

Transit-Oriented Development Parking Recommendations

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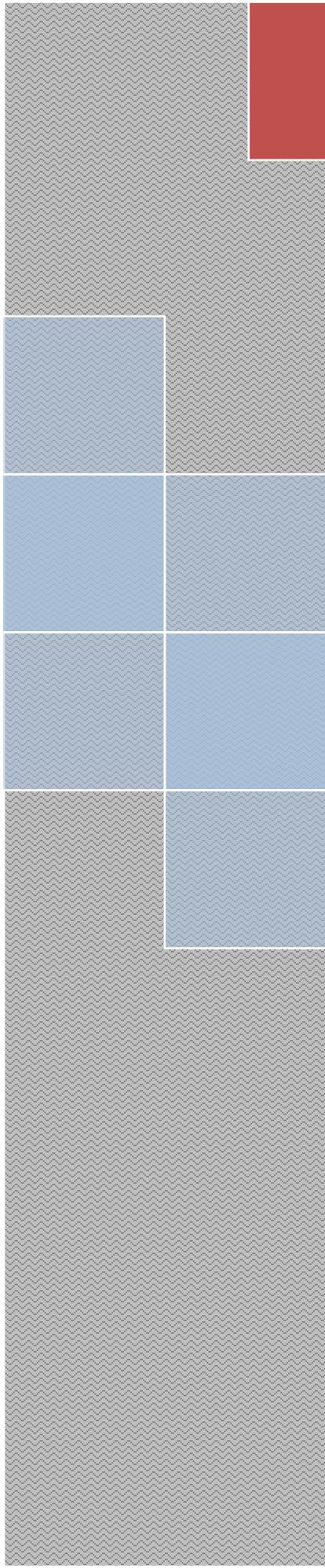
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Introduction

In order to ensure that every development has sufficient parking, a majority of U.S. city governments have established parking minimums. Although these minimums provide a sufficient number of parking spots at peak times, those spots come with consequences such as creating underutilized surface lots during off-peak times. Land is valuable for cities from which tax revenue could be collected if it had used the land more efficiently. Furthermore, hidden fees may be passed onto consumers when developers that follow parking minimums must construct and maintain the space. Environmental costs due to the impervious material used to create the surface lots also create potential issues. Impervious surface prevents the natural absorption of storm water, which allows toxins to enter storm drains that connect to bodies of water. Large lots create a heat island effect, and deprive plants from aeration, which ultimately leads to an interruption in the atmospheric carbon cycle. Large surface lots also discourage walking by creating great distances from parking spot to a building's entrance. This also creates the sensation of danger from oncoming vehicles. On a similar note, high parking supply encourages increased private vehicle use, which contributes to higher vehicle miles traveled, greenhouse gas emissions, and decreased physical activity that may lead to public health risks.

The City of Minnetonka has acknowledged these issues, and has made an initiative to address these by considering alternatives to its minimum parking ordinance. To do this the City has approached the University of Minnesota, masters in Urban and Regional Planning students to answer the following questions:

1. How can the City prevent the underutilization of its parking lots?
2. How can the City continue to prevent parking impacts on surrounding properties and neighborhoods?
3. What alternatives exist that will provide parking to meet peak demand?
4. How can existing excess parking space be better utilized in a way that is environmentally responsible, pedestrian friendly, and economically feasible?

In order to answer these questions, we first examine Minnetonka's current parking situation. The examination is followed with a literature review of parking minimum alternatives in order to understand what policies have worked in other areas. From this research, recommendations are presented for the City and supported with successful examples from other cities. An example is then presented showing how Minnetonka can apply these recommendations to the upcoming Opus Station on the Southwest Light Rail Transit.

Minnetonka Today

Currently, the City of Minnetonka has land use practices that cater to the private automobile driver and discourage the use of other modes such as transit, bicycle, or walking. Long distances and inconvenient transportation networks between destinations make anything but automobile use difficult. Because of the reliance on cars, the city has used large portions of the available land to handle peak-demand parking. Because of this oversupply, parking lots create a positive feedback loop, one that forces drivers to drive more.

Our research was aimed at determining the current employment situation within a half mile distance of the proposed Opus Station. This area will serve as the commuting nucleus for the city of Minnetonka. We found that in year 2010, there were 2,945 primary jobs within the area. Despite none of the workers living inside the area and only 3.7 percent of them (110 in total) living within a half mile distance to the proposed Southwest Light Rail Transit, there were 44.6 percent of the workers (1,312 in total) living within a distance of 10 miles (please refer to map in Appendix 1). By changing parking ordinances, the city of Minnetonka may incentivize them to use public transit to commute so that some

of the problems mentioned above will be mitigated. In addition, it will help the city of Minnetonka towards a Transit-Oriented Development scheme around the station, creating a better, more livable community.

More often than not, Minnetonka requires an overabundance of parking to be built by developers and landowners. Examining Minnetonka's ordinances reveal minimum parking requirements be supplied, which often are much too high for average uses. The following are examples of current parking regulations found in the City of Minnetonka's code:

Zoning Regulations: 300.28.c.2

- t. miniature golf course: 1.5 parking spaces per golf hole*
- q. bowling alley: five parking spaces for each bowling lane;*
- cc. licensed day care facility: one parking space for each six children based on the licensed capacity of the facility;*
- z. retail store or service establishment: one space for each 250 square feet of gross floor area within the building with a minimum of five parking spaces;*

In addition, parking spaces are often unshared by adjacent or nearby businesses, resulting in two separate minimum requirements, which has the potential to over supply parking:

Zoning Regulation 300.28.c.1.c

If a structure contains two or more uses, each use shall be calculated separately in determining the total off-street parking spaces required;

Furthermore, parking requirements are often written as conditional, with two options being given to determine parking spaces. In these situations, the site that demands *more* parking determines the requirement.

Zoning Regulation 300.28.c.1

bb. manufacturing, processing or assembly plant: one parking space for each employee on the major shift or one parking space for each 350 square feet of gross floor area devoted to manufacturing plus one space per 250 square feet of gross floor area devoted to office use, whichever is greater, plus one space for each motor vehicle customarily kept on the premises;

Instead, it is recommended that the condition requiring *less* parking be the indicator that determines the number of spaces.

Parking minimums in Minnetonka, like many other automobile dominated areas, are often set to meet peak demand. However, in most instances, peak demand is rarely achieved. Because of this, policy and ordinance suggestions will be offered later in this report. But first, an examination of existing strategies will provide insight to appropriate measures.

Literature Review

In order to develop new parking ordinance recommendations for the City of Minnetonka, a literature review is needed in order to determine what has been done in other cities and in previous years to address similar issues that Minnetonka faces.

Parking Lots for Drivers and Pedestrians

Every motorist must be a pedestrian before and after every trip. Therefore, it is important to plan parking lots not just for motorists but for all users, including pedestrians. The Federal Highway Administration recommends the placement of parking lots be behind commercial buildings. This reduces the amount of pedestrian to motorist interaction, along with opening up store fronts for all pedestrians. It was found in Montgomery County, Maryland that 22 percent of the total pedestrian-automobile accidents between January of 2006 and June of 2008, occurred within a parking lot, and parking lots made up 15-30 percent of all severe injuries (Stark, 2012). In order to be proactive, Montgomery County uses educational advertisements and an awareness campaign to bring attention to the potential dangers, create pedestrian awareness to drivers, and to teach about parking lot safety.

Transit Zoning Overlays

When focusing on pedestrian and multimodal opportunities, Transit Zoning Overlays provide incentives to create less auto-driven developments. Transit Zoning Overlays are “special zones that supersede the use, density, design and parking requirements of a neighborhood’s previously existing regulation” (Weinberger et al., 2010, p. 45). Planners use these overlays in areas with high transit service levels that would require less parking. Montgomery County, Maryland uses transit zoning overlays for sites near Washington Metro Stations, which allowed it to lower parking minimums by 20 percent (Weinberger et al., 2010).

Lowering or Eliminating Minimum Parking Requirements

Often, parking minimums allow for more parking spaces than needed. In his 1995 study, Willson found that suburban Southern California office park minimums allowed for twice as many spaces as were needed. These high parking requirements led to decreased land value and density, which led to low transit service levels. Many employees continued to choose to drive private vehicles despite the employer programs for carpooling and transit-use.

One approach a city can use in order to reduce its off-street parking is to lower its already established minimum parking requirements to a level appropriate for that facility. One example of this is in Seattle, Washington, where the city allows reduced parking minimums for senior-living or multifamily residences. These are facilities where car sharing is more likely an option for residents, so less parking is needed (Weinberger, Kaehny, & Rufo, 2010).

A more drastic option is to eliminate parking requirements altogether. Proponents of this approach argue that developers and building owners are best adept at determining how much parking is needed for each property since a financial interest to please tenants is at stake (Linman, 2012; Weinberger et al., 2010). However, some businesses may believe that excessive parking must be provided to ensure all possible consumers can find parking. This may lead to more parking being provided than necessary. Seattle, Washington has another ordinance that requires businesses that decide to provide over 135 percent of the minimum requirement to provide a transportation management plan in order to reduce the number of trips and parking demand (Linman, 2012).

In order to reduce parking minimum requirements for developments, cities can use zoning and density bonuses. By providing relaxed parking standards capital can then be provided for streetscape and pedestrian enhancements. This also lowers a project’s total cost, allowing for higher returns (Zhang, 2010). Arlington County, Virginia used joint development grants and private-public partnership to develop successful transit oriented developments or “urban villages” with established reduced minimum parking standards.

Establish Maximums

Unlike minimums which require parking, maximums allow parking to a predetermined limit. Weinberger et al. (2010) analyzed a number of cities that either replaced their minimums with maximums or used maximums and minimums together. The latter method allows developers to have more flexibility. Like minimums, they are often based on a building's square feet. One example is Portland, Oregon, where the city has limited retail parking to one space per 1,000 square feet. This maximum has not led to a parking shortage (Forinash, Millard-Ball, Dougherty, & Tumlin, 2003). The city has also tied maximums to transit capacity. Areas within 500 feet of a transit line that provides service every 20 minutes are allowed to have lower maximum parking requirements (Weinberger et al., 2010) since more people have the opportunity to take transit for their daily trip. Whereas the city of Helena, Montana calculates its maximum parking capacities based on an additional percentage of the minimum. In this scenario, parking lots between 21-50 spaces may not exceed 120% of the minimum requirement while parking lots containing 51+ spaces may not exceed 110% of the minimum.

In order for maximum parking standards to be successful, a city needs to configure these regulations correctly so that the overall parking is reduced, which is not the same as the minimum. This happened in Redmond, Washington, where its maximum was set to a level that still allowed 87.5 percent of workers to drive alone (Weinberger et al., 2010), which not surprisingly resulted in many employees continuing to drive alone. In order to prevent this, Weinberger et al. (2010) suggested that cities pre-determine where higher parking levels are required and establish higher maximums, while allowing lower maximums in areas that do not need as much parking. For example, if transit or pedestrian uses are available or desired, lower maximums should be used. On a similar note, Forinash et al. (2003) concluded that maximums were best in economically stable areas accessible by transit.

Employers can provide incentives to reduce parking, adjacent to the minimum or maximum parking standards required by cities, in order to provide economic development and access opportunities. Some of these incentives include the development of shared parking, cash-out programs, and transit subsidizes, which are discussed below. Encouragement for employers to provide multimodal options and reduce parking has been proven to increase the transit ridership rate in many cities.

Shared Parking

Another method for using parking more efficiently is by allowing shared parking. This is when a parking facility serves multiple users or destinations. An example would be an office building that is used during the day that shares parking with a nearby restaurant that is used primarily in the evening. Instead of each having two parking lots established by their own minimum, these two businesses can share one parking lot that is built in a way that can handle parking for both establishments.

In Montgomery County, Maryland, shared parking is allowed if "any land or building under the same ownership or a joint use agreement is used for two or more purposes" (Forinash et al., 2003, p. 6). The county then calculates the demand at each establishment at different times during the day and on different days of the week as if they were to have their own parking lot. The demand for each establishment at the varying times is then added together and the requirement is set for the maximum total across time periods.

According to Weinberger et al. (2010), shared parking "encourages centralization, consolidation, and reduction of a neighborhood's parking facilities, thus improving urban design and allowing more productive land uses" (p. 45). Examples of cities that have adopted shared parking ordinances are Portland, Oregon, Cambridge, Massachusetts, and Boulder, Colorado.

Design Elements

Along with shared parking, design elements can be utilized to create safer and more pedestrian friendly environments within these parking lots. These include painting, centerwalks, and roundabouts. Dutch traffic engineer Hans Monderman (Stark, 2012) argued for shared space between both the traffic and social world. These methods focused on roundabouts and plazas with little to no signing, striping or signaling, but rather created plazas with fountains, landscapes and dense activity. Reducing the amount of signing works as a traffic calming device since all drivers and pedestrians must slow down and become more aware of each other. Monderman argued that perceived danger translates into more awareness. These shared spaces were proven successful in Drachten in the Netherlands; however, each of these roundabout and plazas would require changes within the cities legal code in order to be implemented.

Centerwalks provide added safety for pedestrians by providing a raised dedicated walking aisle between vehicles. This aisle, running the length of the parking aisle, leads directly to the pedestrians' destination without the potential conflict of moving vehicles. These centerwalks can also add environmental benefits by adding landscaping, mulch and plants to create more attractive areas. Successful examples of these centerwalks can be found at the Creekside Cinemas in New Braunfels, Texas, along with the Colonie Center in Colonie, New York (Stark, 2012).

Painted pedestrian-ways can be used to provide a clear walking path. An example of this can be seen at the Hotel Northampton in Northampton, Massachusetts (Stark, 2012) where a green walkway was painted throughout the parking lot to the hotel's entrance. Brightly painted areas throughout a parking lot brings attention to automobile drivers that pedestrians are present and regular foot traffic takes place in these areas. Painted areas also provide direction for pedestrians, along with creating a perception of danger. By making the parking lot seem like it is a dangerous parking lot both motorist and pedestrians become more aware of their surrounds in order to ensure their safety.

Another design element includes environmental impacts of parking lots. An environmental concern facing many communities is the Urban Heat Island Effect. This is caused by displacement of large areas of pervious soils and increased storm water run-off, which both have negative impacts on water absorption. These effects are seen due to large parking lots with impervious surfaces. In order to help address this issue, the University of New Hampshire has analyzed the alternative of using porous asphalt surfaces for parking lots. Results showed run-off volumes to be significantly decreased, improvements in the water quality, along with increase in snow and ice melting which reducing the amount of salt required for winter months. It was found that 0 to 25 percent of the normally needed amount of salt was used during the winter months on areas with permeable parking surfaces. (Stark, 2012) These surfaces have also been found to have a longer life space in northern climates. Incentives for pervious surfaces are seen in San Antonio, TX. (Stark, 2012) San Antonio which also has maximum requirements, allows exemptions for structured parking and parking lots with pervious pavement.

Cash-Out Programs

There are alternatives that address parking issues other than going through ordinance changes. These alternatives deal with changing parking demand. One alternative is a cash-out program. In this program, employers offer employees a cash payment equal to the price of their parking spot as an incentive to use a different mode to commute to work. Employees that drive continue to park for free, but those who bike, walk, or use transit will instead receive cash for the parking spot they forfeited.

According to parking-expert Donald Shoup (1995), cash-out programs offer three main benefits. First, they make drivers realize that “free” parking has an opportunity cost: the cash not taken (p.16). While the parking is still free, the driver realizes that s/he is missing out on cash s/he could be using on other things than transportation costs. Second, they give drivers a choice and that choice either leaves the driver the same (if s/he does not take the cash-out) or better (if s/he does). No one is worse off. Third, cash-outs do not cost employers money. Employers are already spending the money that would be giving to employees to maintain the parking space. Instead of using the money for maintenance, employers give it to employees that choose not to park. Shoup (1995) found that a Los Angeles cash-out program reduced parking demand by an average of 23 percent (p.18). He also reminds the reader that ultimately the reduced demand is varying and that it is dependent on how the work site prices the cash-out.

Employer Subsidized Transit Pass

Parking demand can also be reduced through subsidized transit passes. These passes can be provided by employers, cities, residential property managers, and other institutions to be used as an incentive to take transit, whether that is a bus, light rail train, or subway (Weinberger et al., 2010). Employers are incentivized to offer such programs since it is often less expensive than providing parking. For example, in Los Angeles in 2003, a monthly transit pass cost \$42 while the average monthly parking spot cost \$91 (Forinash et al., 2003). Acknowledging this type of saving, Boulder, Colorado’s downtown employers have been offering subsidized Eco Passes to their employees since 1993. The Central Area General Improvement District found that parking demand in Boulder has shrunk by 850 spaces (Weinberger et al., 2010), along with an increase increased from 35 percent in 1993 to 47 percent in 1997 for employer carpooling (EPA, 2006).

Some cities and counties allow businesses that subsidize transit for their employees to have lower parking minimums. In Montgomery County, Maryland, office zoning parking requirements were reduced by 15 percent if transit passes were used (Forinash et al., 2003). This can decrease development costs of future office developments. Along with subsidized transit passes, employers in the City of Hillsboro, Oregon have included private shuttle programs. Subsidized shuttle programs for employees from the Light Rail Stations to the work place and back has improved ridership rates. (Zhang, 2012) This has also increased transit opportunities for businesses are not easily accessible by walking from station locations.

Substituting Bicycle Parking for Vehicle Parking

Along with employers, developers have opportunities to reduce parking. Another demand reduction strategy would be to allow bicycle parking to take the place of some vehicle parking. In areas that have bicycle infrastructure, like bike paths and trails, employees may want to bike to work. Some may be discouraged from doing so if bike parking is not available at their work. Cities like Portland have changed their ordinances to allow developers that provide bike parking at their building to have reduced parking minimums. For every five bike parking units, one vehicle parking unit is eliminated (Weinberger et al., 2010). Not only does this encourage a mode shift, but it creates a more efficient urban form.

Unbundle Parking

Often developers are required to provide accessory parking for residential and commercial properties. This parking is also required to be provided in a dense, high transit service area where multimodal transportation choices are available. A number of issues arise from this phenomenon. Such that tenants are not aware of parking’s true cost, causing vehicle ownership to be higher in these developments (Willson, 2005). This does not support the purpose transit-oriented developments set out to fulfill by encouraging transit and multimodal transportation opportunities. In these developments, developers

often are unaware of how much tenants are willing to pay for parking; therefore, number of parking stalls required by the city is built while frequently passing the costs off onto the tenant.

Certain neighborhoods in San Francisco allow developers to “unbundle” accessory parking costs from the unit’s sale (Weinberger et al., 2010). By doing this, tenants that do not need parking do not have to pay for it. Having fewer tenants paying for a parking stall within the development allows the developer to provide less parking and instead use it to build more units. Unbundling is an attractive economic concept for stakeholders as it provides innovation, revenue distribution, and rational parking strategies. (Zhang 2012) This parking strategy can be done through site plan conditions or through zoning (Weinberger et al., 2010).

Another alternative is parking garages. The City of Portland has utilized larger parking garages to accommodate the normal zoning requires, however a garage provided increased access to an area and additional economic growth while utilizing the same area footprint.

Examples of TOD Parking Techniques

The aforementioned policies and techniques dealt with parking in general. The following section elaborates on strategies used specifically in transit-oriented developments (TODs). Studies have shown that surface lots surrounding transit stations can be retrofitted into “mixed use, pedestrian friendly, transit-oriented developments” that can help a city meet housing demands, increase tax revenues, and reduced VMT (Center for Neighborhood Technology, 2006). Our team felt TOD should be addressed, as Minnetonka will have an opportunity to create this type of development with its proposed Opus LRT Station.

The purpose of TODs is to encourage transit use and decrease private vehicle use. In order for this to occur, residential, commercial, and office developments need to be allowed to have different parking requirements than traditional minimums. To do this, parking requirements need to be priced effectively. According to Willson (2005), free employer parking “undermines the transit access advantages that TODs provide” (p. 85). This can be combated using the aforementioned cash-out program offered by employers. As for residential developments, unbundling parking is encouraged so tenants are aware that they are paying for parking if they choose to use a personal vehicle. Also, because TODs should have less personal vehicle use, less parking is needed. Creating TOD-specific parking requirements would allow developments located near transit stops/stations to be exempt from traditional minimums and use their own parking standards, calibrated using expected transit shares and vehicle ownership (Willson, 2005). Shared parking should then be encouraged when possible. If buildings of different uses are near each other at transit stations, those buildings should be allowed to use the same lot.

Policy Recommendations

Based off of the above literature review and site visit to the future Opus Light Rail Station, recommendations can be offered in order to address the following four questions as stated above developed by the City of Minnetonka planning staff.

1. How can the City prevent the underutilization of its parking lots?
2. How can the City continue to prevent parking impacts on surrounding properties and neighborhoods?
3. What alternatives exist to provide parking to meet peak demand?
4. How can existing excess parking space be better utilized in a way that is environmentally responsible, pedestrian friendly, and economically feasible?

Transit Zoning Overlay

Currently the City of Minnetonka has established an overlay district for the proposed Opus Station and the Shady Oak Road Station within the city code Section 300.36. Many elements encouraging the transit oriented development principles stated above are required to be considered and addressed for all new developments. These elements provide a basic foundation for transit stations; however, the following recommendations can be incorporated and added to the current transit zoning overlay district in order to provide a more environmentally responsible, pedestrian friendly, and economically viable area.

Areas where this applicable:

- New and current transit stations
- New and current developments within walking distance of transit stations

Minimums and Maximums

Much of the literature recommended reduction, if not elimination, of parking minimums. Minimums tend to be rigid and often provide too much parking. Acknowledging Minnetonka's suburban layout and demographic makeup, it is unlikely parking minimums will be eliminated without a fight. Therefore, our team suggests that the City of Minnetonka works to lower its minimum requirements, and where applicable, add maximums. This will help Minnetonka prevent parking underutilization while providing an alternative to meeting peak demand.

When considering where parking minimums should be reduced or maximums should be added, the city needs to look at development type/size, demographics, population density, availability of transit, and surrounding land use mix. The city should conduct a parking audit to determine which areas experience heavy parking use and which areas are underutilized. Once the audit is complete, Minnetonka can either work on a case-by-case or zone-by-zone basis to adjust parking minimums or add parking maximums. An example of possible adjustments is provided in the chart below from Linman (2012, p. 52-53).

Table 11 Parking Requirement Adjustment Factors

Factor	Description	Typical Adjustments
Geographic Location	Vehicle ownership and use rates in an area.	Adjust parking requirements to reflect variations identified in census and travel survey data.
Residential Density	Number of residents or housing units per acre/hectare.	Reduce requirements 1% for each resident per acre (e.g. 15% where at 15 residents per acre and 30% at 30 res. per acre).
Employment Density	Number of employees per acre.	Reduce requirements 10-15% in areas with 50 or more employees per gross acre.
Land Use Mix	Range of land uses located within convenient walking distance.	Reduce requirements 5-10% in mixed-use developments. Additional reductions with shared parking.
Transit Accessibility	Nearby transit service frequency and quality.	Reduce requirements 10% within ¼ mile of frequent bus service, and 20% within ¼ mile of a rail transit station.
Carsharing	Whether a carsharing service is located nearby.	Reduce residential requirements 5-10% if carsharing service is located nearby, or 4-8 spaces for each carshare vehicle.
Walkability	Walking environment quality.	Reduce requirements 5-15% in walkable communities, and more if walkability allow more shared and off-site parking.
Demographics	Age and physical ability of residents or commuters.	Reduce requirements 20-40% for housing for young (under 30) elderly (over 65) or disabled people.
Income	Average income of residents or commuters.	Reduce requirements 10-20% for the 20% lowest income households, and 20-30% for the lowest 10%.
Housing Tenure	Whether housing are owned or rented.	Reduce requirements 20-40% for rental versus owner occupied housing.
Pricing	Parking that is priced, unbundled or cashed out.	Reduce requirements 10-30% for cost-recovery pricing (i.e. parking priced to pay the full cost of parking facilities).
Unbundling Parking	Parking sold or rented separately from building space.	Unbundling parking typically reduces vehicle ownership and parking demand 10-20%.
Parking & Mobility Management	Parking and mobility management programs implemented at a site.	Reduce requirements 10-40% at worksites with effective parking and mobility management programs.
Design Hour	Number of allowable annual hours a parking facility may fill.	Reduce requirements 10-20% if a 10 th annual design hour is replaced by a 30 th annual peak hour. Requires overflow plan.
Contingency-Based Planning	Use lower-bound requirements, and implement additional strategies if needed.	Reduce requirements 10-30%, and more if a comprehensive parking management program is implemented.

This table summarizes various factors that affect parking demand and optimal parking supply.

An example ordinance is found in the City of Portland, Oregon’s city code 33.266.110 *Minimum Required Parking Spaces* & 33.266.115 *Maximum Allowed Parking Spaces*, shown in the Appendix Item I. This ordinance provides a basic structure that could be applied to the City of Minnetonka.

Areas where maximum parking regulations are applicable:

- Areas of high density
- Areas accessible by transit

Shared Parking

Shared parking would allow Minnetonka to prevent more underutilized parking. This is an alternative that provides sufficient parking while also using land more efficiently. Instead of forcing all nearby establishments to provide their own parking, the City should allow facilities to share space. However, sharing works best if the establishments have different peak use times, which often occur when the establishments are of different uses.

Currently, Minnetonka allows shared use in its transit zone overlay, multi-tenant centers, and in its limited tenant buildings. This is a good start, but we recommend that the City make it easier for more establishments to use shared parking, especially in areas designated for redevelopment or infill. Incentive zoning can also provide opportunities for the city to encourage more shared parking.

An example ordinance is adapted from the South Carolina Department of Health & Environmental Control:

“The city requires that a shared parking plan be submitted if two or more buildings that have different purposes/uses are within walkable distance from each other. This can be included in the site plan or landscaping plan information. This shared parking plan must include one or more of the following:

- A. Site plan of parking spaces intended for shared parking and their proximity to land uses that they will serve.*
- B. A signage plan that directs drivers to the most convenient parking areas for each particular use or group of uses (if such distinctions can be made).*
- C. A pedestrian circulation plan that shows connections and walkways between parking areas and land uses. These paths should be as direct and short as possible.*
- D. A safety and security plan that addresses lighting and maintenance of the parking areas.”*

Areas where this is applicable:

- Mixed Use Developments;
- The proposed Opus and Shady Oak Road LRT Stations;
- Any transit station
- Ridgedale Mall

Park and Ride

It is common in many cities that residents do not work directly where they live. Due to this factor and opportunities to commute to work via transit, park-and-ride facilities offer transit opportunities to individuals who typically do not have transit access. Park-and-rides found throughout the Twin Cities Metropolitan area provide a space of free parking that individuals can use in order to get closer to their final destination without taking a private vehicle the entire trip.

These facilities are often found in suburban areas for both inward and outward commute from the city for business options during the day time and entertainment options in the evening. With the opportunity for continual use, the City of Minnetonka would benefit from the development of a park-and-ride near transit stations. Businesses within Minnetonka could also encourage and pair other transit-oriented development initiatives and recommendations stated below.

An example of a suburban park and ride ordinance is Naperville, Illinois municipal code 6-2-30 Park-N-Ride Facilities:

- “1.Park-n-ride facilities located within all zoning districts should create greater opportunities for the establishment of said park-n-ride facilities in locations where they can provide support to existing transit services operated in the City and will not result in a detrimental impact to the intent of this Title and/or policies adopted through the City's comprehensive planning documents.*
- 2. A park-n-ride facility shall be defined as a designated parking area where*

individuals can park their private vehicles and access public transportation services provided by public transit agencies and the City.

3. Park-n-ride facilities shall be administratively reviewed and approved by the Zoning Administrator provided that the proposed use will not have a potential adverse impact on the subject property, surrounding properties, or public health, safety and general welfare.”

Areas where this is applicable:

- All transit stations

Carpool Parking

In order to address Minnetonka’s underutilized parking lots, our team recommends that the city adopt a similar carpool parking ordinance to Portland’s with the addition that it allow developers to provide fewer spots for newer developments if they provide carpool spaces. Since carpooling allows fewer people to drive, less parking will be needed in new developments. Carpooling has a number of benefits including decreased vehicle miles traveled, reduced greenhouse gas emissions, and saved space, time, and money from reduced parking spaces.

Carpooling also address the city’s concern of negative parking impacts in surrounding areas. With less parking available in certain new developments, carpool parking still allows employees or customers to drive, but instead drive together and park closer rather than individually and on neighboring streets. In office parking lots, this would provide a greater benefit if it is tied together with a cash-out program. Not only would employees receive money for giving up their parking spot, but they can still ride together and park closer.

Currently, Minnetonka’s Code of Ordinances mentions nothing about carpool parking. This suggested ordinance can be adapted to fit Minnetonka’s needs.

Example Ordinance from Portland, Oregon:

“For office, industrial, and institutional uses where there are more than 20 parking spaces on the site, the following standards must be met:

- 1. Five spaces or five percent of the parking spaces on site, whichever is less, must be reserved for carpool use before 9:00 AM on weekdays. More spaces may be reserved, but they are not required.*
- 2. The spaces will be those closest to the building entrance or elevator, but not closer than the spaces for disabled parking and those signed for exclusive customer use.*
- 3. Signs must be posted indicating these spaces are reserved for carpool use before 9:00 AM on weekdays.” (Section 33.266.110, part C)*

Areas where this is applicable:

- Office Parks (Opus & UnitedHealth);
- Institutional Buildings (Minnetonka High School & City Hall/Police Department);
- Hospitals (St. Jude Medical & Park Nicollet Clinic);
- College Campuses (National American University);
- Commercial Buildings (Target and Ridgedale Mall)

Bicycle Parking and Bicycle Parking Substitutions for New Developments

In addition to carpool parking spots, bicycle parking can also remove unnecessary required parking spaces while giving individuals other transportation options. This also lessens the possibility that overflow parking will spill over into neighboring streets. Bicycle parking should be required in all new developments. This type of facility is also easy to retrofit into existing parking lots. In existing industrial or office areas with large underutilized lots, the city should provide protected bicycle parking in the corners or along the lot's edges. If the building is commercial or retail, bicycle parking should be provided near the entrance for the customer's convenience. Depending on the site's use, long term and short term bicycle facilities should to be considered. Like carpool parking, bicycle parking could work well when combined with a cash-out program since it would allow those who give up their vehicle parking an option.

Minnetonka's city code currently allows bicycle parking (Section 300.28, 12.5), however does not require parking at all establishments. Only within the transit overlay district for the Southwest LRT stations is bicycle parking mandated (Section 300.36, 2a).

Example Ordinance from Portland, Oregon:

"Bicycle parking may substitute for up to 25 percent of required parking. For every five non-required bicycle parking spaces that meet the short or long-term bicycle parking standards, the motor vehicle parking requirement is reduced by one space. Existing parking may be converted to take advantage of this provision." (Section 33.266.110, B5)

Areas where this is applicable:

- Any facility location with the exception of single-family homes and farmhouses

Cash-Out Program & Subsidized Transit Pass Use

Like the previous recommendations, the two following ordinances address Minnetonka's concern of overflow parking if parking minimums are reduced to non-peak levels. By incentivizing people to take other transportation modes through cash-outs and subsidized transit passes, there is a greater opportunity people will choose to not drive, and consequently, not park. Along with encouraging increased transit use, large businesses should be encouraged to subsidize a shuttle from a transit station to and from work. This will increase ridership since more businesses and individuals will have a greater access to work from the transit network.

In addition, these ordinances address our question of promoting environmentally responsibility and economically feasible parking alternatives. With fewer people driving, less greenhouse gases are emitted, fewer trips are made, and less land is taken up by impervious surface. With the adoption of such ordinances, the City should consider lowering the minimums needed for affected sites in coordination with these transportation incentives. . Example ordinances are in the Appendix, Item II.

Currently, Minnetonka does not have any ordinances requiring major employers to offer cash-out programs or transit passes. It does have an ordinance that requires developments of 25,000 square feet or more to provide a plan that could include transit passes (Section 300.31, 6 g).

Example of Cash-Out Program Ordinance from State of California:

(a)...each employer of 50 persons or more who provides a parking subsidy to

employees, shall offer a parking cash-out program. "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. (b) A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program." (§ 43845. Parking cash-out program. California Health and Safety Code)

Example of a Transit Pass Ordinance from Berkeley, California:

"No later than one (1) year after the effective date of this Chapter, all Covered Employers [those employing 10 or more employees] shall provide at least one of the following transportation benefit programs to Covered Employees:
A. A Pre-Tax Election: A program, consistent with allowable pre-tax commute benefits, except parking benefits, allowed by Internal Revenue Code section 132(f), allowing employees to elect to exclude from taxable wages and compensation employee commuting costs incurred for transit expenses, vanpool expenses, or bicycle expenses, up to the maximum level allowed by federal tax law, or
B. Employer Paid Benefit: A program whereby the employer supplies an annual, monthly or other form of transit pass, or reimbursement for equivalent vanpool expenses at least equal in value to the purchase of the appropriate benefit which shall not exceed the cost of an adult monthly AC Transit regular pass, for the public transit system requested by each employee or to reimburse qualified vanpool charges; or
C. Employer Provided Transit: Commute transportation furnished by the employer at no cost to the employee in a vanpool or bus, or similar multi-passenger vehicle operated by or for the employer." (9.88.030)

Areas where these ordinances would be applicable:

- Large office parks, such as Opus and UnitedHealth, that are accessible by transit
- Any large business with opportunities for a shuttle

Permeable Surface

Another way to provide environmental responsible parking options is to require off-street parking lots constructed of permeable surfaces. Examples of these surfaces include surfaces of aggregate materials such as asphalt, concrete and pavers. Aggregate surfaces allow for storm water run-off to filter through in order to reduce the environmental effects of surface pollutants. Providing incentives that require fewer parking requirements if permeable parking surfaces are used is a feasible way the City of Minnetonka can increase the amount of permeable surfaces and reduce environmental impacts throughout the City of Minnetonka.

A basic example ordinance is adopted from the City of Roseville, Minnesota city code Section 1019.11 Design Requirements:

"The purpose of regulating off-street parking, paved areas, and loading spaces is to prevent congestion on public rights-of-way for the safety and welfare of the public.
F. Surfacing: All off-street parking areas and driveways shall be constructed of bituminous asphalt, concrete, pavers, or other material approved by the City Engineer."

Another example ordinance is adopted from the city of San Antonio, Texas city ordinance Division 2 Specific Parking Regulations:

“It shall be unlawful for any person owning or having control of a motor vehicle, water craft, non-motorized camper, or any trailer to park or allow same to be parked at any time in the side yard setback or front yard, or in any area between the property line of the lot and the curb line or the edge of the adjacent street within any of the residential districts as listed in subsection (a); provided, however, that motor vehicles, watercrafts on trailers, campers and other trailers may be parked only on the side yard setback or front yard with all wheels on permanently maintained parking areas constructed of:
(1)Gravel with barriers or permanent curbing to define the driveway;
(2)Concrete;
(3)Brick; or
(4)Asphalt;
extending from the curb, street, or alley in a contiguous course, and only where such parking areas are no wider than the width established.
The gravel, concrete, or asphalt parking area referred to in subsection (d) shall be no wider than fifty (50) percent of the average width of the lot.”

Areas where this is applicable:

- All off-street parking areas

Median Pedestrian Walkways

Connectivity within a parking lot for pedestrians is an important safety measure that should be considered when constructing new parking lots. The design of a parking lot can influence where pedestrians walk from a parking space to the building’s entrance. In order to increase safety, the amount of pedestrian to vehicle traffic should be limited. Median pedestrian walkways, or center walks, are a feasible option for new developments. This public space allows pedestrians leaving a parking space to merge directly onto walkway separated from oncoming vehicle traffic. With raised walkways between parked vehicles, a pedestrian friendly area is clearly defined and directs pedestrians to a safety area. Paint and other aesthetic features can also be used to identify this designated area, provide environmental benefits of storm water gardens, and provide more green space.

These medians are not currently being used throughout the City of Minnetonka but would provide a benefit for pedestrian safety in new developments. This parking alternative may provide some difficulties in retrofitting existing since this type of development may require the restructuring of an entire parking lot.

An example ordinance is adopted from the City of Philadelphia, Pennsylvania city code Chapter 14-1402 Parking and Loading Facilities.

“(1.1) Walkways. Where a parking lot containing over twenty-five (25) spaces or a portion of a parking lot where such portion contains over twenty-five (25) spaces is located between a building and a public street, a pedestrian walkway of at least four feet in width shall be provided in accordance with the following requirements:
(.a) The walkway shall be located within or along the edge of the parking lot;

- (.b) The walkway shall connect the street and the building;*
- (.c) One such pedestrian walkway shall be provided for each three hundred feet of street frontage along a street; and,*
- (.d) Where a walkway crosses a driveway or aisle, the driveway and/or aisle shall be clearly marked and signed so as to indicate the location of the walkway and to require vehicles to stop for individuals using the walkway.”*

Areas where this is applicable:

- All parking lots, especially lots with double rows of parking stalls in the middle of the lot
- New developments

TOD Example in Minnetonka

An examination of the area surrounding the proposed Opus LRT station was needed to better understand the existing parking supply. On a Wednesday in April, our project team visited this area to obtain a parking inventory of the area that may be affected by the Southwest LRT. While some office buildings effectively used land for parking, others did not.

The Digital River office building had a parking space vacancy of eight spaces out of 157 total spaces. This office building utilized low rise parking structures and surface lots to keep the lot footprint low and the density of parking high. This regime also allowed for shorter distances from car to office, and a greater amount of landscaping and beautification. Photograph 1 was taken at the Digital River site.



However, just across Bren Road West, less than one hundred yards from Digital River, MetroMart has provided a parking lot that approaches 300,000 square feet. During our parking inventory, less than one percent of this space was used. The incredible oversupply in parking in this area

created wide expanses of pavement that are unattractive, underutilized, environmentally unfriendly, and inaccessible to any traveler besides automobile. Photo 2 and the following rendering show the MetroMart building along with parking. The yellow marker shows where the proposed Opus LRT station will be located.



The Digital River and MetroMart office parking schemes starkly contrasted one another. Where one was built with practicality, the other was built without. However, neither area catered to users besides those who traveled by private automobile.

Suggestions for Future Development at Opus LRT Station

The following renderings show suggestions for the future area surrounding the proposed Opus SWLRT station.



Major changes include:

1. Mass transit access: With the addition of the SW LRT Opus station, the area that is currently an uncrossable parking lot has the opportunity to become a transit hub for those working in this area of high employment density.

In addition, bus and shuttle service is recommended to connect the Opus station with other office centers outside walking distance of the LRT platform. This can be located in close proximity to the Opus station, making connections simple and fast.

2. Dense parking for a Park and Ride program: The addition of a three story parking ramp will match the amount of parking removed, but at a greater density. This parking structure could be used as a facility for a Park and Ride program, allowing residents from the surrounding area to park and take the LRT to job centers connected by the train.

3. Bicycle facilities and storage: the suggested sheltered facility would allow cyclists to ride to work and connect to distant job centers via the SWLRT. The cyclist-only path running along the north end of the parking lot would provide cyclists with a safe route through the parking lot.

4. Increased greenscaping: More plantings and trees provide a more aesthetically pleasing environment for all users. In addition, trees help filter the air and make the area cooler in temperature. Finally, with less impervious surface and an increase of soft land cover, water infiltration will increase, which decreases runoff of pollutants commonly found in large parking lots.



5. Infill of parking lots with mixed use development: Parking lots provide no tax revenue to the city. Mixed use development is proposed for the current area surrounding the Opus Station. Restaurants on the ground level would give those working in the area a place to eat at lunch time without having to drive. Coffee shops would give transit users an option for a drink while waiting for the morning train into downtown.

6. Increased pedestrian access: In order to function as a multi modal transit hub instead of a mass parking lot, the Opus redevelopment area must allow for a safe and comfortable environment for pedestrians. Crosswalks connecting the different modes are an inexpensive solution to uncomfortable situations pedestrians might face. Pedestrian facilities will make the area more vibrant and lively.

All of the above suggestions accomplish several goals that are targeted. Infill and better utilization of the land increases tax revenue for the city of Minnetonka, while still providing adequate supply during most demand. Mixed use development will increase the attraction of the area for potential residents, visitors, employers, and employees. Increased greenscaping and tree cover will further create an attractive area for visitors, while decreasing the impact the parking lots have on the environment. Finally, transit connected to parking would allow drivers to Park and Ride, thereby decreasing the amount of automobiles during commutes.

Conclusions

The above analysis and suggestions sought to assist the city of Minnetonka in addressing a number of questions regarding parking problems in the city. Our proposal gives ways in which the city can prevent the underutilization of the city's parking lots through infill, by providing land uses that may attract visitors to the currently underdeveloped area, and eliminating parking spaces all together through shared parking, parking maximums, and incentivizing other modes of transportation.

By requiring pervious surfaces in parking lots as well as increased plantings, the city will have a positive effect on the local and regional environment. There will likely be more natural filtration, better air quality, and less pollution because of a decrease in drivers. By implementing some policy changes, current drivers will have options other than private automobile. Bicycling, carpooling, and transit are all possible alternatives to private automobile use.

Parking ordinance and policy changes are the first step towards a more financially and environmentally sustainable future by reducing the reliance on automobiles. As the city of Minnetonka motto states: "Where quality is our nature", the above suggestions, if implemented, will have an impact on future Minnetonka residents' quality of life through greater public health and greater community vitality.

Appendix

Item I. Portland, Oregon City Ordinance

33.266.110 Minimum Required Parking Spaces

A. Purpose. The purpose of required parking spaces is to provide enough on-site parking to accommodate the majority of traffic generated by the range of uses which might locate at the site over time. Sites that are located in close proximity to transit, have good street connectivity, and good pedestrian facilities may need little or no off-street parking. Transit-supportive plazas and bicycle parking may be substituted for some required parking on a site to encourage transit use and bicycling by employees and visitors to the site. The required parking numbers correspond to broad use categories, not specific uses, in response to this long term emphasis. Provision of carpool parking, and locating it close to the building entrance, will encourage carpool use.

B. Minimum number of parking spaces required.

1. The minimum number of parking spaces for all zones is stated in Table 266-1. Table 266-2 states the required number of spaces for use categories. The standards of Tables 266-1 and 266-2 apply unless specifically superseded by other portions of the City Code.

2. Joint use parking. Joint use of required parking spaces may occur where two or more uses on the same or separate sites are able to share the same parking spaces because their parking demands occur at different times. Joint use of required nonresidential parking spaces is allowed if the following documentation is submitted in writing to BDS as part of a building or zoning permit application or land use review:

- a. The names and addresses of the uses and of the owners or tenants that are sharing the parking;*
- b. The location and number of parking spaces that are being shared;*
- c. An analysis showing that the peak parking times of the uses occur at different times and that the parking area will be large enough for the anticipated demands of both uses; and*
- d. A legal instrument such as an easement or deed restriction that guarantees access to the parking for both uses.*

3. Exceptions for sites well served by transit. There is no minimum parking requirement for sites located less than 500 feet from a transit street with 20-minute peak hour service. Applicants requesting this exception must provide a map identifying the site and TriMet schedules for all transit routes within 500 feet of the site.

4. Exceptions for sites where trees are preserved. Minimum parking may be reduced by one parking space for each tree 12 inches in diameter and larger that is preserved. A maximum of 2 parking spaces or 10 percent of the total required may be reduced, whichever is greater. However, required parking may not be reduced below 4 parking spaces under this provision.

5. Bicycle parking may substitute for up to 25 percent of required parking. For every five non-required bicycle parking spaces that meet the short or long-term bicycle parking standards, the motor vehicle parking requirement is reduced by one space. Existing parking may be converted to take advantage of this provision.

6. Substitution of transit-supportive plazas for required parking. Sites where at least 20 parking spaces are required, and where at least one street lot line abuts a transit street may substitute transit-supportive plazas for required parking, as follows. Existing parking areas may be converted to take advantage of these provisions. Adjustments to the regulations of this paragraph are prohibited.

- a. Transit-supportive plazas may be substituted for up to 10 percent of the required parking spaces on the site;*
- b. The plaza must be adjacent to and visible from the transit street. If there is a bus stop along the site's frontage, the plaza must be adjacent to the bus stop;*

c. *The plaza must be at least 300 square feet in area and be shaped so that a 10'x10' square will fit entirely in the plaza; and*

d. *The plaza must include all of the following elements:*

(1) A plaza open to the public. The owner must record a public access easement that allows public access to the plaza;

(2) A bench or other sitting area with at least 5 linear feet of seating;

(3) A shelter or other weather protection. The shelter must cover at least 20 square feet. If the plaza is adjacent to the bus stop, TriMet must approve the shelter; and

(4) Landscaping. At least 10 percent, but not more than 25 percent of the transit-supportive plaza must be landscaped to the L1 standard of Chapter 33.248, Landscaping and Screening. This landscaping is in addition to any other landscaping or screening required for parking areas by the Zoning Code.

33.266.115 Maximum Allowed Parking Spaces

A. Purpose. Limiting the number of spaces allowed promotes efficient use of land, enhances urban form, encourages use of alternative modes of transportation, provides for better pedestrian movement, and protects air and water quality. The maximum ratios in this section vary with the use the parking is accessory to and with the location of the use. These maximums will accommodate most auto trips to a site based on typical peak parking demand for each use. Areas that are zoned for more intense development or are easily reached by alternative modes of transportation have lower maximums than areas where less intense development is anticipated or where transit service is less frequent. In particular, higher maximums are appropriate in areas that are more than a 1/4 mile walk from a frequently served bus stop or more than a 1/2 mile walk from a frequently served Transit Station.

B. Maximum number of parking spaces allowed. Regulations in a plan district or overlay zone may supersede the regulations in this subsection.

1. Surface parking. Where more than 25 percent of the parking accessory to a use is on surface parking lots, both the structured and surface parking are regulated as follows. Parking accessory to a use includes accessory parking that is on- and off-site:

a. Generally. The maximum number of parking spaces allowed is stated in Tables 266-1 and 266-2, except as specified in subparagraph B.1.b, below;

b. Exception for sites not well served by transit. For sites located more than 1/4 mile from a bus stop with 20-minute peak-hour service and more than 1/2 mile from a Transit Station with 20-minute peak-hour service, the maximum number of parking spaces allowed is 125 percent of the amount stated in Tables 266-1 and 266-2. Applicants requesting this exception must provide a map identifying the site and all bus stops and Transit Stations within 1/2 mile of the site and TriMet schedules for all transit routes within 1/2 mile of the site.

2. Structured parking. Where 75 percent or more of the parking accessory to a use is in structured parking, both the structured and surface parking are regulated as follows. Parking accessory to a use includes accessory parking that is on- and off-site:

a. Generally. There is no maximum number of parking spaces, except as provided in subparagraph B.2.b, below;

b. Parking accessory to Medical Centers and Colleges. The maximum parking allowed that is accessory to Medical Centers and Colleges is stated in Tables 266-1 and 266-2.

3. Exception in the EG and I zones. In the EG and I zones, there is no maximum number of accessory parking spaces for either structured or surface parking where both B.3.a and b are met, and either B.3.c or d is met:

a. The site is at least eight acres in area;

- b. The site is located more than 1/2 mile from a transit stop or station with 20-minute peak-hour light rail or streetcar service; and
- c. At least 700 of the accessory parking spaces are in a structure; or
- d. The structured parking is in a structure with at least three floors, and parking is on at least three floors of the structure.

Item II: Reduced Parking Minimums for Cash-Out Program & Transit Pass Use

Example Ordinance from the State of California Regarding Reducing Minimums for Cash-Out Program Users:

“The city or county in which a commercial development will implement a parking cash-out program...shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.” (California Health & Safety Code Section 65089)

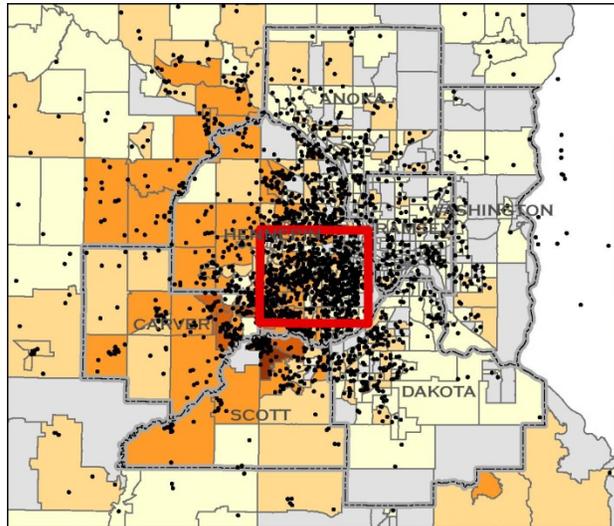
Example Ordinance from Blaine, Minnesota Regarding Reduced Minimums for Transit Use

“For industrial purposes only, a reduction shall be given to the number of required parking spaces provided the following conditions are met:

- (i) Applicant must submit a transportation plan for his/her operation detailing how employees will be utilizing different modes of transportation to and from work.*
- (ii) Applicant must demonstrate a reasonable number of his/her employees will be utilizing MTC bus service, ride share, van pooling, or any combination thereof.*
- (iii) Applicant must submit a site plan which will maintain sufficient land available to reinstate all required parking if applicant's transportation plan should not be implemented. The Community Development Department shall review such transportation plans on a "as needed basis" and shall determine if the transportation plan is being properly implemented.”* (Sect. 33.14 j)

WORKER DISTRIBUTION MAP (2010)

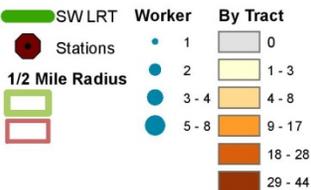
JOBS WITHIN 1/2 MILE RADIUS OF OPUS STATION



Jobs (Primary) within 1/2 Mile Radius of Opus Station (2010)

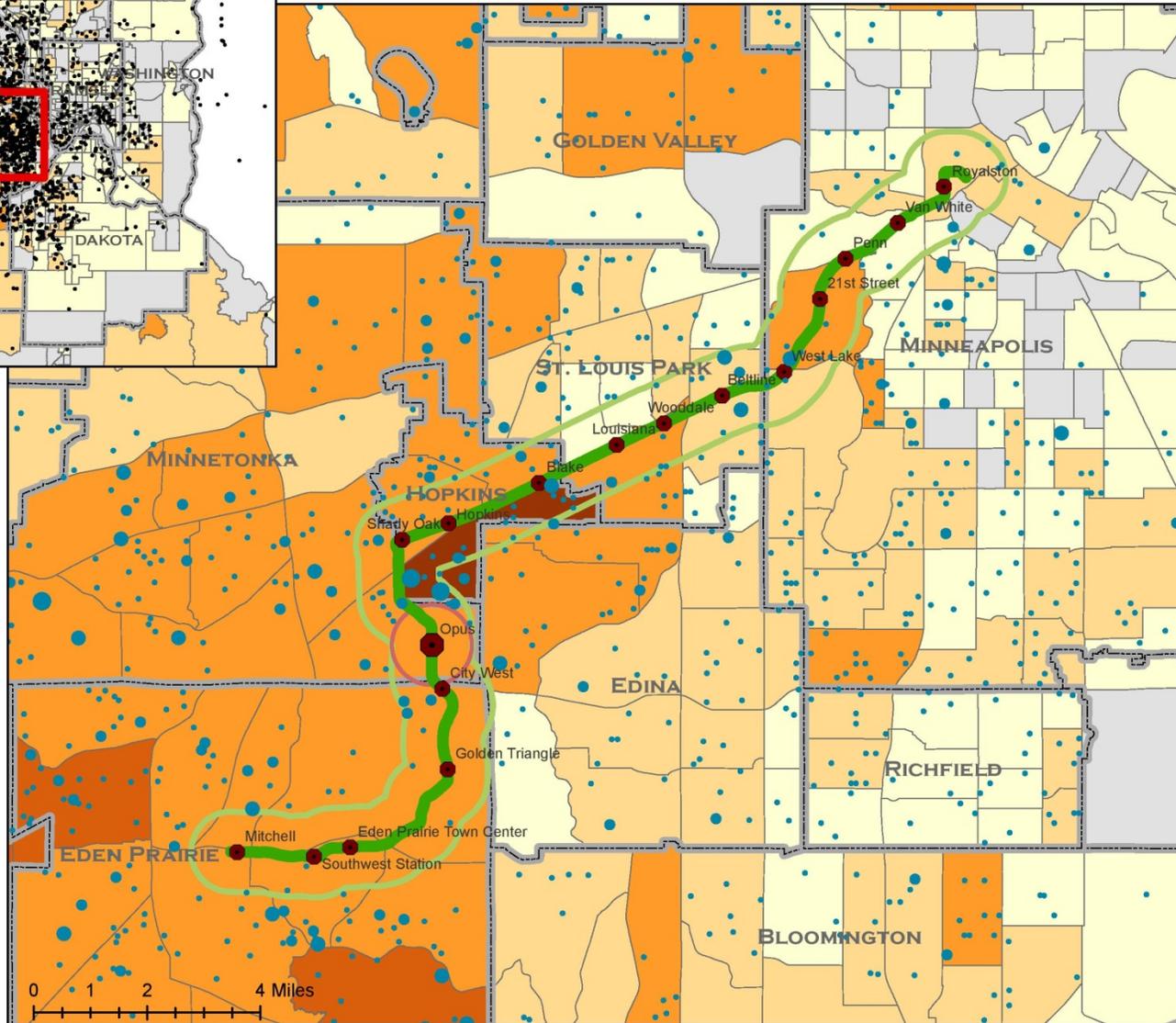
Worker From	Count	Share
Within 1/2 mile of SW LRT	110	3.7%
Less than 10 miles	1,312	44.6%
10 to 24 miles	1,208	41.0%
25 to 50 miles	284	9.6%
Greater than 50 miles	141	4.8%
Minneapolis	266	9.0%
Eden Prairie	189	6.4%
Minnetonka	150	5.1%
Plymouth	124	4.2%
Bloomington	108	3.7%
Shakopee	91	3.1%
St. Paul	86	2.9%
Maple Grove	82	2.8%
St. Louis Park	82	2.8%
Edina	77	2.6%
All Other Locations	1,690	57.4%
Total	2,945	100.0%

Legend



Source

U.S. Census Bureau, Center for Economic Studies
OnTheMap Application
LEHD Origin-Destination Employment Statistics
MetroGIS



Resources

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