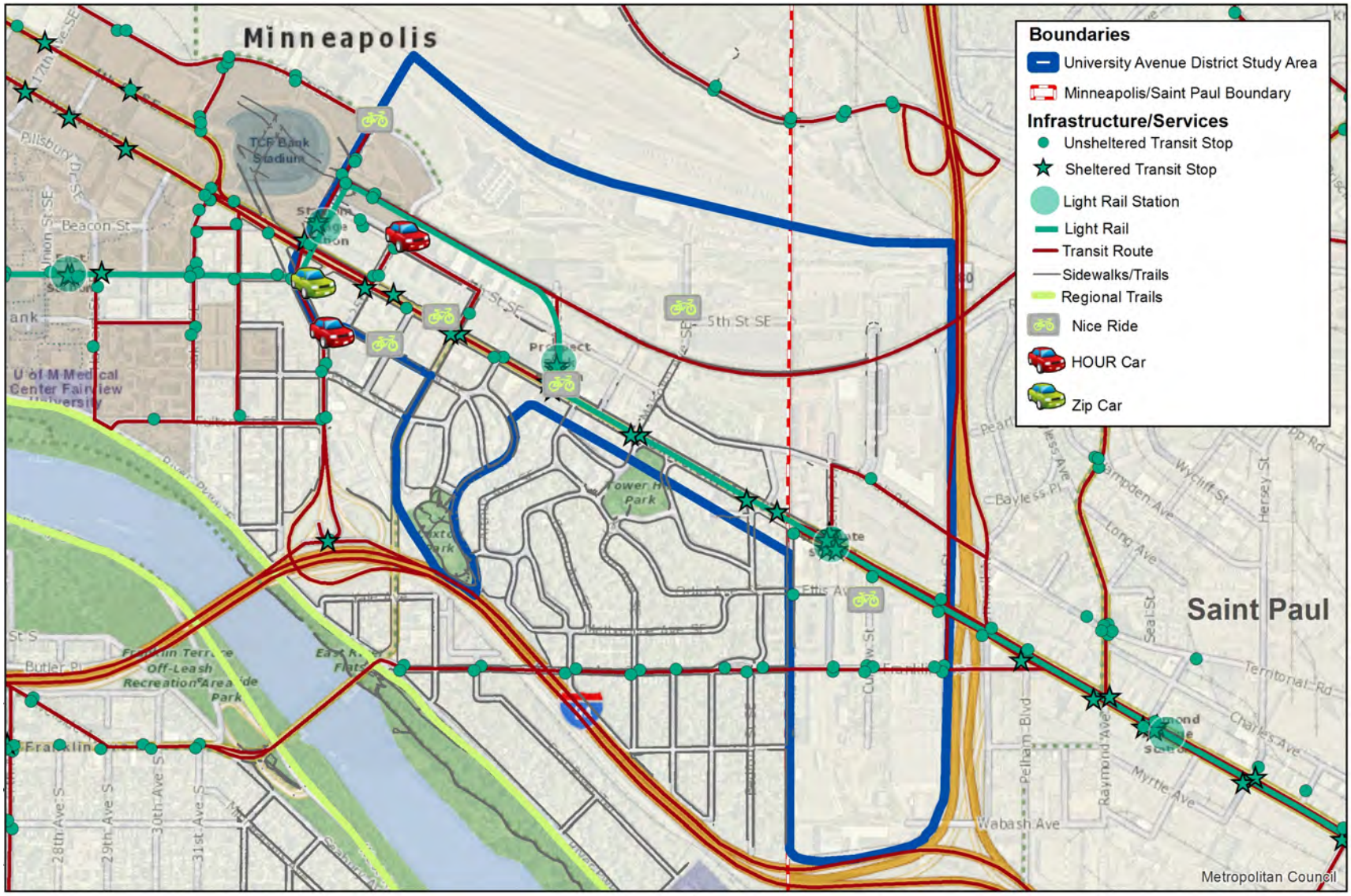
The District is further supported by other transit options, such as the University of Minnesota Transitway, which is a private road dedicated for bus service connecting the University's Minneapolis and Saint Paul campuses. A well-established bicycle and pedestrian network is also available that connects the District with the greater metropolitan area. A bicycle commuter can commute to downtown Minneapolis or Saint Paul within a 30+ minute ride almost exclusively by bike lanes or separated trail.

There are opportunities to access the District via various modes of transportation. However, each mode must be carefully balanced with one another to ensure a safe and mobile environment. Past planning efforts recognize this goal and emphasize the need to cultivate a safe pedestrian environment. These goals also recognize a short-term mode share goal of 35 percent for active modes of transportation and 65 percent vehicular. It is recommended the District targets a long-term goal that reflects a fifty/fifty mode share split.

Parking will continue to serve a function in the District as it transitions towards active transportation goals. Parking will need to be strategically placed in areas that provide relatively convenient, reasonable vehicular access, and be located in close proximity to active modes of transportation (e.g., light rail stops and sidewalks) in order for interoperability of modes. The Green Fourth District Systems and Green Fourth Concepts work laid the foundation for this by discussing potential traffic circulation patterns as a result of potential development. Vehicular traffic will continue to be funneled from the regional access points at Interstate 94 and US Highway 280 onto the major east-west arterials (i.e., University Avenue and 4th Avenue). The limited north-south routes into and throughout the area will primarily serve as connectors between the east-west arterials, serving as access points to future parking facilities. Access points to future parking facilities along the north-south connectors provide several benefits by maintaining vibrant and active street frontage along University Avenue and 4th Avenue, while accommodating traffic volumes on the lower-volume roadways.

Accessing certain parts of the District may continue to be challenging. For example, land located north of the University Transitway has limited access. The area is currently accessible via 25th Avenue SE, 6th Street SE, Westgate Drive, and Malcolm Avenue SE. Internal circulation to and from the site will need to be considered as future development in the area progresses. Future parking facilities serving this area will need to address safe pedestrian crossings of the University Transitway. Safety concerns have been expressed by businesses and patrons, especially those accessing Surly Brewery by foot and bike.

Figure 3: Active Modes of Transportation



TDMP Strategies

Large developments in the District have developed TDMPs. Common strategies from these TDMPs include:

- A TDMP Liaison
- Transit Pass Discounts
- Bike Racks and Storage
- Orientation Packets
  - Bicycle Maps
  - Shared Parking Availability
  - Transit Schedules
- Mode Share Goals
- Monitoring Schedules to Determine the Success of TDM Strategies (by the property owner)

Travel Demand Management (TDM) Strategies & Programs

Travel Demand Management (TDM) is a general term for strategies that increase overall transportation system efficiency by encouraging and enabling a shift from single occupancy vehicle trips to other modes of transportation, including transit, bicycling, walking, and carpooling. TDM strategies may also look to shift trips from peak period (high-demand) hours to times of the day when more transportation network capacity is available. Single occupancy vehicle trip reduction strategies include an increase in travel options, enhancing non-motorized networks and connections for bicyclists and pedestrians, providing incentives and information to encourage and help individuals modify their travel behavior, and/or reducing the physical need to travel through transportation-efficient land uses.

The District fosters a range of infrastructure and programs that apply TDM principles and promote active modes of transportation (see Figure 3). Non-profits such as Saint Paul Smart Trips and Move Minneapolis serve the District and are examples of agencies designed to promote TDM strategies and assist businesses in linking employees to transit, car sharing programs and transit incentives. The region has also seen large semi-public and private investments that promote TDM strategies by offering bike and car sharing programs. For example, Nice Ride Bike and Zipcar are found throughout the District.

Travel Demand Management Plans (TDMP)

Travel Demand Management Plans (TDMPs) are often required by cities and used by developers (for commercial, residential, and other development types) to promote TDM strategies and reduce single occupancy vehicles. The City of Minneapolis and Saint Paul require large developments to develop and implement TDMPs to minimize their traffic impacts and parking needs (see Sidebar). Most often these TDMPs are developed upon redevelopment or initial development and implemented as the site becomes functional. Monitoring of the TDMPs over time is a best management practice that should receive further attention to ensure mode share goals are achieved.

Examples of TDMPs in the District or within proximity include:

- University Village
- Huron & Essex Hotel
- Surly Brewery
- University Village
- WaHu Student Development

The Framework reviewed the TDMPs to determine common TDM strategies being applied by developments. Based on this review, it was determined the TDMPs are not consistently enforced or monitored by the cities. Without an enforcement or monitoring process in place, it is unknown how effective the TDMPs have been in reducing single occupancy vehicle trips.

The most significant example of a semi-public/private entity implementing TDM strategies in the District is the University of Minnesota. The University of Minnesota has effectively demonstrated how TDM strategies can be implemented, while having direct impact on reducing single occupancy vehicle trips. As a result, only a third of the students, staff, and faculty drive alone to the campus. The University of Minnesota's current mode share is 33 percent drive alone and 67 percent active modes of transportation, including walking, biking, and transit. This percentage reflects the number of students, staff and faculty traveling to and from campus. This is largely due to the multitude of commuter options and programs available and offered by the university (see Sidebar).

The Framework provides additional guidance (see Page 51) on how to enforce and monitor TDMPs to help achieve mode share split goals.

University of Minnesota Travel Demand Management Plan

TDM strategies utilized by the University of Minnesota include:

- Bike Classes
- Bike Lockers
- Bike Racks (9,000 spaces)
- Bike Rentals
- Bike Repair Locations
- Car Sharing
- Carpool Lots
- Carpool Partner Assistance
- Internal Shuttles
- Marketing Materials and Websites
- Motor Cycle Parking
- Transit Pass Discounts

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Future Parking Needs

Parking will continue to play a role in the District, even as the area transitions away from single occupancy vehicles. As part of this transition, the size and location of parking facilities will change. Greater emphasis will be placed on parking reservoirs that serve the District as a whole. For example, a district-based parking structure should be located to accommodate various land uses (e.g. office, residential and retail) and activities occurring throughout the day, evening, and overnight (e.g., standard nine-to-five work schedules, sporting events, evening matinees, and the dinner hour).

Finding the appropriate size and range of parking needs within the District takes a careful lens. This lens takes into consideration a number of factors, including multimodal goals, shared parking opportunities, and redevelopment assumptions. Combined, these factors help establish a level of understanding of future parking needs from a district-wide perspective. More importantly, parking needs to be integrated accordingly throughout the District without being overbuilt or jeopardizing the long-term vision.

Methodology

A parking generation model was created to help better understand the level of magnitude for future parking needs. The model provides a range of parking needs under three scenarios. The first two scenarios compare known (re)development assumptions (see Table 3) with industry standards and city parking requirements. The third scenario compares the redevelopment assumptions with current utilization data and best practices to create customized parking generation rates for the District. This scenario provides a better representation of actual parking needs from a district-wide perspective when compared against industry standards and city requirements. Findings from this assessment helped guide the Framework's recommendations.

A large component for understanding the various parking needs was built on known redevelopment assumptions. Based on known redevelopment efforts, there is the potential for over two million square feet of new residential, office, and commercial uses (see Figure 1 and Table 3). Each scenario evaluated these assumptions to determine their future parking needs. These needs are documented on page 21 and 22. It is important to recognize these development assumptions may change over time, as well as the parking demand ratios. Therefore, the District will need to closely and regularly monitor future redevelopment efforts and their parking impacts, and adjust the assumptions and scenarios accordingly.

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Table 3: Known Redevelopment Assumptions

	Name	Future Development Type	Square Feet	Number of Units	District Zone
1	Hampton Inn	Hotel	0	117 Res.	Redeveloping
2	Prospect Park Station	Retail/Grocery Store/Residential	39,000	336 Res.	Redeveloping
3	Prospect Park Gardens Phase I	Senior Living	0	190 Res.	Redeveloping
4	Minnesota Innovation Park	Office/Medical	1,000,000	0	Redeveloping
5	Wall Companies	Mixed Use	374,000	350 Res.	Redeveloping
6	Aeon (Former Habitat for Humanity Site)	Residential	0	73 Res.	Redeveloping
7	United Properties/U of M Joint Venture	Retail/Office/Hotel/Residential	1,001,000	600 (200 Res./400 Hotel)	Redeveloping
8	2700 University	Retail/Office/Bank/Residential	57,000	248 Res.	Redeveloping
9	Sunrise	Office/Bank/Residential	15,000	600 Res.	Developed
		Total:	2,486,000	2,514 Units	

Findings

Each scenario provided various ranges for future parking needs. The Industry Standards show a potential parking need of 8,500 stalls. This estimate represents a parking scenario that is built out and does not take into consideration shared parking opportunities or a district-wide approach. The City's minimum parking requirements take into consideration shared parking opportunities and the Pedestrian Overlay District, which results in a much smaller need of 5,000 parking stalls. The final scenario takes into consideration a more comprehensive approach to understanding future parking needs from a district-wide perspective. It uses customized parking generation rates based on existing utilization counts, mode share goals, and best practices. The end result is a potential parking need of 2,925 to 4,250 parking stalls. This range provides a healthy balance in meeting future parking needs and embraces the district-wide approach while encouraging support for active transportation investments.

Industry Standards

Parking Need: 8,500+

The development assumptions were compared against industry standards using the Institute of Transportation Engineers (ITE) parking demand estimates. It is important to recognize that the ITE parking demand estimates represent a total number of parking spaces needed to meet peak parking demand per land use. These parking demand estimates are compounded and represent a maximum or overbuilt parking scenario. This assessment does not take into account potential shared parking opportunities that typically occur in an urban/TOD environment.

ITE Parking Generation Rates	
Use	Spaces
Quality Restaurant	20.2 spaces per 1,000 SF
Hotel	1 space per Room
Grocery Store	3.2 spaces per 1,000 SF
Retail	4.1 space per 1,000 SF
Bank	4 spaces per 1,000 SF
Residential	1.4 spaces per Unit
Senior Housing	1 space per Unit
Office/Medical	2 spaces per 1,000 SF

City Parking Requirements

Parking Need: 5,000 – 10,000

The development assumptions were compared against city off-street parking requirements. The City of Minneapolis and Saint Paul requirements differ from one another; however, in some respect are similar in nature. For example, both cities provide parking reductions for transit and shared parking opportunities.

- City of Minneapolis Parking Requirements
  - Zoning Code, Chapter 541
- City of Saint Paul Parking Requirements
  - Code of Ordinances, ARTICLE II. - 63.200

District Wide Parking Model

Parking Need: 2,925 – 4,250

The development assumptions were compared against custom parking generation rates (see Side Table). The rates were developed using the District's utilization counts and further refined to reflect district-wide parking needs that accommodate multiple land uses. The parking needs were also adjusted to reflect the District's mode share goals (short-term goal: 35 percent of the district will use active modes of transportation).

The parking needs represent a healthy balance of future parking needs while encouraging support for active transportation investments.

It is important to recognize the parking range is based on the generalized development assumptions (see Table 3). It is assumed these developments will be online by 2020. If this assumption holds true, the District will need to accommodate approximately 2,925 to 4,250 parking stalls to meet their needs from a district-wide parking perspective. A generalized phasing plan for this need is provided in the sidebar. Please note this phasing plan should serve as a guide in helping facilitate future parking need discussions for the generalized development assumptions. The 2020 estimates should be revised as developments come online and new parking supply/demand ratios are measured.

Custom Parking Model Generation Rates		
Use	Min	Max
Multifamily	0.50 space per 1 Unit	0.50 space per 1 Unit
Office	1 space per 1,000 SF	3.39 space per 1,000 SF
Commercial and Mixed Use	1 space per 1,000 SF	1.52 space per 1,000 SF
Makerspace *	0 to 1 space per 1,000 SF	

** The Prospect North Partnership has identified makerspace as a desired land use for the District. Makerspace was not identified in the redevelopment assumptions; however, a parking generation rate was provided to give guidance for future developments. Precedent examples of makerspace throughout the nation (e.g., San Francisco, CA; Dallas, TX; Minneapolis, MN; and, Milwaukee, WI) have demonstrated very little need for parking.*

Parking Needs by Land Use Patterns (2017 – 2020)		
Use	Min	Max
Developed	325	350
Redeveloping	2,600	3,900
Transitional	0	0
Total *	2,925	4,250

Parking Reservoirs & Future Site Selection

The Framework was not designed to capture a complete inventory of today's existing parking supply. Instead, the Framework recognizes the large parking reservoirs that exist under today's conditions and how those parking reservoirs may serve a larger district need. This section provides guidance on how the District's four land use patterns (see Figure 2) interact from a district parking perspective and the potential sites for future district-parking.

Developed

The bulk of the District's larger surface lots are located in the "Developed" area, which accounts for over 3,000 parking stalls. This area is largely developed and redevelopment efforts are unknown at this time. Therefore, large surface lots should be viewed as opportunities to serve all land uses within the eastern edge of the District. The utilization rates collected in this area helped demonstrate the feasibility of this approach by showing the excess supply available during different periods of the day. Some of the large surface lots are also located in proximity (1/8 mile walking distance) to the "Transitional" area (see Figure 4). This overlap provides additional shared parking opportunities throughout the District. For example, the Surly Brewing site experiences heavy utilization during the evening hours and is typically underutilized in the morning and early afternoon.

Long-term, the surface parking lots should be consolidated if possible and the land leveraged for higher and better uses, such as open space, commercial, office or residential developments. A potential redevelopment site is the Westgate/University Enterprise Laboratory Site (See Figure 2 - south of the University of Minnesota Transitway). This site is an ideal location to help consolidate large surface parking lots into a larger development with structured parking. For example, the site is approximately 10 acres in size providing enough flexibility to develop at a higher-density, while providing enough parking for its tenants and surrounding land uses. In turn, this strategy begins to embrace a district-wide parking approach. The site also provides adequate vehicle access that is located on the local network, off of University Avenue, and is within proximity (walking distance) to the Westgate Green Line Station.

A similar approach can be applied to development proposals in the southeast part of the District (see Figure 1 & 2) near U.S. Highway 280 and Interstate 94. This area will likely redevelop in the near-term. Given the timing of these projects, the development review process should evaluate the parking requirements to minimize parking demand and explore shared parking opportunities or structured parking.

Finally, this area was not identified as a site that could accommodate the District's future parking needs based on known redevelopment efforts. In some respect, the area is further removed from other redevelopment sites and is not within walking distance to the light rail station areas. The area is also bordered by single family residential land uses, which do not warrant the need for additional parking.

Transitional

The "Transitional" area lacks large parking reservoirs to serve the District as a whole. The "Transitional" area is within proximity (walking district) to other parking reservoirs in the "Redeveloping" and "Developed" areas (see Figure 4). The "Transitional" area should leverage these parking reservoirs as the District intensifies over time.

Redeveloping

The "Redeveloping" area poses the biggest challenge to accommodate future parking needs, but provides the biggest opportunity to capitalize on a district-wide parking approach. Figure 4 highlights proposed parking structure sites from past planning efforts. For example the Green Fourth District System and Green Fourth Concepts (2014) identified three viable sites for future parking reservoirs. These continue to serve as viable sites based on the magnitude of redevelopment being proposed in the area. The sites provide adequate access and walking distances to the proposed redevelopment sites.

There is an existing parking structure (approximately 400 spaces) that is privately owned and operated within this area. The spaces are leased to tenants and no public parking is available. Stakeholder interviews indicated the parking structure is underutilized during evenings and weekends. This presents an opportunity to leverage an existing facility for future district parking. The District should pursue this opportunity. Discussions should begin with the property owner to determine the feasibility of opening the parking structure up to the public or leasing the underutilized spaces to adjacent businesses during off-peak times. This approach will help set a precedent example for how public-private partnerships can be developed to accommodate district-wide parking.

Future parking structures are also being planned in the area that could potentially serve the District. One in particular is the United Properties site (see Figure 1). This is the largest known redevelopment, which has plans to build structured parking to accommodate its development proposal. As noted in the "Developed" area discussions, the city should act on these developments soon to determine opportunities to provide additional parking for transient use.

Residential

The "Residential" area does not provide any opportunities to accommodate district-wide parking. The residential neighborhoods should be protected from any on-street parking impacts associated with nearby developments or events. This approach will help preserve the neighborhood's quality of life and vitality. The District parking needs should be directed to the core area of the District where large parking reservoirs are available for employees and transient use.

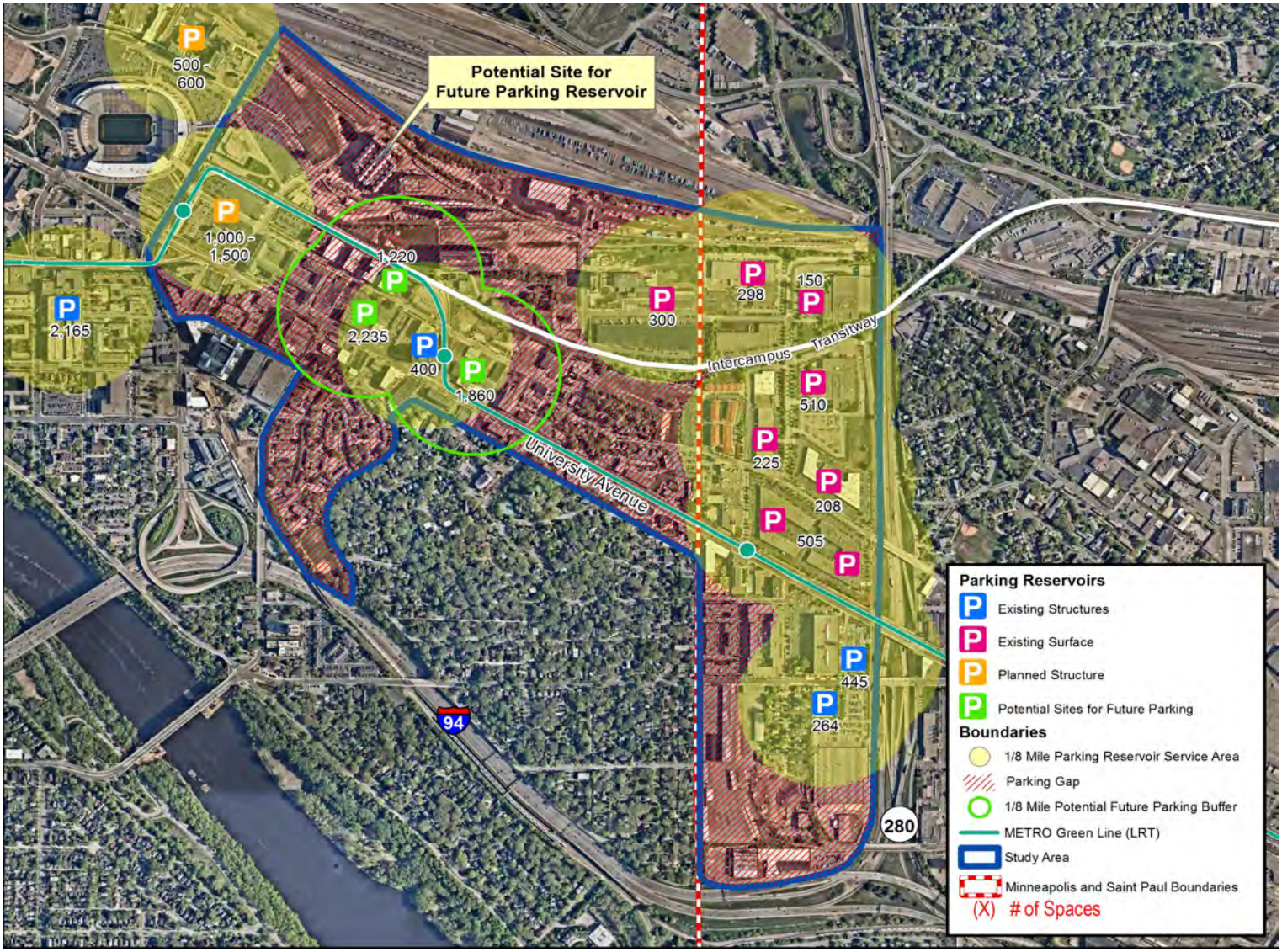
Field observations have noted some vehicles utilizing the neighborhood's on-street parking as informal "park-and-rides" to access the light rail. This is also evident during sporting events at TCF Bank Stadium. On-street parking should continue to be monitored in the neighborhood and issues need to be addressed accordingly by the City of Minneapolis. If the problem increases, potential solutions may include residential parking permits. The feasibility of this option will need to be evaluated by the City to ensure the program is appropriately administered and enforced.

Principles for Parking Site Selection

A set of principles have been established to help site future parking reservoirs:

- First, utilize existing parking facilities and take into account their current supply and utilization.
- Strategically site future parking facilities with an effort to revitalize and/or redevelop adjacent properties. Potential sites may include those identified in Figure 1.
- Strategically locate future parking facilities within proximity (1/8 mile walking radius) of a light rail station or bus stops.
- Strategically locate future parking facilities within proximity to major destinations (e.g., TCF Bank Stadium, entertainment uses, and job centers).
- Strategically locate a future parking facility's access points off of major arterials (e.g., 4th Avenue and University Avenue), while locating access points on local streets or alleys.
- Integrate future parking facilities with economic development initiatives, capital improvements and private development projects.

Figure 4: Parking Reservoir Walking Analysis



Parking District Examples

The following section highlights various district-wide parking examples to demonstrate the various approaches applied to communities throughout the nation. These precedent examples helped shape the Framework's recommendations.

Precedent Examples

Towerside's proposed Integrated District Systems plans includes a District Parking strategy. The vision and guiding principles for the District seek to create a place that prioritizes people who walk, integrates a complete streets approach, and values a high-quality public realm. An innovative approach to a parking management district is a Transportation or Mobility district, which manages parking as part of a larger program of transportation options. A Parking and Transportation Management District (PTMD) defines an area to be managed holistically from a parking and transportation management perspective.

PTMDs exist across the country, and no two look the same. They may be called different names[1], but for the purposes of this Framework, they are referred to as Parking Districts. In addition to names, there are several different approaches to developing and managing a Parking District. Common and relevant types of Parking Districts in existence (each of which is accompanied by a case study) include:

- Enterprise Funds
- Development Authorities
- Improvement Districts
- Transportation Management Associations
- Public-Private Partnerships

[1] Names include, but are not limited to: Parking and Transportation Management District, Parking Benefits District, Transportation Management District

Parking District Principles

Parking Districts often include some participation from both public and private entities. However, the structure can vary from models that are primarily managed by the public sector or a public entity, to models that are managed nearly entirely by the private sector.

A Parking District could be managed by one or several partners. Potential partners may include:

- Municipality or municipalities
- A development authority or similar
- A business improvement district or similar
- A master developer (likely in partnership with municipalities)
- A partnership of private developers
- A district-area transportation management organization or similar

A Parking District could include the following elements and responsibilities:

- Coordination and management of neighborhood transportation programs
- Construction, operations, and maintenance of parking
- Monitoring and enforcement of on-street and off-street parking
- Administration and communication of transit program information and benefits
- Coordination with bike share and car share systems (such as Nice Ride and Zipcar)
- Coordination with residents, tenants, owners, and neighbors on parking and transportation issues and opportunities
- Coordination with the City of Minneapolis, City of Saint Paul, Metro Transit, the University of Minnesota, and other institutions on supportive transportation measures
- Coordination and monitoring of other recommended tools as needed, including valet parking, interim construction parking, wayfinding systems, and trip reduction strategies
- Utilize existing services, such as mobility vans or shuttle services (e.g., University of Minnesota shuttles) to move people throughout the District

Enterprise Funds

Enterprise funds generally mandate that developers in a certain district pay fees in lieu of fulfilling municipal parking minimum requirements[2] to a dedicated financing program. These programs often operate municipally-owned parking structures. Enterprise funds are typically supported by a combination of ad valorem taxes, parking services fees, and parking enforcement. Enhancements are often visible in the form of parking and support parking programs, transit improvements, beautification projects, and infrastructure and streetscape improvements.

Montgomery County, Maryland

Montgomery County, through its Parking Lot District (PLD) program, operates more than half of the public parking in three of its largest central business districts (i.e., Bethesda, Silver Spring, and Wheaton), as well as in the Montgomery Hills community. Combined, these districts provide for over 20,000 public parking spaces.

The primary goals of the PLD program include: supporting the role of public parking in commercial areas throughout the County; supporting the comprehensive development of central business districts by supplying a sufficient number of parking spaces to accommodate a segment of the public demand, which is neither provided for by developers nor served by alternative travel modes; promoting and complementing a total transportation system through the careful balance of rates and parking supply to encourage the use of the most efficient and economical transportation modes available; and implementing parking management strategies designed to maximize the usage of the available parking supply.

The two largest sources of income for the PLD program are the ad valorem tax and user fees, accounting for 29 percent and 46 percent of all program revenues, respectively. The ad valorem tax[3] encourages developers to rely upon PLD resources as a means of reducing additional parking construction. Each enterprise fund receives all public parking revenue collected within the PLD boundaries (e.g., from individual meters, electronic pay stations, cashiered facilities, sale of parking permits, and parking fines). PLD funds are also used to support additional County programs that provide and promote transit services, benefits for using alternative modes of transportation, and lighting and streetscape improvements.

Development Authorities

Development authorities promote physical and economic development growth in key business districts, typically in downtown areas. In this role, development authorities work to develop and maintain properties that improve quality of life and generate new employment opportunities. The

[2] Fees are usually determined by the building's size

[3] A tax based on the value of real estate or personal property

Development Authority can also control and manage the district's on-street and structure parking supply. Revenue for development authorities may be derived from Tax Increment Financing (TIF)[4], management fees, parking fees, or portions of tax revenues generated within the authority's district.

Ann Arbor, Michigan

The City of Ann Arbor's Downtown Development Authority (DDA) was created in 1982, and manages nearly all public parking in the city's downtown (including on- and off-street parking spaces) with the goal of balancing parking accommodation with demand management to produce the maximum benefit to the community. The DDA total public parking inventory consists of roughly 7,100 spaces, including 1,100 on-street, metered spaces and about 4,600 off-street spaces. The provision of a comprehensive managed parking supply, combined with an absence of minimum parking requirements, relieves developers of pressures to provide on-site parking at downtown projects.

In 1992, the City turned control of most of its off-street downtown parking inventory to the DDA, including seven parking structures and three large parking lots, and in 2002, the City turned over management of all metered parking spaces. DDA parking revenues are used to operate the parking facilities, pay for repairs and maintenance, regular equipment upgrades, as well as debt service on garage construction. The DDA has worked to refurbish parking assets while using parking funds to invest in demand-management programs, including a universal transit pass program, a program which promotes multimodal commuting to downtown jobs, and sponsorships of car share programs.

The DDA segregates its two sources of revenues — Tax Increment Financing (TIF) and parking — and assigns different uses for each. The DDA utilizes its parking revenues to finance its parking operations, debt service, equipment upgrades, as well as alternative transportation projects and programs including bus passes, bicycle parking, and car share programs. The DDA's TIF is derived from a portion of the incremental increase in taxes generated by new buildings constructed in the DDA District since 1982.

Improvement Districts

Improvement districts are often responsible for maintaining parking operations and services in designated districts. These districts are often partnerships between municipal departments, local organizations, private developers, and private businesses. Improvement districts are financed through parking revenue, property taxes paid by property owners, or member fees. Improvement districts that manage parking communicate parking locations, rates, and typically provide flexible monthly parking options and reduced parking with merchant ticket validation.

Boulder, Colorado

Boulder's Central Area General Improvement District (CAGID) was created in 1970 for the purpose of providing parking and related improvements to Boulder's downtown core. The District is a 35-block area in the center of downtown, densely populated with shops, restaurants, and business

[4] District improvement funds which are derived from the change in a property and/or district's assessed value over a set period of time.

offices. The program was set up in conjunction with the creation of the Pearl Street pedestrian mall. The intention was to provide parking on a district-wide basis on the periphery of the mall, avoiding the need to provide on-site parking for each business. It was seen as a tool for economic revitalization and promoting a good pedestrian environment.

The Downtown Management Commission (DMC) was established in 1980 to create a single, cohesive commission that manages the Pearl Street Mall and the CAGID. While the Boulder City Council makes final decisions on issues of new parking construction, management decisions including parking charges are made by the DMC. The DMC manages 202 spaces in non-metered surface lots, 2,209 spaces in five structures, and 871 metered spaces, 61 of which are in a surface lot (as of 2005).

All downtown parking meter revenue (more than $5 million per year) is transferred to CAGID from the City's General Fund. This responsibility, together with the fact that local businesses and property owners comprise the DMC, gives a strong incentive to create new curb parking. Shared public parking facilities are constructed and operated by CAGID, and funded through CAGID's general obligation bonds. There are no minimum parking requirements for non-residential uses within the CAGID area. Developers are allowed to build as much or as little parking as they choose, subject to design standards in the zoning code, and to manage it as they see fit. If they choose to build little or no parking on-site, they can purchase permits for public lots and garages from the DMC for resale to their employees. The CAGID directly links its alternative transportation investments to the economics of parking, providing unlimited transit passes to most downtown employees at a fraction of the cost of providing them with parking.

Transportation Management Associations

Transportation Management Associations (TMAs) are generally operated by member institutions or businesses, and are designed to mitigate local congestion, manage parking, and operate travel demand programs in a specific area. TMAs are typically funded by annual membership dues and typically receive financing from regional or federal grant funding sources. In some instances, TDM programs are also funded by parking and transportation revenues. TMAs may sponsor shuttle services or other demand management tools to minimize the impact of parking. TMAs may also provide hands-on support to help employers survey the commute patterns of its employees and provide transportation information.

Boston, Massachusetts: MASCO

The Medical Academic and Scientific Community Organization (MASCO) is a 22-member non-profit organization that serves the employers within Boston's Longwood Medical and Academic area. CommuteWorks serves as MASCO's transportation management association (TMA), and helps Longwood area employees and students better plan their commutes with information about transit, ridesharing, shuttle, walking and biking options.

MASCO owns and controls approximately 2,000 off-site and 750 on-site parking spaces. The TMA invests heavily in travel demand management (TDM) programs, including employee shuttles, financial incentives to try walking, biking, or taking transit to work, carpool/vanpool coordination, ride share, personalized assistance, and annual commuter events. Additionally, the area is well served by heavy rail, bus service, and commuter rail (nearby transit stations are served by MASCO sponsored shuttles). The TMA is financed through parking and transportation revenues, rent, telecommunications center fees, group purchasing/ contracting, and investments. Expenditures from parking revenue are invested back into parking and transportation, including area-wide studies and planning.

Public-Private Partnerships

The configuration and management of public-private parking partnerships varies by the specific parking needs and demands within the district, along with the adjacent land uses. These partnerships are created to maximize the sharing of parking spaces by various users. Financing for public-private partnerships is provided through developer payments, user fees, common area maintenance charges, and the payment of a fee in lieu of providing parking spaces required by a zoning ordinance.

Cambridge, Massachusetts: Kendall Center

Kendall Center is a public-private partnership in Cambridge, Massachusetts, that manages 2,748 parking spaces in three shared garages. The parking facilities are owned and operated by Boston Properties, a real estate investment trust. The goal is to provide centralized parking facilities for Kendall Square employees and visitors.

The parking facilities are financed by private development, including land purchased from the City of Cambridge's redevelopment authority. Cambridge's zoning code encourages shared parking and requires annual reporting from developments, and features a TDM Ordinance. TDM programs operated by Kendall Center include: membership with a transportation management association (TMA), car share, bike share, on-site daycare, on-site showers and lockers, and parking cash out. Expenditures from parking revenue are used to finance transportation and TDM services, as well as new development.

Arlington County, Virginia

The private sector provides most of the publicly available off-street parking in Arlington. County planning staff is reluctant to develop stand-alone public parking facilities, in part, as a response to decades of minimum parking requirements that have created a consistent surplus of parking in most of its transit and mixed-use, commercial corridors. As such, the County encourages the maximization of parking spaces shared by various users.

The County has also utilized Parking Development Agreements in conjunction with joint-development projects to ensure well-managed public parking is included within facilities providing accessory parking to private development. The types of shared parking encouraged in Arlington County are:

- Complementary Hours: Parking spaces can serve more than one set of users with different peak/usage hours.
- Off-site Agreements: A parking facility with more spaces than are required to serve its intended users can contract to serve another defined set of users with similar usage hours.
- Public Parking: A garage or parking lot with a surplus supply can open its spaces to the public during peak/usage hours.
- Unreserved Spaces: By limiting the amount of reserved spaces, a garage or parking lot can accommodate more parkers.

Columbia Pike, a dense commercial and residential corridor, enacted a form based code that allows the payment of a fee in lieu of providing all the parking spaces required by the Zoning Ordinance. In-lieu fees may be used to finance the construction and management of parking spaces in centrally located public garages that serve various developments.

Austin, Texas: Mueller

The 700-acre Mueller site in Austin, Texas, is currently being redeveloped into a mixed-use urban village and is envisioned as a sustainable community that provides visitors, employees, and residents with a walkable and bikeable neighborhood and easy access to a range of services and amenities. Phase 1 of the development includes 1,300 – 1,500 parking spaces, which are owned and managed by the master developer, Catellus; on-street parking is controlled by the City of Austin.

Additional Resources

(Hyperlinks Provided)

Enterprise Funds

- Montgomery County Parking Lot Districts
- Omaha Parking Enterprise Fund
- Milwaukee Parking Fund

Development Authorities

- Ann Arbor Downtown Development Authority
- Athens Downtown Development Authority

Improvement Districts

- Boulder: Central Area General Improvement District
- Providence Downtown Improvement District

Additional Resources

(Hyperlinks Provided)

Transportation Management Associations

- Boston: MASCO Transportation Management Association
- Pittsburgh: Oakland Transportation Management Association
- Atlanta: Clifton Corridor Transportation Management Association

Public-Private Partnerships

- Cambridge, Massachusetts: Kendall Square
- Arlington County, Virginia
- Austin: Mueller Development

A shared parking district is being created and travel demand management (TDM) measures are being implemented to manage parking demand. Proposed TDM programs include wayfinding signage, bike share programs, electric vehicle charging stations, and an employer trip reduction program. Currently, there is public bus service to the site, but a proposed commuter rail station could enhance future access and mobility. The parking facilities are financed through common area maintenance charges, developer payments, Catellus and the City of Austin and operations and maintenance fees from tenants and users.

Selecting a Preferred Parking District Approach

Table 4 provides a comprehensive overview of each precedent example's characteristics and attributes. Each approach was further evaluated to determine their applicability to the District from an implementation perspective (see Table 5). In some respect, each approach is applicable to the District; however, each one will require a certain level of effort and commitment by various stakeholders (e.g., local governments, property owners, and developers) to see a preferred approach implemented.

At this point in time, the most applicable approach falls under the "Public-Private Partnership (see Table 5)." This finding is largely based on city policies that are limiting local resources (dollars) to the construction of new parking facilities. It is also not in the city's current interest to operate or maintain any new parking facilities. Based on this finding, the private sector will largely be responsible for addressing future parking needs in the District. However, it is important to recognize the cities are open to finding solutions that will make it feasibly for the private sector to address the District's future parking needs. These solutions include incentives, zoning modifications and public-private partnerships.

Regardless of which district-parking approach is pursued, each one requires a large emphasis on TDM measures.

Table 4: Parking District (Precedent Example) Summary

Location	Type	Parking Inventory	Overview	Goals/Purpose	Primary Parking Builder(s)	Primary Parking Owner(s)	Financing Structure	Expenditures from Parking Revenue	Zoning Code	Transit Access	TDM Programs
Montgomery County, MD	Enterprise Fund	~20,000 spaces	Developers pay in-lieu of building spaces to the Parking Lot District (PLD) program. PLD operates more than half of the parking in three major areas.	To build, manage and provide public parking to encourage economic development and manage parking that encourages alternative transportation.	Montgomery County DOT	Montgomery County DOT	Each District's PLD is funded by the Ad Valorem tax (~25%), parking services (~60%) and fines (~15%).	Build parking and support parking programs, plus pedestrian improvements, TMDs, alternative transportation programs, and the county's Mass Transit Fund.	Office use in PLDs range from 1.9 to 2.4 spaces per 1,000 square feet (SF), depending on the site's proximity to a Metrorail station.	Three of the four PLDs are located within a half-mile of a Metrorail station.	Contributes revenue to County's Mass Transit Fund and Transportation Management Districts.
Ann Arbor, MI	Downtown Development Authority	~7,100 spaces	Authority promotes multimodalism and controls on- and most off- street downtown parking.	Promotes the compact, mixed-use development patterns that make downtown Ann Arbor a high-demand residential and employment.	City of Ann Arbor; Downtown Development Authority (DDA)	Downtown Development Authority (DDA)	Tax Increment Financing (TIF); Parking fees; ~1/3 of tax revenues generated within District.	Parking operations, debt service, equipment upgrades, alternative transportation projects and programs including bus passes, bicycle parking, "e-park," and Zipcars. TIF revenue funds pedestrian improvements, alley repairs, and new infrastructure.	No minimum parking requirements for as-of-right development within Downtown.	27 bus routes and Park and Ride lots	Universal Transit Pass program; getDowntown program; Zipcar sponsorship with UM.
Arlington County, VA	Private Sector	60+ private garages	County uses market opportunities, zoning code, and incentives to rely on privately-owned parking supply in-lieu of public supply.	Maximize the sharing of parking spaces by various users. Balance shared parking goals with the preservation of neighborhood character and residential areas.	Private developers	Private developers	Private developers; user fees; in-lieu fees.	Construction and management of public parking spaces in centrally located private garages that serve various developments.	Parking Development Agreements instituted for joint development projects; select Form Based Code programs with shared parking requirements.	Metrorail lines, Metrobus, Arlington Transit.	Limit the amount of parking spaces reserved for individual users to no more than 20% of the total parking supply.
Boulder, CO	Improvement District	~7,000 spaces	Responsible for parking operations and downtown-related services.	Provide parking and related improvements to Boulder's downtown core.	City of Boulder; private developers	City of Boulder; private developers	Downtown parking revenue and property and other taxes paid by property owners. Shared public parking facilities are constructed and operated by CAGID's general obligation bonds.	Unlimited ride transit passes to downtown employees, demand management programs, and parking supply.	No minimum parking requirements for non-residential uses within the CAGID area.	Bus service	Eco-pass, Guaranteed-Ride-Home program; neighborhood permit parking initiatives.

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Table 4: Parking District (Precedent Example) Summary – Continued

Location	Type	Parking Inventory	Overview	Goals/Purpose	Primary Parking Builder(s)	Primary Parking Owner(s)	Financing Structure	Expenditures from Parking Revenue	Zoning Code	Transit Access	TDM Programs
MASCO, Boston, MA	Transportation Management Association	~2,000 off-site and 750 on-site	Non-profit that serves medical area with variety of services, including transportation.	501c3 non-profit with dedicated to enhancing LMA for the benefit of those who live, work, and study or receive care in the area.	MASCO, plus some private	MASCO, plus some private	Parking and transportation revenues (includes shuttles), rent, telecommunications center fees, group purchasing/ contracting, investments.	Invested back into parking and transportation including area-wide studies and planning (part of non- profit 501 3c mission).	Institutional Management Plan	Heavy rail, bus, and commuter rail; most services connected by FMLM shuttles.	Walk/bike incentives, ERH, CommuteSwap, Carpool/Vanpool, Rideshare, Personalized Assistance, and Annual Commuter Events.
Mueller, Austin, TX	Public-Private Partnership	1,300 – 1,500 spaces (Phase 1)	Master developer and City partnership of former airport site.	Use a Parking and Transportation Management District (PTMD) and shared district approach.	Catellus and City with some private	Catellus and City with some private; City on- street	Common area charges, developer payments, Catellus/Austin; O&M from tenants and users.	Site environment and amenity infrastructure (PTMD).	PTMD	Bus service operated by MetroBus. Future commuter rail station proposed.	Coordination of shared parking, wayfinding and signage, bike share programs, electric vehicle charging stations, employer trip reduction program.
Cambridge Center, Kendall Square, MA	Public-Private Partnership	2,748 spaces	Three shared garages in larger district owned/operated by real estate investment trust.	Centralized parking facilities for several Kendall Square employees and visitors.	Boston Properties	Boston Properties	Private development; land purchased from Cambridge Redevelopment Authority under Urban Renewal Program.	Transportation services; new development; parking amenities (valet, carshare/ bikeshare, EV stations, rooftop garden); TMA membership.	Encourages shared parking with schedule; Disincentive for building more than max; Requires annual reporting; PTDM Ordinance	Red Line heavy rail; buses; TMA funded buses; private shuttles.	TMA membership; carshare/ bikeshare; on-site daycare; on-site showers and lockers; parking cash out.

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Table 5: Applicable Parking District Approaches for the Towerside Innovation District

District Approach (Type)	Responsible Sector for Implementation	Primary Parking Builder	Primary Parking Owner	Financing Structure Needs	Zoning Code Modifications
Downtown Development Authority (DDA)	Need to establish a DDA (Public Sector)	Public Sector	DDA - Public Sector	Tax Increment Financing, Management Fees, Parking Fees or portion of tax revenues.	Develop a district to enforce financing mechanisms.
Enterprise Fund	Public Sector	Public Sector	Public Sector	Enterprise funds are typically supported by a combination of ad valorem taxes, parking services fees, and parking enforcement.	Develop a district to enforce financing mechanisms.
Improvement District	Public Sector	Public/Private Sector	Public/Private Sector	Improvement districts are typically financed through parking revenue, property taxes paid by property owners, or member fees.	Develop a district to enforce financing mechanisms.
Public-Private Partnership	Public/Private Sector	Public/Private Sector	Private Sector	Financing for public/private partnerships is provided through developer payments, tax increment financing, user fees, common area maintenance charges, and the payment of a fee in lieu of providing parking spaces required by a zoning ordinance.	Establish incentives (e.g., density bonuses).
Transportation Management Association	Need to establish a TMA (Public Sector)	Public Sector or Non-Profit	Public/Private Sector	TMAs are typically funded by annual membership dues and typically receive financing from regional or federal grant funding sources.	Enforce or monitor TDM Plans.

Legend – Level of Probability for Implementation
Green: High Probability
Yellow: Moderate Probability
Red: Low Probability

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Phasing Plan & Recommendations

The phasing plan and recommendations are broken into two categories: Short-Term Initiatives and Ongoing Activities. The short-term initiatives provide guidance and direction on how to move towards a district-wide parking approach. These initiatives over time will help solidify a preferred Parking District approach. However, there are ongoing activities that need to occur regardless of the preferred district-wide parking approach. The Ongoing Activities should be viewed as tools and best practices that can be applied or implemented at any given time.

Various entities (e.g., Prospect North Partnership, local agencies, Metro Transit, University of Minnesota, and private developers) will need to continue collaborating and working towards a preferred district-wide parking approach. The Framework provides a foundation for helping continue these conversations.

Short Term Initiatives

In the short term, the District is expected to continue to develop and grow prior to the identification of an entity to manage a Parking District. Without centralized parking management, there is still opportunity in the immediate and short term for the District to encourage and support a nimble parking system than traditional single-use, self-parked development. In fact, development expected to occur in the short term has the opportunity to lead a trend of parking provision and management, setting a precedent for future growth.

Continue to Partner to Create a Parking District

To prepare for the full development of a Parking District, the Prospect North Partnership should continue discussions with developers and land owners, the cities of Minneapolis and Saint. Paul, Towerside business owners, the University of Minnesota, and others. A formal mechanism will not be in place prior to some development projects that are expected to break ground in the near future.

Short-Term Approach

There are several approaches to support the foundation of a district parking system:

- Continue to partner to create a Parking District.
- Build the case and support for shared parking.
- Demonstrate the financial benefits to consolidated parking reservoirs.
- Update the zoning code to support district parking.
- Equalize the attractiveness of taking transit, walking, and biking as compared to driving and parking through TDM strategies.

However, the team should work closely together to begin to structure the type of parking system that has been envisioned through past planning efforts. Together, the team should work to support development that implements parking and transportation elements that reinforce the overall goals of the District, in particular with regards to:

- Using valuable land in the District for high density and active land uses, while minimizing parking supply.
- Leveraging the District's proximity to light rail.
- Sharing and managing parking efficiently to minimize land used for parking.
- Making the single occupancy vehicle secondary to other modes of transportation.
- Creating walking connections between parking, transit, and active land uses safe and lively.
- Integrating travel demand management (TDM) programs to support non-single occupancy vehicle travel.

Build the Case and Support for Shared Parking

The continued integration of parking with future district development plans is critical to ensuring the district prioritizes pedestrian-oriented streetscapes and buildings. The primary role of parking is to store vehicles. A secondary role is to encourage new development by offering vehicle access. The need for this secondary role is inversely related to the development of the multimodal transportation system. As more walking, biking, and transit options become available and are put on the same playing field as parking, fewer parking spaces are needed.

Shared parking is the simple concept of utilizing parking facilities jointly among different buildings or businesses in an area to take advantage of different peak parking characteristics. Proximate businesses that exhibit different peak parking demands also present an opportunity for shared parking arrangements. For example, many business and office parking lots experience their peak during the daytime hours while restaurants and movie theaters experience their peak during the evening. Traditionally, parking is managed for single use (i.e., employee parking) and is built to meet peak demand during daytime shift hours. The sidebar on page 43 demonstrates parking occupancy rates for generalized land uses. This tale defines the percent of the basic minimum needed during each time period for shared parking[5].

[5] TDM Encyclopedia, Victoria Transportation Policy Institute

Parking Occupancy Rates

(Source: TDM Encyclopedia, Victoria Transportation Policy Institute)

Land Uses	M – F 8 am – 5 pm	M – F 6 pm – 12 am	M – F 12 am – 6 am	Sat. & Sun. 8 am – 5 pm	Sat. & Sun. 6 pm – 12 am	Sat. & Sun 12 am – 6 am
Residential	60%	100%	100%	80%	100%	100%
Office/Warehouse/Industrial	100%	20%	5%	5%	5%	5%
Commercial	90%	80%	5%	100%	70%	5%
Hotel	70%	100%	100%	70%	100%	100%
Restaurant	70%	100%	10%	70%	100%	20%
Movie Theater	40%	80%	10%	80%	100%	10%
Entertainment	40%	100%	10%	80%	100%	50%
Conference/Convention Center	100%	100%	5%	100%	100%	5%
Institutional (non-church)	100%	20%	5%	10%	10%	5%
Institutional (church)	10%	5%	5%	100%	50%	5%

In the evenings and on many weekend days, this results in low parking occupancy in areas with high employment densities. Overbuilding parking impacts community character and vitality and has negative effects on the natural environment, such as increasing urban heat island effects and increasing polluted runoff.

The Prospect North Partnership should foster a shared “time-of-day” parking program. Shared agreements, in which available parking is strategically allocated based on needs of proximate businesses, period (e.g., workday and weekend), and the time-of-day (e.g., morning, midday, evening and night), will create more opportunities for public parking and will optimally serve the parking needs of each tenant. This approach will require an active process and partnerships with private property owners and should involve key stakeholders at Metro Transit, the Metropolitan Council, the cities of Minneapolis and Saint Paul, and the University of Minnesota. If implemented, parking capacity and demand should be

evaluated at regular intervals to ensure that parking is evenly distributed. In addition, City zoning codes, as described below, can also foster and support shared parking. Code language can range from allowing these types of "time-of-day" parking programs, to requiring a minimum percentage of all new parking to be public, to other development incentives depending on the type of parking management system.

Demonstrate the Financial Benefits of Consolidated Parking Reservoirs

The Prospect North Partnership should work with the cities and developers to consolidated parking into a few key facilities. Achieving this objective early on will help build stronger public-private partnerships, which is a key component to any district-wide parking approach. Potential facility locations have been identified for future parking reservoirs (see Figure 4). However, site specific recommendations will need to be discussed as land becomes available for development and redevelopment initiatives progress. This section highlights the finical benefits for consolidated parking reservoirs (parking structures) from a private sector perspective.

Building a few larger parking structures instead of multiple smaller parking facilities has multiple benefits: it is easier for drivers to locate where to park; there is more potential for sharing among users; and it is more cost effective to build a larger facility. Plus, frontloading parking supply creates greater district-wide cost-efficiencies, and enables tenants to develop strategic shared parking policies to ensure parking rates are accurately set and that district-wide demand is properly managed.

Parking structures featuring larger physical footprints with minimized stall dimensions cost less per space and feature greater internal visibility and enhanced vehicle flow than smaller and taller parking structures. Several factors directly influence the construction and operating costs of attached parking structures, including:

- **Structural Enhancements:** Minimal architectural aesthetic costs are associated with attached and enclosed parking ramps. However, attached and enclosed structures require mechanical ventilation, fire suppression systems, firewalls, and enclosed stairs, which add to overall construction costs.
- **Operations and Maintenance:** Expenses associated with operations and maintenance represent significant annual costs. Staffing, including cashiers, administrators, and security and maintenance staff, is the single largest cost component of annual operations and maintenance budgets. Consolidating these positions in a single facility can help lower district-wide operations and maintenance expenses; additionally, automating cashier positions can further reduce facility operations costs.

Recent developments in the Twin Cities have demonstrated cost savings when developing a site that includes an attached parking structure into the building footprint. These precedent examples have also shown the average construction cost for structured parking ranges between $10,500 and $17,000 per stall, which is much less than a standalone structures that tends to range between $20,000 and $35,000 in the Twin Cities.

A relevant local example includes a six-story residential building under development in Bloomington, which is near a future light-rail station that features 385 dwelling units and 640 parking stalls. The design includes an attached parking structure enclosed by the building's "U" shaped envelope. The combined project cost is $56 million, with $6.8 million (or $10,625 per stall) budgeted for the parking structure's construction and soft costs (see Table 6). Market research indicates this design typology is becoming more common in the Twin Cities region as land values increase and providing surface parking becomes infeasible with land valued above $35 per square foot. A "U" shaped envelop can reduce project costs. Potential cost saving include the reduction in exterior aesthetics typically associated with standalone structures. As such, developers are increasingly attempting to maximize development sites with higher density and attached structured parking.

Other precedent examples include mixed-use developments in St. Louis Park:

- **Shops at West End (1,500 underground parking stalls):** The total construction cost was $21,884,000, which includes lighting and landscaping (approximately $14,589 per stall).
- **Excelsior & Grand (475 parking stalls – two ramps):** The total construction cost was $8,400,000 (approximately $17,700 per stall).

Precedent Examples

Shops at West End (2005)

Excelsior & Grand (2008)

Table 6 projects the cost for attached parking structures based on construction costs, soft costs, operations and maintenance costs, and projected debt service. These projections are intended to serve as a foundation for facilitating discussion with developers who are exploring structured parking as part of their development. The figures help demonstrate the general cost savings by building consolidated, larger parking facilities, as opposed to smaller structures. As part of these discussions, the cities and the Prospect North Partnership should explore if additional parking can be dedicated for transient use. This approach will help address the District's future parking needs (2,925 to 4,250 stalls) by providing larger parking reservoirs.

Table 6: Planning Level Cost Estimates.

Precedent Examples *	Construction Costs			O+M Costs		Capital Costs		Cost per Space
	Total Stalls	**Average Cost per Stall**	**Total Construction Costs**	**Annual O&M Expenses per Stall**	**Annual Combined O&M Expenses**	**Annual Debt Service**	**Total Debt Service**	**Monthly Cost per Space to Build, Operate and Maintain**
250 Stall Attached Parking Structure	250	$20,000	$6,000,000**	$250	$62,500	$390,309	$11,709,258	$151
475 Stall Attached Parking Structure	475	$17,684	$8,399,900	$250	$118,750	$546,432	$16,392,962	$117
640 Stall Attached Parking Structure	640	$10,625	$8,160,000**	$250	$160,000	$530,820	$15,924,591	$90
1,500 Stall Attached (underground) Parking Structure	1,500	$14,589	$21,883,500	$250	$375,000	$1,423,586	$42,707,568	$116

**Precedent examples will range based on a number of variables (e.g., type of building materials and environmental constraints)*
***Includes soft costs (design, engineering, and construction administration); Debt service assumptions: 5% APR, 30 year period*

Update the Zoning Code to Support District Parking

In the short term, high-density development is expected in the Minneapolis portion of the District. Minneapolis' parking zoning regulations already include several regulations that support the larger district-wide parking management goals. Much of the study area is within the Pedestrian Oriented (PO) Overlay District, which allows for reduced parking requirements. Additionally, Minneapolis updated its multi-family parking regulations in 2015 to include TOD incentives, plus there is a shared parking schedule to reduce parking requirements for mixed-use areas.

Table 7 compares four theoretical land use assumptions with the City's general parking zoning requirements, the PO Overlay District requirements, and the parking generation rates developed from the Framework's parking model. The PO minimums are higher than the observed parking demand rates in the area today. This suggests that the City's PO requirements may be too high for new development in the area based on the District's estimated parking needs. This finding also suggests the need for the cities to revalue their parking requirements within the District to better align with the estimated future parking needs. This initiative should occur as soon as possible to better align with near-term development proposals.

Table 7: General Land Use Parking Requirements

Primary Land Use	Square Feet/Units	Minneapolis Zoning Requirements *		Pedestrian Oriented Overlay Requirements (75%) **		Parking Requirements based on the District's Parking Model ***	
		Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Office	500,000	1,000	2,500	750	1,875	500	1,695
Retail	200,000	400	1,000	300	750	200	491
Restaurant (sit down)	100,000	331	1,333	248	1,000	--	--
Residential	500	500	--	450	--	250	250
** Minneapolis Zoning Regulations: Office (1 space per 500 SF), Retail (1 space per 500 SF); Restaurant (1 space per 300 SF in excess of 2,000)*							
*** Pedestrian Oriented Overlay District Off-Street Regulations: Non-residential: 75% of minimum parking and 75% of maximum parking required by Minneapolis Zoning Regulations; Residential: 90% of parking required by Minneapolis Zoning Regulations*							
**** Custom model regulations: Office (Min: 1 space per 1,000 SF; Max: 3.39 spaces per 1,000 SF), Retail (Min: 1 space per 1,000 SF; Max: 1.52 paces per 1,000 SF), Residential (Min: 0.50 spaces per 1 dwelling unit; Max: 0.50 spaces per 1 dwelling unit).The parking estimates may be reduced with shared parking agreements.*							

Both Minneapolis and Saint Paul should consider zoning code updates to support the vision for the District. Zoning codes that support smart parking strategies in this District should include incentives to consolidate parking facilities and incentivize sharing among users. Many of the following zoning code elements are included in the city's site plan review requirements. These items should be considered, if not already part of the development review process:

- Minimum and maximum parking requirements that better reflect actual observed neighborhood conditions.
- Flexibility in providing parking off-site, particularly for parcels that are irregularly shaped.
- Incentivize shared parking:
  - Eliminate parking minimums and create a low parking maximum requirement for developments that build reserved parking (cities should clearly define "reserved" parking).
  - Create a modest parking minimum and a high parking maximum requirement for developments that build shared parking (cities should clearly define "shared" parking).
  - For developments that share parking beyond the minimum requirement, developers should have access to additional development rights, financial support through impact fees, or other means.
- Design requirements for parking structures, such as:
  - Minimizing curb cuts and driveway widths.
  - Wrapping and ground floor uses for all structures.
  - Maximize primary access points via alleys or secondary streets.
- Require pedestrian-scale lighting that directly illuminates pedestrian routes.
- Requirement that all parking be priced and unbundled from leases or rents.
- Requirement of a TDM plan and annual reporting that supports the District's goals. Create a schedule that allows for further parking reductions for active TDM management, such as providing bicycle parking, transit passes, and programming, such as Guaranteed Ride Home.

Equalize the Attractiveness of Taking Transit, Walking, and Biking as Compared to Driving and Parking

A balanced transportation program seeks greater parity between investments in driving and parking infrastructure and investments in other more space-efficient and sustainable modes such as mass transit, bicycling and walking. In many settings, a typical response to building new development or accommodating spot-parking shortages is to build more parking. This can temporarily alleviate supply constraints but is expensive. Plus, in a cost- and space-constrained setting, it is an unsustainable approach. It also unfairly favors those that choose to drive over others that walk, bike or take transit.

A typical attached parking structure construction cost is approximately $20,000 to $25,000 per stall. This cost can increase to approximately $32,000 per space to construct, plus design and soft costs, annual operating and maintenance costs, debt service on loans, and more. To build, maintain, and operate one structured parking space is about $250 per month per parking space. Current monthly market rate in the District range between $55 (Court International) to over $100 per month, but lower on the spectrum in most areas. In this example, this means that the parking operator would either need to charge or subsidize each parking space by $175 per month to "break even." If the space is used at off-peak hours, there is potential to generate some additional revenue, but overall, providing structured parking still requires a subsidy.

Alternatively, a monthly Metropass that grants unlimited access to regional buses and trains is $76 per month. Developers, property managers, and business owners across the country are realizing the realities of the costs of building structured parking as compared to paying for transit: it is more cost effective to pay an employee or resident to ride transit, rather than provide parking. In addition to providing transit passes, some have implemented parking cash-out programs or provided subsidies to those who walk, bike, or carpool.

Organizations and institutions of all sizes and in all types of locations have sought to make better decisions regarding how much parking they build, taking a more economically viable and sustainable approach. The Buffalo Niagara Medical Campus (BNMC) is a case in point. In 2012 BNMC had recently completed a period of rapid growth, adding 3,500 employees, two million square feet, and a new 2,000-space, $34 million garage. Campus leadership grew concerned that continued campus growth would bring increasing parking shortages and require construction of expensive new parking garages. Instead, stakeholders redirected parking demand into a suite of programs including market pricing for employee parking, commuter bonuses for walking, biking and carpooling to work, as well as free and discounted transit passes. As a result of these policies and programs, drive-alone rates at BNMC fell from 88 percent in 2012 to 82 percent in 2013. BNMC has set goals to reduce the percentage of employees driving to work alone to 75 percent by 2017 and to 63 percent by the year 2030, and their program is leading them to reaching these targets.[6]

[6] *New York State Energy Research and Development Authority. 2014. Advancing Transportation Demand Management Strategies at the Buffalo Niagara Medical Campus. Report 14-17.*

Shared Parking Example

Surly Brewery Company leases 80 parking spaces from the adjacent property owner (CSM Investors). Surly Brewery operates a restaurant, tap room, and event center, which has peak operating hours during nights and weekends. CSM Investors is an industrial building with peak operating hours during the day time.

Ongoing Activities

As the District continues to evolve and embrace a preferred Parking District approach, there are on-going activities that need to be considered. In essence, these activities are best practices that apply to any one of the parking district approach.

Shared Parking Agreement

The benefits of shared parking are discussed under the Framework's Short Term Initiatives. This section provides tools and templates for developing shared parking agreements.

The City of Minneapolis and Saint Paul, Prospect North Partnership, and Private Businesses need to continue to find shared parking opportunities to help minimize the need for new parking facilities as development comes online.

Coordinating shared parking facilities will depend on property owners' willingness to enter into a shared parking agreement. Items that need to be addressed in a shared parking agreement include (see Appendix A for a shared parking agreement example):

- **Logistics**
  - Number of spots needed
  - Specific spots that will be used
  - Time of use
  - Shuttle service
- **Maintenance**
  - General maintenance (e.g. striping, crack sealing, and asphalt resurfacing)
  - Snow removal
- **Utilities and Taxes**
  - Costs associated with lighting
  - Property taxes
- **Enforcement**
  - Signage and permitting
  - Towing procedure (need permission from property owner first)
- **Legality**
  - Liability Insurance – can usually be covered under standard business liability insurance
  - Length of agreement / procedure to sever contract

Shared Parking Agreement Resources

(Hyperlinks provided)

Model Ordinance

- Metropolitan Area Planning Organization (MAPC) – Massachusetts

Model Agreement

- Metropolitan Area Planning Organization (MAPC) – Massachusetts

Shared Parking Agreement Resource

- Maximizing Urban-Core Parking with Private-Public and Private-Private Parking Agreements (2015) by Nelson\Nygaard

Travel Demand Management Definition

TDM is the application of strategies and policies to reduce travel demand (specifically that of single occupancy private vehicles), or to redistribute this demand in space or in time.

Travel Demand Management Strategies

The cumulative impact of a comprehensive set of TDM strategies can have a significant benefit on system efficiency, accommodation of new growth, and success of a metropolitan area. Implementing TDM strategies come in a number of forms and are highlighted throughout this section as ongoing activities to pursue.

TDM Programs

TDM programs are usually implemented by major employers, institutions, public agencies, or via a public-private partnership. TDM typically includes incentives such as benefits for transit riders, services to match prospective carpools, and telecommuting programs. However, leading TDM programs go much further in adopting comprehensive and ambitious strategies which:

- Integrate TDM programs in collaboration with other neighboring employers, institutions, and transportation providers.
- Demonstrate the commitment of leadership and coordination across institutional divides.
- Set clear targets for the proportion of trips taken with each available mode of transportation, and measuring progress in achieving them.
- Utilize pricing and incentives to influence transportation choice and travel demand.
- Provide information and services to not only improve the awareness of alternative mode of transportation, but actively inform and assist people in their day-to-day travel planning and choices.

Managing travel demand can enable dense locations to grow without commensurate negative traffic impacts. By proactively investing in TDM measures, companies and communities save money in the long term by:

- Reducing demand for parking and, with it, the need to construct additional expensive parking facilities.
- Making low-cost, health and environment-conscious modes of travel like bicycling and walking more inviting and efficient.
- Gaining efficiencies and lowering the cost of shuttle bus programs (University of Minnesota) through better integration with the regional bus network.
- Reducing staff tardiness and absenteeism while improving job performance and satisfaction.

A wide range of specific and effective tools can be utilized to successfully implement travel demand management programs within the District. A summary of potential TDM tools and techniques applicable to the District are listed in Table 8. A TDM dictionary is provided in Appendix B.

The University of Minnesota has a robust TDM program and actively promotes alternative modes of transportation.

Photo Source: http://discover.umn.edu/news/campus-community/green-line-begins-service

Table 8: TDM Tools and Techniques

Overall Approaches	Possible Tools and Techniques	
Expanded Transportation Options	• Enhanced bicycle and pedestrian facilities • Free or reduced fare transit pass programs • Vanpool, carpool, ride share and ride-matching programs	• Car share programs • Employer shuttles
Incentives and policies	• Travel subsidies or benefits • Guaranteed ride home programs that provide taxi or TNC vouchers for travelers who do not drive to work but may need a prompt and direct ride home in an emergency circumstance	• Flexible schedules, compressed work week and telecommuting • Employer-assisted housing and live-near-work programs to recruit and retain employees in high-cost areas closer to the workplace • TDM program requirements in the zoning and development code
Parking management	• Market-priced parking • Unbundling parking (leasing or selling parking spaces separately from the rent or sale price) • Rush hour parking user fee (a fee applied during high congestion hours to encourage travel before or after peak period) • Parking cash-out (employees given a choice between a free parking space or the cash equivalent of the cost to provide that space)	• Shared parking and "park-once" districts (one parking space serves multiple land uses and individual trip purposes) • Pay-what-you-use monthly parking permits (to reveal the daily cost and tradeoffs to permit holders) • Priority parking locations for carpool, vanpool, and car share vehicles • Parking occupancy tracking and guidance systems • Parking maximums, shared parking, and other zoning language for new developments
Education and outreach	• Promotional campaigns, events, and activities to raise employer and employee awareness of TDM programs and alternative modes of transportation	• Travel planning, coaching and mentoring (from an information kiosk, mobile app, or services provided by a transportation coordinator) • Membership with a Transportation Management Association (TMA)

TDM Structures

There are many different types of entities and organizational structures that can take responsibility for implementing TDM strategies. Structures can vary depending on the local context, and the relative ability to effectively carry out such strategies. In some cases, the entity responsible for managing TDM programs is also responsible for managing a parking district. Table 9 provides a summary of various TDM structures.

Table 9: Structure and Elements for TDM Strategies

Structure	Typical Elements
Transportation Management Associations	• Usually non-profit organizations • Executed in partnership with local or regional governments • Eligible for state and federal aid funds for congestion management and air quality
Transportation Management Organization	• Usually non-profit organization • Strives to reduce congestion and improve air quality by promoting transportation options
Private entities	• Private for-profit employers and/or non-profit institutions • Generally privately funded (or through partnership) • Less state or federal funding typically means greater flexibility in the types of programs offered • With fewer participants and targeted clients, may have more limited effect on the broader area
Public agency	• Often regional transit providers, municipal transportation agencies, or metropolitan planning organizations • As a public entity, can have broad reach, but may have limited staffing and inability for staff to devote sufficient focused time on the effort
Individual coordinators	• Reside in each individual employer or institution • Serve only the employees of that employer • Privately funded • May be difficult to orchestrate collective and unified action for a district or region

TDM Performance Measure Examples

- Number of TDM events held annually
- Number of users on travel planning app
- Percent of eligible employees who telecommute at least one day per week
- Percent of events entered into parking coordination program
- Number of riders taking transit/shuttle
- Number of employees enrolled in, and contributing to, Smart transit benefits
- Parking utilization rates
- Ride share members and/or registered Guaranteed Ride Home participants

TDM Plans and Performance Measurements

As noted in the "Broadening Our Understanding" section, TDM Plans are required for large developments in the City of Minneapolis and Saint Paul. The development of plans are enforced; however, there is little or no enforcement of those plans after they are developed. It is important for the cities to implement a monitoring program to determine the TDM benefits and their impact on reducing single occupancy vehicles, result in a reduction in parking needs throughout the District.

Measuring the impact of TDM programs is important to monitor and mitigate the transportation impacts of a specific site over time. A TDM Plan often details the process through which a developer and subsequent tenants commit to measures that decrease single occupancy vehicle trips to the given development, complex, campus, or neighborhood over time. This process provides a menu-based approach for developers and tenants to implement supportive programs that encourage and educate employees and residents about travel options. A TDM Plan often includes targets (e.g., the breakdown of commute trips by transportation mode, emissions, or reduced vehicle miles traveled), a description of TDM strategies used to meet those targets, and evaluation measures to assess progress towards those targets.

Setting targets and expectations for any TDM effort – and relating those targets back to local or regional goals – is essential. By connecting targets to vehicle miles traveled, emissions, and/or mode share goals, a jurisdiction can strengthen its case for requiring the implementation of a TDM Plan because it aligns with the community's broader goals. Communities often require TDM strategies as part of the development process to help meet a range of goals.

Potential types of performance measures include:

- **Vehicle Miles Traveled (VMT):** VMT is a calculation of the number of miles traveled from an origin to a destination. In this context, the calculation of VMT would be measured by surveying the number of vehicle miles traveled for employees or users at the specific development site. Communities often have a total or per capita regional or local VMT target. A VMT-based target emphasizes the need to reduce the length of trips, in addition to reducing the number of single occupancy vehicle trips in general. An example of a target might be to "reduce the number of vehicle miles traveled to 1990 levels by 2020."
- **Emissions:** Related to vehicle miles traveled, a transportation-related emissions target sets a goal to reduce the amount of transportation-related emissions in a specific timeframe. A sample target might be to "reduce transportation-related emissions to 1990 levels by 2020."
- **Mode share:** Mode share is the percentage of trips taken by a certain type of transportation mode (e.g., biking, walking, transit, and single occupancy vehicles). A sample mode share target might be to "achieve 50 percent non-single occupancy vehicle travel by 2035." Having measurable targets that relate to local and/or regional policy goals adds validity and purpose to the TDM Plan process.

TDM tools can successfully help mitigate vehicular congestion, promote transit use, and limit space used for parking. Measuring trip reduction impacts is a more telling method for gauging success. Table 10 displays the estimated effects of certain combinations of strategies. As previously noted, the City of Minneapolis and Saint Paul should actively monitor or enforce TDMPs. Table 10 can serve as a means to help measure the success of various TDM strategies being applied in the District.

The cities should continue to work with developers and private entities to implement their TDMPs. Developers and private entities can realize the following benefits by embracing TDM strategies and implementing their TDMPs:

- Many consumers want to live in multi-modal communities where it is possible to walk and bicycle safely, use neighborhood services, and have access to quality public transportation.
- Minimizing the parking demand on site for residential and employee uses provides more opportunities for customer or visitor parking.
- Minimizing the number of parking spaces on site will help reduce a property's overall maintenance and operation expenses.
- Companies are finding it costs less to pay employees not to drive than it does to provide them with parking.
- Offering alternative modes of transportation or incentives to use alternative modes of transportation attracts and retains employees and residents.
- In some cases, transit subsides can be deducted as a business expense.

Table 10: TDM Strategy Estimated Trip Reductions

Strategy Combination	Strategy Details	Estimated Employee Single Occupancy Vehicle Trip Reduction Impact
Parking Charges[7]	Previously Free Parking	20%-30%
Information Alone[8]	Information on Available Single Occupancy Vehicle Alternatives	1-2%
Services Alone[9]	Ride-matching, Shuttles, Guaranteed Ride Home	8-9%
Incentives Alone[10]	Subsidies for carpool, vanpool, transit	8-18%
Services + Incentives[11]	Transit subsidies and Guaranteed Ride Home	24-25%
Parking Cash Out[12]	Cash benefit offered in lieu of accepting free parking	17%

[7] Based on research conducted by Washington State Department of Transportation.
[8] Schreffler, Eric. "TDM Without the Tedium," Presentation to the Northern California Chapter of the Association for Commuter Transportation, March 20, 1996.
[9] Ibid
[10] Washington State Department of Transportation.
[11] Schreffler (1996).
[12] Donald Shoup (1997), "Evaluating the Effects of California's Parking Cash-out Law: Eight Case Studies," Transport Policy, Vol. 4, No. 4, 1997, pp. 201-216. http://www.commuterchallenge.org (accessed November 2, 2007).

Adaptable Parking Structures

As the District transitions away from the everyday use of vehicles and into a more transit dominant community, the need for large scale parking structures becomes obsolete. It is important to consider ways to build new parking structures with adaptable reuses that keep in mind low cost-high benefit solutions. Precedent examples where existing parking structures have been converted into other uses typically support office space. The Prospect North District Framework and Guidelines for Development (2015) highlights best practices for adaptable structures. The best practices include:

- Create flexible, adaptable spaces with high ceilings and long span structures for evolving uses.
- Design parking for adaptability to future use with flat floors. The recommended floor-to-floor height on the first two floors is 22 feet allowing for loft space.
- Design parking with flat floors and 11 feet minimum floor-to-floor height.

These best practices support economic competitiveness by creating potential office space, and research and innovation by making the first floors of buildings available to create a "collaborative commons *(Prospect North District Framework and Guidelines for Development – November 2015)*." Being aware of the design guidelines and best practices when constructing new parking structures for the District will help preserve these structures far beyond the life of their original use, and allow easy adaptability into a new office, residential, or commercial space. The feasibility for implementing adaptable structures will need to be determined as part of a larger implementation plan strategy.

Adaptable Parking Structures: Precedent Examples

Flexible loft space with high ceilings and long spans serve as housing, studios and workplaces in Berlin, Germany.

High intensity spaces offer flexibility for working, living and collaborating.

Source: Prospect North District Framework and Guidelines for Development

Vertical/Stacked Parking

Vertical/Stacked Parking Structures

Vertical/stacked parking is common in extremely dense environments (e.g., Chicago, New York and Tokyo) when land is unavailable or at a premium. Vertical/stacked parking uses mechanical lifts or elevators to stack vehicles in compact storing facilities. These systems are simple in nature; however, are costly depending on the type of system. The cost per stall can range between $22,000 and $40,000, and beyond. There is very little cost savings when comparing vertical/stacked parking structures to other types of parking facilities (e.g., standalone structures or unground parking). The costs savings are typically found when assessing the land value and space (footprint) required to accommodate the parking facility. Vertical/stacked parking requires a fraction of the land and can be easily retrofitted onto a small site or in an existing structure.

Vertical parking may be an option as the District becomes denser over time.

On Street Parking

The Framework did not specifically address on-street parking needs or within the nearby residential neighborhoods. However, it is important to recognize the potential impact parking may have on residential neighborhoods as the District intensifies over time. General observations have noted some parking spillover into the adjacent neighborhoods (i.e., Prospect Park) from commercial activity and events along University Avenue. Residential parking issues are primarily dealt by parking enforcement on a reactionary basis when complaints are filed with the city.

If on-street parking issues continue to increase in the neighborhoods, residents should work with the City to designate the area as a “Critical Parking Permit” area per city code. A “Critical Parking Permit” area restricts on-street parking to those who do not poses a residential parking permit. Costs associated with this strategy

primarily falls on the city for administrating and enforcing the program. Residents located in the designated area are also subject to fees if they chose to purchase on-street parking permits for their residential dwelling.

Residential Parking

Precedent Example of a Residential Parking Permit Sign (Minneapolis)

Action Items

The Framework has explored various ways to approach district-wide parking. To prepare for the full development of a Parking District, the Prospect North Partnership should continue discussions with developers and land owners, the cities of Minneapolis and Saint Paul, Towerside business owners, the University of Minnesota, and others. As noted, a formal mechanism will not be in place prior to some development projects that are expected to break ground in the near future. The team should work closely together to begin laying the foundation in moving towards a district-wide parking approach. Today, the public-private partnership approach has the most applicability given the current climate. As the District works towards this approach or another, fundamental strategies need to be implemented to help with this effort. Action items for the City of Minneapolis and Saint Paul, and the Prospect North Partnership include:

- **Create a District Parking Task Force** – The Task Force will help coordinate the implementation of the Framework's recommendations between agencies, building stronger coordination and collaboration between the City of Minneapolis and Saint Paul, Prospect North Partnership, University of Minnesota, and other stakeholders. The Task Force will also help oversee the process in moving towards a preferred district-wide parking approach.
- **Monitor On-Street and Off-Street Parking Utilization** – It is important for the District to continue to monitor parking utilization on a regular basis for both on-street and off-street parking.
- **Enforce or Monitor Travel Demand Management Plans (TDMPs) –** Each city should implement an enforcement or monitoring program to track the success of a TDMP.
- **Modify the Zoning Code –** Modify zoning requirements to align with the District's customized parking generation rates, while fostering a reduction in parking by emphasizing the use of active modes of transportation.
- **Develop Performance Measures -** Developing performance measures will be critical in enhancing the Districts.
- **Implement Shared Parking Agreements –** Continue to explore shared parking agreements before building new parking facilities. Monitoring the District's parking utilization will help inform this effort.

Appendix A – Shared Parking Agreement Template

Source: The template is based on a shared parking agreement form created by the City of San Diego, California

Appendix A – Shared Parking Agreement Template

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Shared Parking Agreement

This SHARED PARKING AGREEMENT ("Agreement") is entered into and effective_____, 20_____, by and between_____, _____and the City of XXX.

RECITALS

WHEREAS, pursuant to sections XXXX specifies criteria which must be met in order to utilize off-site shared parking agreements to satisfy on-site parking requirements.

NOW, THEREFORE, in consideration of the recitals and mutual obligations of the parties as herein expressed, _____,_____and the City of XXX agree as follows:

1. _____the owner of the property located at_____, agrees to provide _____the owner of the property located at_____with the right to the use of ( ) parking spaces_____from_____as shown on Exhibit A to this Agreement on property located at_____.

   1.1 Applicant:_____Co-Applicant: _____ Assessor Parcel No: _____Assessor Parcel No: _____ Legal Description: _____Legal Description: _____

2. The parking spaces referred to in this Agreement have been determined to conform to current City of XXX standards for parking spaces, and the parties agree to maintain the parking spaces to meet those standards.

3. The Parties understand and agree that if for any reason the off-site parking spaces are no longer available for use by _____,_____will be in violation of the City of XXX Code requirements. If the off-site parking spaces are no longer available, Applicant will be required to reduce or cease operation and use of the property at Applicant's address to an intensity approved by the City in order to bring the property into conformance with the Code requirements for required change for required parking. Applicant agrees to waive any right to contest enforcement of the City's Code requirements in this manner should this circumstance arise.

   Although the Applicant may have recourse against the Party supplying off-site parking spaces for breach of this Agreement, in no circumstance shall the City be obligated by this agreement to remedy such breach. The Parties acknowledge that the sole recourse for the City if this Agreement is breached is against the

Applicant in a manner as specified in this paragraph, and the City may invoke any remedy provided for in the Code requirements to enforce such violation against the Applicant.

4. The provisions and conditions of this Agreement shall run with the land for those properties referenced in paragraph 1 of this document and be enforceable against successors in interest and assigns of the signing parties.

5. Title to and the right to use the lots upon which the parking is to be provided will be subservient to the title to the property where the primary use it serves is situated.

6. The property or portion thereof on which the parking spaces are located will not be made subject to any other covenant or contract for use which interferes with the parking use, without prior written consent of the City.

7. This Agreement is in perpetuity and can only be terminated if replacement parking has been approved by the City's XXX and written notice of termination of this agreement has been provided to the other party at least sixty (60) days prior to the termination date.

8. This Agreement shall be kept on file in the XXX and shall be recorded on the titles of those properties referenced in paragraph 1 of this document.

In Witness whereof, the undersigned have executed this Agreement.

ADD SIGNATURE PAGE

Appendix B – TDM Dictionary

Enhanced Transportation Option Tools

- **Bike Share:** Bike share programs provide a fleet of bicycles typically available to the public through a membership program. Bike share bikes help residents and employees take more trips by bike.
- **Car Share:** Car share programs allow car share members to reserve a car for a short period of time – typically a number of hours or a day. Car share vehicles reduce the need for people to need to own their own vehicle, and therefore can reduce the need to build parking.
- **Transit Passes:** Transit pass systems typically require a partnership between the city, the transit provider, and potentially a local university. Universal transit passes typically allow unlimited rides on local or regional transit for a low monthly fee, which are often absorbed entirely by the employer, school, or developer. The universal transit pass system typically requires that the participating agency purchase passes at a discounted rate for all employees, students, or residents. Universal transit pass programs can benefit developers if implemented along with reduced parking requirements, which consequently lowers construction costs.
- **Employer Shuttle:** Employment sites that are not close to transit service can benefit from an employer-sponsored shuttle service. Shuttle programs are typically sponsored by the employer and provide transportation between the employment site and major transit stops.
- **Ride Share:** Ride share programs include both carpooling and vanpooling. Ride share programs work particularly well in areas that are not well-served by transit, bicycling, or walking facilities. Ride share – particularly vanpools – are also best supported in employment areas where employees are traveling more than 10 miles each way to work. Employer sponsorship of a vanpool program in the form of coordination, ride-matching, and/or monetary subsidy significantly increases the success of the program.
- **Vanpool:** The Internal Revenue Service allows up to $245 to be deducted from an employee paycheck pretax for vanpool costs.

Incentives and Policy Tools

- **Bicycle Commuter Tax Reimbursement:** Participating employers may provide up to $20 per month reimbursement to commuters for qualified bicycle commuting expenses.

- **Employer Assisted Housing and/or Live Near Your Work Programs:** Employers in highly competitive markets or industries are beginning to implement employee housing assistance programs. Such programs typically take the form of down-payment or first time homeowner assistance, but increasingly there are examples of developments using live near your work as a component of a larger traffic mitigation program.
- **Guaranteed Ride Home Program:** A Guaranteed Ride Home program provides a set number of subsidized rides to commuters who use alternative modes to work. Rides are typically provided by a local taxi company.
- **Transit Pass Subsidy:** Employers, building managers, or developers can provide a subsidized transit pass to employees or residents. In this case, the employee or resident purchases a transit pass from the employer or building manager at a discounted price.
- **Telecommute Program:** Telecommute programs allow employees to work from home for a certain number of hours per week or shift the time of day when employees travel to work to shift peak-hour travel.

Parking Management Tools

- **Parking Cash-Out Program:** Parking cash-out is a program by which employers who offer free or reduced-price parking to their employees are required to offer an equal transportation fringe benefit to employees who use modes other than driving alone to get to work.
- **Market-Priced Parking:** Charging the market price for parking instead of subsidizing employee parking encourages employees to use alternative modes. Under the right conditions (i.e., in parking-constrained areas), priced parking can be a highly effective strategy.
- **Preferential Parking for Ride Share Vehicle:** Priority and designated parking for carpools, vanpools, car share, and bike share stations can help encourage the use of ride share, particularly in areas that are not well served by transit or biking and walking facilities.
- **Shared Parking:** Shared parking is a strategy that seeks to shift parking demand into shared, public facilities, rather than a proliferation of dedicated, accessory lots – reducing the volume of parking and local vehicle trips as well as the number of curb cuts on local sidewalks.

Education and Outreach Tools

- **Information Kiosk:** An on-site information kiosk provides information on transit routes, schedules, and fares; car share and vanpool ride-matching services; bicycle maps and resources; and other ways to help people travel by using alternative modes.
- **Transportation Coordinator:** A Transportation Coordinator is a trained, designated employee on-site who is responsible for providing transportation options information to employees and facilitate employee surveying.

- **Sponsor Events to Promote Alternative Modes:** Promotional events and competitions help to promote alternative modes of travel. These events include competitions such as Bike to Work Week, during which employees compete with themselves or other companies to ride the most number of miles in a week.
- **Transportation Management Association Membership:** Transportation management associations (TMAs) are generally operated by member institutions or businesses, and are designed to mitigate local congestion, manage parking, and operate travel demand programs in a specific area. TMAs are typically funded by annual membership dues and typically receive financing from regional or federal grant funding sources. In some instances, TDM programs are also funded by parking and transportation revenues. TMAs may sponsor shuttle services or other demand management tools to minimize the impact of parking. TMAs may also provide hands-on support to help employers survey the commute patterns of its employees and provide transportation information.