5. The Freight Network

The movement of freight is an important aspect of transportation in and around the Lincoln Park neighborhood. The study area has a number of important regional freight corridors passing through its boundaries and it also is home to several commercial and industrial activities that rely on the movement of shipments to and from their facilities.

This chapter provides a summary of existing conditions and future opportunities facing the transportation of freight in the Lincoln Park neighborhood. It looks at issues related to the design, operations, and maintenance of publicly funded, freight-based surface transportation assets in the neighborhood.

Image source: MIC (2015)

Figure 5.1 | Heavy truck traveling on US 53 in Lincoln Park.

Network Design & Function

The freight network in Lincoln Park consists principally of on-street, designated truck routes. There are approximately eight miles of rail line within the study area that serve mostly the movement of freight. There are direct rail connections to the CN ore docks and WLSSD sites at the waterfront. The CN ore docks (Figure 5.2), in particular, reflect a significant multi-modal facility in the neighborhood where freight is transferred from rail to waterborne transport.

Image source: Google Earth (2015)

Image source: MIC (2015)

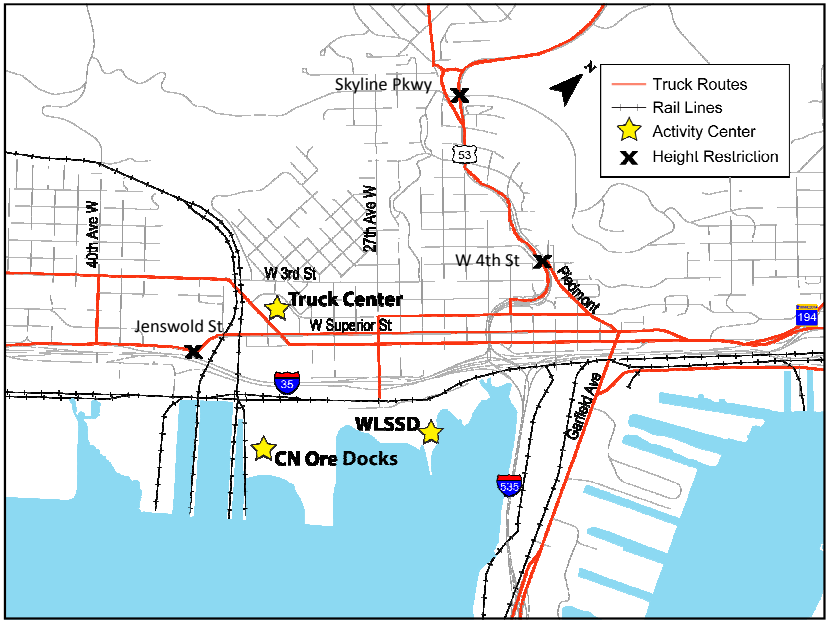
Figure 5.2 | The CN ore docks

The CN ore docks at the southern end of the Lincoln Park neighborhood provide a direct rail-to-ship connection for the shipment of iron ore from the region.

Map 5.1 on the following page shows the location of the rail lines and designated truck routes in the neighborhood. The rail lines in in the neighborhood represent privately held investments, so the rest of this chapter will focus primarily on the on-street truck routes.

Designated Truck Routes:

There are approximately 12 linear miles of designated routes within the Lincoln Park study area (shown in Map 5.1). While heavy trucks are legally allowed to travel on virtually all State Aid eligible



Map 5.1 | Rail lines, designated truck routes, and intermodal facilities in the Lincoln Park study area

Lincoln Park contains segments of truck routes and railways of both regional and local importance. Some impediments to freight movements also exist within the study area.

roadways in order to have access to business sites and to serve residences, the expectation is that majority of truck traffic will utilize the designated routes. The designated routes represent a select number of arterials and collectors for which heavy truck traffic is to be concentrated in the interest of minimizing impacts to residential areas and to help preserve the longevity of the city's other street pavements.

Access & Connectivity

Map 5.1 shows how the truck routes within Lincoln Park provide access to the interregional corridors of I-35, I-535, US 53. Also, these routes are part of a local roadway network that, as discussed in Chapter 4, provide multiple points of access to those regional corridors. Such redundancy in access, however, does not exist for the two activity centers that have rail connection in the study area: the ore docks and WLSSD. Both facilities would benefit from an additional access to Courtland Street.

Truck Center Drive:

A third center of activity with an important connection to the truck routes within the study area is the area around Truck Center Drive (see Figure 5.3). Historically, efforts were undertaken to promote that area as a concentration of businesses serving truck freight, and the form of the adjacent streets reflect this. Truck Center Drive itself is a one-directional, four-lane circulator designed to provide efficient movement of semi-trailer trucks. While there is no guarantee that market conditions would sustain truck-related businesses there into the future, the City of Duluth

Image source: Google Earth (2015)

Figure 5.3 | Relation of Truck Center Drive to truck routes

Truck Center Drive was designed to serve a concentration of heavy truck related businesses and provide efficient access to the interstate. Changes in adjacent land use patterns and street designs risk working against the effective use of this transportation asset.

should recognize the existing infrastructure is a tangible transportation asset that is valuable for existing businesses, but also future economic development potential. As such, efforts should be made to protect efficient connections between this area and the regional corridors.

The connection of W 1st Street to this area is an example of the types of small changes that can work against this goal. Prior to the last reconstruction of the segment of W 1st Street between Truck Center Drive and 22nd Avenue W, commercial trucks could exit US 53 onto W 1st Street and take it directly to Truck Center Drive. Upon reconstruction, the street was narrowed and signed "No Trucks" (see Figure 5.4) for the benefit of the residences along it. While perhaps justified, the change now requires truck traffic to route through the CBD, move through a number of stops along Superior Street, and navigate a number of corners.

Image source: Google Maps (2015)

Figure 5.4 | Restricted commercial truck traffic on W 1st St

W 1st Street is potentially a direct and efficient connection between US 53 ramps and Truck Center Drive, but the street was narrowed and signed "No Trucks" during its last reconstruction.

Weight & Height Restrictions:

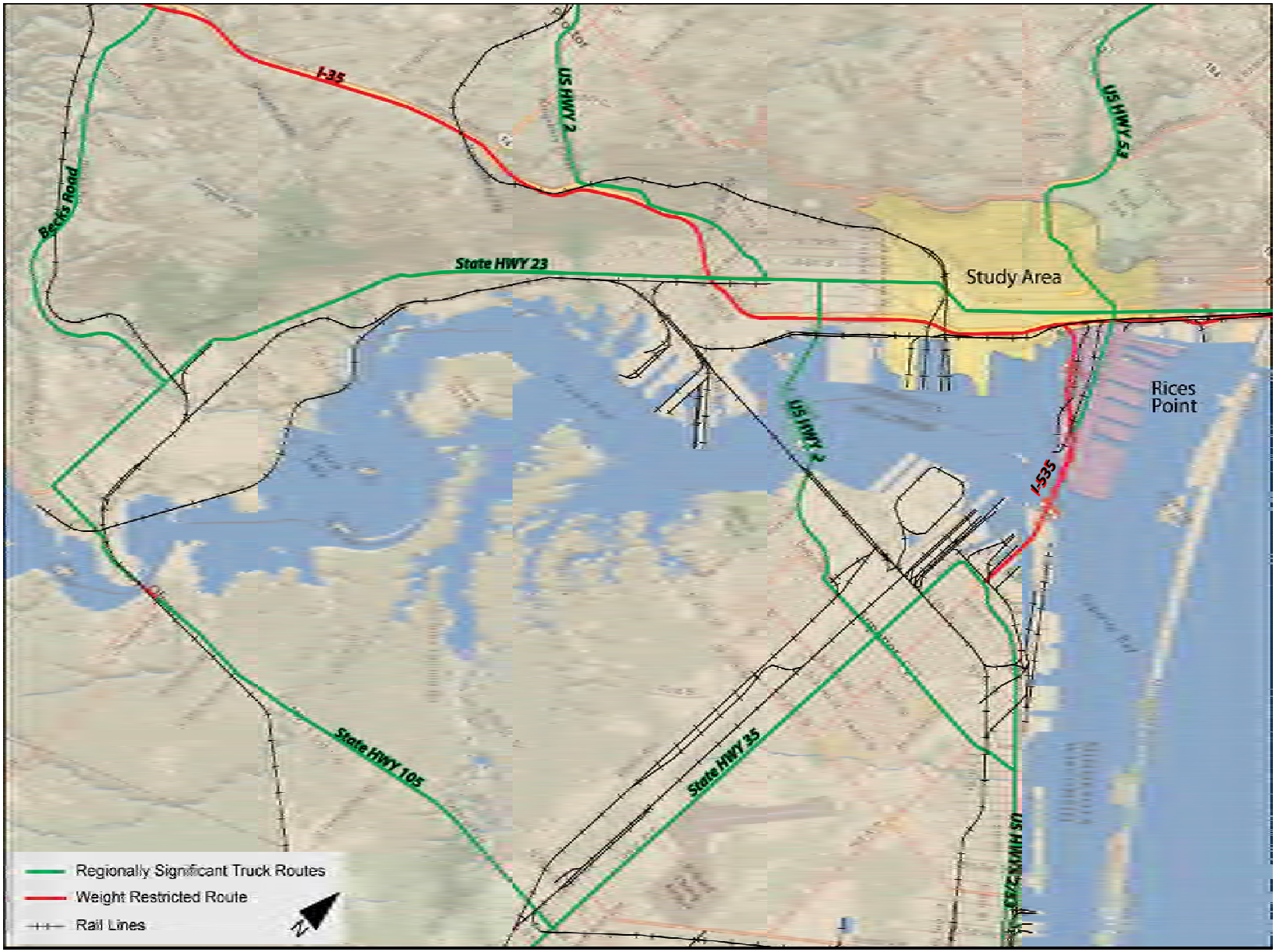
While I-35 and its associated freeway ramps are recognized as truck routes, federal weight restrictions for vehicle loads apply to these facilities. Federal law limits vehicle weights to 20,000 lbs per axel or 80,000 lbs gross vehicle weight to all segments of interstate highway in the Duluth-Superior metro area (i.e. I-35 and I-535). The State of Minnesota has similar restrictions for the State Trunk Highway system, but does allow for the movement of loads in excess of 80,000lbs via a permitting process.

Occasionally, there is demand to move such loads through the Lincoln Park study area. At times, that demand directly connected to port related operations on Rices Point, which is located directly southeast of the Lincoln Park neighborhood. From that perspective, the non-interstate truck routes through the study area are very important transportation assets to the local and regional economy.

In light of the weight restrictions on I-35 and I-535, Lincoln Park contains two vital links for oversized/overweight (OS/OW) freight movements: US 53 and Superior Street (see Map 5.2 on the following page). Without these connections, OS/OW loads cannot leave or enter Rices Point by road.

Height restrictions are another important issue within the study area. There a few bridges under which loads taller than 25 feet high cannot pass. Two of these brides exist on US 53 (one at Skyline Parkway and another W 4th Street) and another on Jenswold Street/ W Superior Street – each located on a designated truck route (see the locations denoted by "X" in Map 5.1 on the previous page).

If such loads need to travel on US 53, they need to bypass the the West 4th Street Bridge using "Lower" Piedmont Avenue (see Figure 5.5 on page 57). In order to bypass the Skyline Parkway Bridge, the "upper" segment of Piedmont Avenue is required (see Figure 5.6 on page 57). Even though direct access onto the upper segment of



M a p 5.2 | Regional truck routes and weight-restricted segments

Federal weight restrictions on I-35 and I-35 (shown as red in the map) require overweight trucks to use segments of the local network in Lincoln Park to connect to the regional truck routes for overweight loads (shown in green).

Piedmont Avenue from US 53 is restricted with bollards, those bollards can be temporarily removed in the event of a high-clearance load. The segment can also be used for the temporary staging of OS/OW loads if they run into difficulties climbing the long hill because of mechanical issues or adverse road conditions (see Figure 5.6). This multifunctional aspect makes this short segment a very important transportation asset in the Lincoln Park neighborhood that is worth protecting in the event of any future development of adjacent parcels of land.

The third bridge that is a barrier for high-clearance loads is the historic railway bridge that crosses Jenswold Street (refer to Map 5.1 on page 54 and Figure 5.7 at lower right). Jenswold Street would be a preferred truck route over the alternative route on Garfield Avenue because it runs through a non-residential area, has less traffic, contains less traffic stops, and requires fewer turning movements. The 14' clearance of the bridge, however, is insufficient for large loads. Though the bridge is recognized as historically significant, opportunities to either raise the structure and/or lower the roadway to allow for the MnDOT recommended clearance of 16' for freight corridors should be explored.

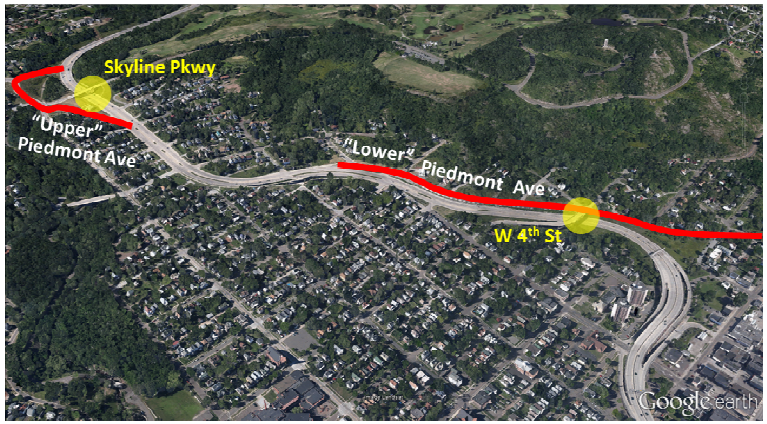


Image source: Google Earth (2015)

Figure 5.5 | Bypass connections for oversize/overweight loads on US 53

Remaining segments of the old Piedmont Avenue now provide important routes to navigate oversized/overweight truck loads around the overpasses on US 53.

Image source: Google Earth (2015)

Image source: MIC (2014)

Figure 5.6 | OS/OW staging area on "Upper" Piedmont Avenue

An "upper" section of the old Piedmont Avenue allows for both the bypass of a height restriction and a staging area for oversized truck loads..

Image source: Google Earth (2015)

Image source: MIC (2014)

Figure 5.7 | Height restriction on Jenswold Street

The historic rail bridge on Jenswold Street is of insufficient height for truck loads above 13.9 feet tall.

Travel Demand & Mobility

Travel demand for commercial freight traffic within the Lincoln Park study area is not easy to discern. Count data are limited to a handful of roadway segments and typically do not include details about the types of trucks in the wide range of vehicles that make up those counts. The remainder of this section describes travel demand patterns regarding these vehicles, noting that limited data is available.

Heavy Vehicle Classification:

MnDOT's classification scheme and definition for heavy commercial vehicles was used for this study: any truck with at least two axels and six tires is considered a heavy truck and is included in MnDOT's heavy commercial annual average daily traffic (HCAADT) data. According to that definition, heavy trucks fit into the classification types 5 through 13 shown in Figure 5.8.

Trends in travel demand:

While data of vehicle counts by class type is limited to only a few road segments in the study area, crash data by vehicle type could be considered as proxy data, indicating a relative "presence" of truck types in the neighborhood. To that end, Figure 5.9 is presented as a comparison of truck crash percentages for the Lincoln Park study area with those of the City of Duluth at large. That data would suggest that heavy trucks represent 6.5% of the traffic in Lincoln Park, compared to 3.9% within the city at large. Although it is difficult to say with certainty what portion of the daily traffic in Lincoln Park is made up of heavy trucks, observations made during site visits throughout the neighborhood support the notion that there is a strong presence of these vehicles on a variety of street types throughout the day (see Figure 5.10 on the following page).

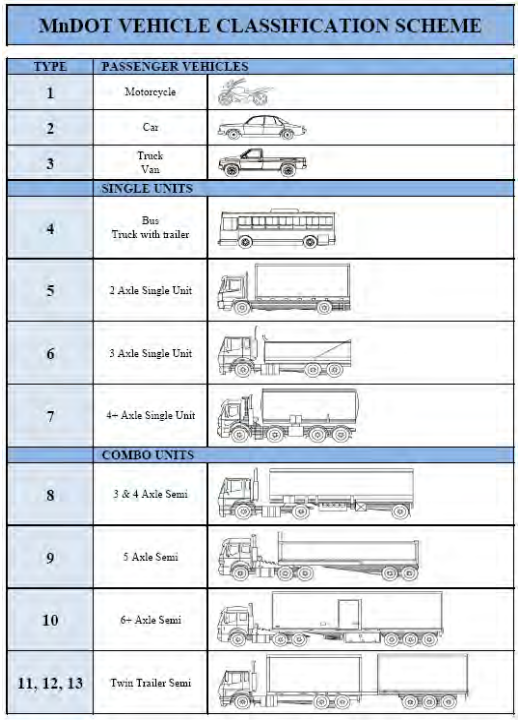
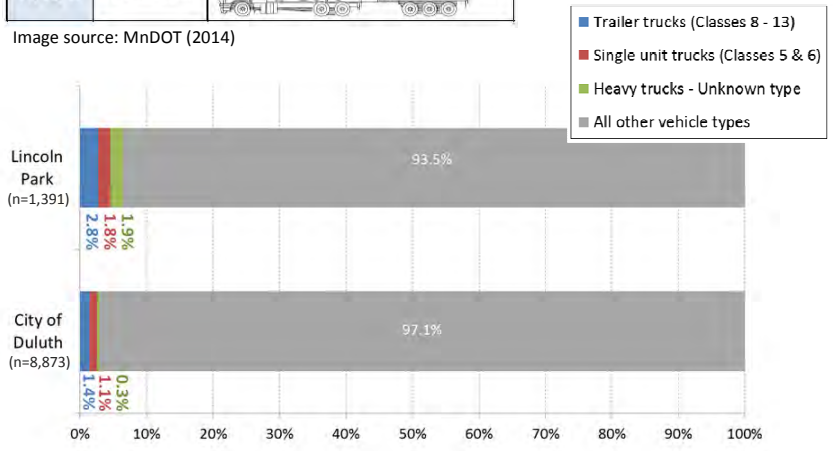


Image source: MnDOT (2014)

Figure 5.8 | MnDOT Vehicle Classifications

Classification types 5 through 13 shown above were all considered as "heavy trucks" in the Lincoln Park study.



Data source: MnDOT Crash Mapping Analysis Tool (2014)

Figure 5.9 | Percentage of heavy vehicle crash incidents in the Lincoln Park Study Area (2009-2013)

Heavy trucks represented 5.8% of all vehicle crashes in the study area, compared to 2.5% of crashes city wide.

Image source: MIC (2014)

Figure 5.10 | Heavy truck traveling on Superior Street in the Lincoln Park CBD

During this study, heavy trucks were observed on a variety of roadways in the neighborhood. The image above shows a semi -tractor truck traveling on Superior Street in the neighborhood's central business district (CBD).

Ten years of HCAADT counts on the MnDOT managed facilities in the neighborhood show that heavy trucks have been between 4.6% and 8.3% of the daily traffic (see Map 5.3 and Table 5.1 on page 60). For the segments of US 53, this means around 850 heavy trucks per day. For I-35, daily truck counts averaged well above 2,000 per day. It is interesting to note that these percentages of heavy truck traffic on these principle arterials are fairly consistent with the percentage of heavy truck crashes in the neighborhood shown in Figure 5.9 on the previous page.

Over the years, heavy vehicle volumes appear to have waxed or waned on the different principle arterial segments in and around the neighborhood. Truck traffic on the Blatnik Bridge (I-535), for instance, experienced a 1.3% drop in HCAADT since 2002. In contrast, the segment of I-35 just north of the Blatnik Bridge had a 1% increase in truck traffic over the same period.

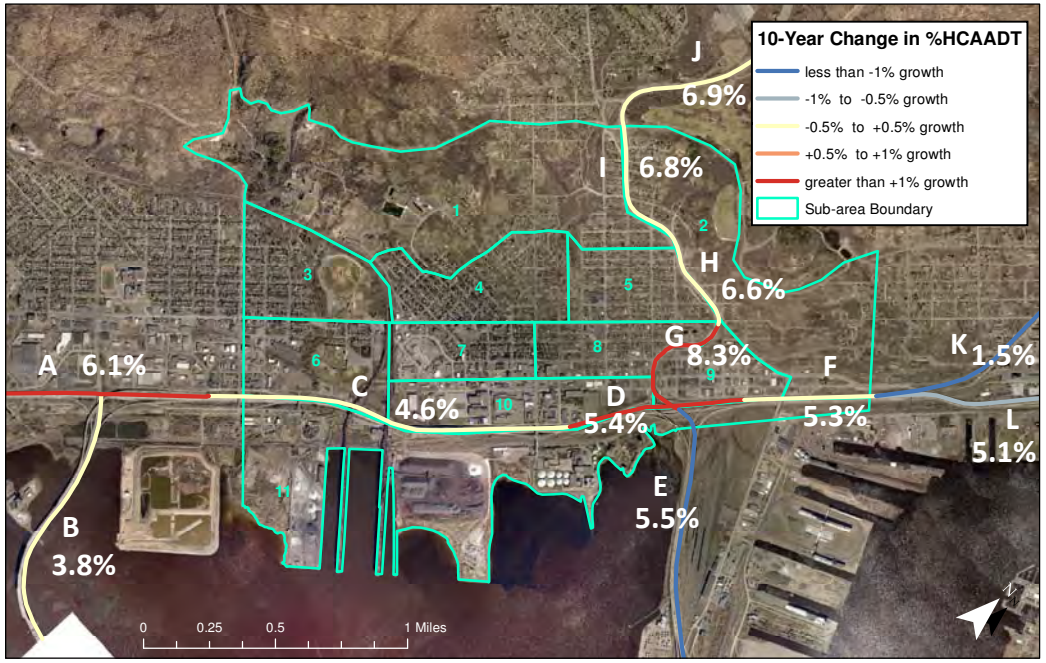
Map 5.3 on the following page shows the variation in HCAADT trends in and around the Lincoln Park neighborhood. It can be seen that the greatest increase in heavy truck traffic occurred within the segments of I-35 (Segment D) and US 53 (Segment G) directly adjacent to the Lincoln Park CBD (Sub-area 9). Though it is difficult to say without heavy trunk counts on the adjacent neighborhood streets, the data suggests there has been an increase in the amount of heavy trucks accessing the neighborhood via the ramps in that area. An increase in trucks circulating through that part of the neighborhood is a trend worth watching, as it can have implications for the efficient integration of other activities and modes of travel there.

As seen in Figure 5.11 below, the location of freeway ramps and the Superior Street/Garfield Ave intersection - a key point of access to regional truck routes - make heavy truck traffic through the CBD inevitable. The presence of a one-way segment of Michigan Street, however, is a much less permanent feature. That street segment fronts a number of light industrial operations served by trucks. MIC staff reached out to a number of those

Image source: Google Earth (2015)

Figure 5.11 | Key intersections and One-way segment in the Lincoln Park CBD

Truck traffic through the Lincoln Park CBD is influenced by the location of the freeway ramps and key intersections (such as Superior St & Garfield Ave) for accessing regional truck routes.. The presence of a one-way segment of Michigan St also dictates how trucks access the light industrial uses in that part of the CBD.



Map 5.3 | Percent of traffic that is heavy trucks & 10-yr change in that percentage (year 2012)

This map represents the percent of average daily traffic in on MnDOT highway segments in 2012. The letters in the map correspond to data in Table 5.1 below. The slight growth in *percent-truck-traffic* near 46th Ave W (Segment A) and the "Can of Worms" interchange (segments D and G) suggests more of the area's heavy truck traffic may be accessing the Lincoln Park neighborhood than in previous years.

Segment	Highway	AADT 2002	HCAADT 2002	% AADT	AADT 2007	HCAADT 2007	% AADT	AADT 2012	HCAADT 2012	% AADT	10-YR Change in %HCAADT
A	I-35	45,000	2,130	4.7%	43,000	2,504	5.8%	44,500	2,700	6.1%	1.3%
B	Bong Br (US 2)	17,600	670	3.8%	17,700	678	3.8%	16,300	620	3.8%	0.0%
C	I-35	40,800	1,880	4.6%	48,000	2,208	4.6%	42,500	1,950	4.6%	0.0%
D	I 35	43,800	1,910	4.4%	52,600	2,564	4.9%	44,500	2,400	5.4%	1.0%
E	Blatnik Br (I-535)	28,100	1,910	6.8%	29,560	2,006	6.8%	22,800	1,250	5.5%	-1.3%
F	I-35	55,600	2,750	4.9%	59,000	1,239	2.1%	51,000	2,690	5.3%	0.3%
G	US 53	16,300	1,040	6.4%	15,500	1,182	7.6%	16,300	1,350	8.3%	1.9%
H	US 53	13,200	860	6.5%	19,000	1,495	7.9%	18,800	1,250	6.6%	0.1%
I	US 53	12,600	820	6.5%	18,100	1,414	7.8%	19,900	1,350	6.8%	0.3%
I	US 53	13,200	860	6.5%	15,600	1,191	7.6%	15,300	1,050	6.9%	0.3%
K	STH 194	17,900	470	2.6%	21,900	328	1.5%	24,400	375	1.5%	-1.1%
L	I-35	37,700	2,240	5.9%	37,100	3,105	8.4%	35,020	1,800	5.1%	0.8%
									Area Average	*5.5%*	*0.2%*

Table 5.1: | AADT and HCAADT Comparisons for years 2002, 2007, and 2012

Ten years of traffic data on MnDOT roadways within the study area suggest that heavy trucks represent an average of daily traffic in the area. The segment of US 53 nearest the on/off ramps in the neighborhood CBD (segment G) stands out as having the greatest increase in percent truck traffic.

operations to determine the benefit or impact of that one-way segment on their businesses, and received little return input. Reverting the segment back to two-way could provide greater flexibility and accessibility with respect to the key access points. It could reduce the travel distances required of heavy trucks within the CBD, as well as the number of those trucks traveling, or navigating intersections on Superior Street, where there is a greater potential for conflicts with other modes of transportation.

Superior Street & Garfield Avenue intersection:

It is believed that there is a potential for increased conflicts between heavy trucks and other modes of transportation at the intersection of Superior Street & Garfield Avenue (see Figure 5.12). As mentioned, this is an important intersection for accessing the key designated truck routes: Piedmont Avenue and Garfield Avenue.

For similar reasons, the intersection is also an important one for passenger vehicles and public buses. It is a major transfer point for DTA transit riders to cross the harbor to Superior, WI. Also, where key transit stops exist, there is significant pedestrian crossing demand.

Figure 5.12 | The intersection of Superior Street & Garfield Avenue

The intersection of Superior St & Garfield Ave is a key intersection for accessing regional truck routes.

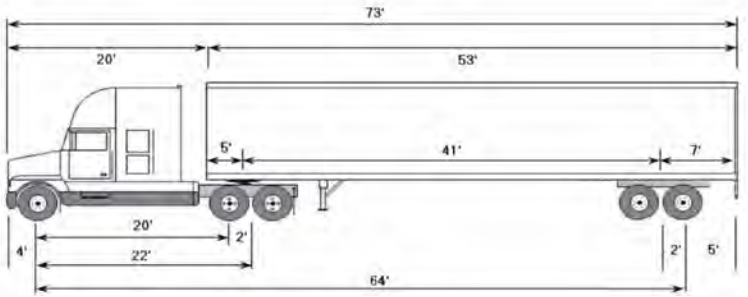
One distinguishing characteristic of the intersection is that it is very large, with crossing distances in excess of 85 ft. This is especially important for the navigation of OS/OW loads through the intersection, but it is not ideal for pedestrian crossings. Meanwhile, recent proposals for new multi-family residential developments adjacent to the intersection suggests that increased demand from all modes is likely to occur in coming years. For this reason, both the City of Duluth and the DTA should coordinate with other stakeholders in an effort to optimize conditions for these various transportation user groups at this intersection.

27th Avenue W – Operations at Superior Street and Michigan Street:

Another location of concern regarding intermodal conflicts with truck traffic in the study area are the intersections of 27th Avenue W on Superior Street and Michigan Street. As discussed in Chapter 4, the close proximity of these intersections raises concern about queue lengths. Those concerns are amplified when the length of semi-trailers are added to the mix.

As illustrated with Figure 5.13 and Figure 5.14 (next page), there is

Figure 5.13 | Length dimensions of a typical semi-trailer truck



not enough room to fit two semi-trucks of the typical 73-foot length between the stop bars of the opposing intersections. While the analysis offered in Chapter 4 indicated there is enough room available to accommodate current peak traffic demand, those conditions could easily be disrupted with an increase in PM truck traffic.

Heavy trucks were accounted for during the peak-hour traffic counts done as a part of this study. Figure 5.15 shows the counts recorded at the AM, noon, and PM peak hours of traffic (signified by the yellow bars). The portion of those counts that were heavy trucks are shown in orange. It can be seen that the greatest concentration of truck traffic occurred around the noon-hour peak and that the truck traffic tapered off during the PM peak.

Figure 5.14 | Comparison of typical semi-truck lengths with the

Image source: MIC (2014)

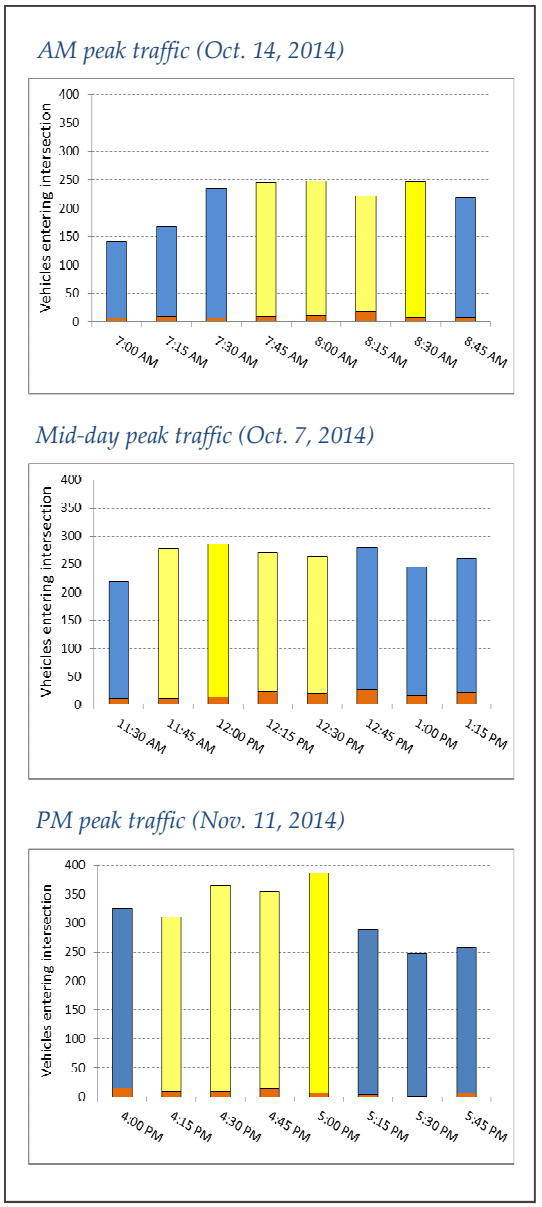


Figure 5.15 | Peak traffic counts at Michigan Street & 27th Avenue W

Weekday peak traffic volumes increase over the course of the day at the intersection, with a peak 15-minute volume of nearly 400 vehicles in the PM. Heavy truck traffic, on the other hand, was observed to top out at 26 vehicles just after the noon peak hour of traffic.

There was only one occasion during the counts when the presence of more than one semi-trailer was observed causing back-ups into the Superior Street intersection. This was during the PM peak hour, and those conditions were resolved within one signal cycle. That observation did, however, emphasize the potential for those situations to occur at those intersections. It is another reason for the City of Duluth and its area transportation partners to continue to monitor traffic conditions at these 27th Avenue W intersections.

Network Condition

The condition of road pavements throughout the Lincoln Park street network were discussed in Chapter 4. The pavement on Courtland Street was identified as a priority for repairs based on its importance in facilitating the regular movement of heavy truck traffic to and from WLSSD. The segment of 20th Avenue W between US 53 and Superior Street was also called out as a priority due to its connection to the southbound off ramp from US 53. Reconstruction of that street segment would also benefit the movement of freight in the area (refer to Map 4.12 in Chapter 4, page 50).

Chapter Conclusion

The existing assets, issues, and opportunities for freight transport that have been identified in this chapter have the following implications for the three planning perspectives established in Chapter 1:

Multi-modal integration:

A substantial amount of movement between US 53 and the neighborhood street network is occurring in the neighborhood's CBD. This is a dense area of multiple uses where there is a greater potential for conflicts to occur between heavy commercial vehicles and other users. This is something that should continue to be monitored, especially since the City's Small Area Plan (SAP) for the neighborhood aims to encourage a greater density of mixed activities - residential, retail commercial, light industrial, etc. - in the area (see Chapter 3).

The economic importance of freight to Lincoln Park should be recognized, and the existing assets that support truck-related businesses should be conceived of as a system. Efforts should be made to protect against that could negatively impact the movement of freight. City planners, engineers, and other transportation partners should remain watchful for the piecemeal aggregation of such impacts that can result from individual redevelopment or road reconstruction projects over time.

Similarly, the opportunities that exist down at the waterfront for the intermodal transfer of freight between truck and rail should continue to be protected and supported through the coordinated efforts of multiple stakeholders.

Public investment:

Two segments of poor road pavement have been identified as important with respect to heavy truck movements: 20th Avenue W and Courtland Street (see Chapter 4). Barring the urgency of more immediate pavement and utility needs in the area, the City of Duluth should prioritize the repair or reconstruction of these street segments.

It is anticipated that the area around the segment of 27th Avenue W between W 1st Street and I-35 will become a busier commercial node in the future. This growth is expected to happen incrementally. In order to accommodate increased traffic and also continue to facilitate the efficient movement of heavy trucks

through this segment, planning will be required to likewise make the appropriate incremental improvements to street design and signal operations there. A particular objective of such improvements should be to minimize the number of direct accesses along, or directly adjacent to, 27th Avenue W. The City of Duluth should also explore ways to work in partnership with future developers in order to cooperatively implement coordinated future investments in both public and private infrastructure.

A number of key assets for the movement of OS/OW loads have been identified in the study area that need to be protected and maintained in order to support economic activity throughout the region, but especially such activities in the Duluth-Superior port.

Future opportunities:

As mentioned, the area around 27th Avenue W near the interstate is likely to see substantial redevelopment in coming years. This presents an opportunity for the City of Duluth to develop a strategic plan for how to best prepare for and manage that change in ways that will continue to support efficient freight movements. The City should determine any desired redesigns of the existing public and private infrastructure in the area and be prepared in advance to engage private interests in the event of future development proposals.

Opportunities should be sought to address existing height- or weight-restricted facilities in order to improve the mobility of freight throughout the area. Specifically, opportunities to improve or bypass the height-restriction on Jenswold Street could create greater efficiency for truck movements in the area and also help reduce the amount of trucks traveling on the busier streets of Grand Avenue and 40th Ave W.

Future opportunities should also be sought to provide secondary access to the industrial activities along Courtland Street. Such opportunities might occur during a future reconstruction of the "Can of Worms" interchange (see Chapter 4). The access should be built to standards that can accommodate large loads.

6. The Transit System

Image source: MIC (2015)

Figure 6.1 | A DTA west mainline bus making a stop on Superior Street near the Garfield Avenue transfer point to Superior, Wisconsin.

Public transit is an integral part of the multimodal transportation system Lincoln Park. This chapter describes the existing network of transit routes and levels of transit service in the neighborhood. It provides an assessment of conditions related to the connectivity and accessibility of the existing transit service for transit users within the neighborhood.

Service Design & Function

Transit service in Lincoln Park is provided by the Duluth Transit Authority (DTA), which provides both fixed-route service and para-transit (or "on-demand") service throughout the Duluth-Superior metropolitan area. Whereas the fixed-route service is available to anyone, the DTA's para-transit service (a.k.a. STRIDE) is only available for riders with cognitive or physical disabilities.

There are also two inter-city transit providers that serve the Duluth-Superior metro area: Jefferson lines provides service between communities along I-35 between Duluth and the Twin Cities, and LSC Coaches provides a commuter service between Clouquet, MN and Duluth. LSC Coaches offers one morning trip to Duluth (evening trip from Duluth) Monday-Friday. Jefferson lines offers one morning arrival/departure and one afternoon arrival/departure seven days a week, including holidays. While neither line directly serves stops within Lincoln Park, both services can be accessed via the DTA routes.

Transit routes & Key transfer points:

Lincoln Park is served by eight different transit routes, which utilize 6.7 miles of streets within the study area. Approximately 4.5 miles are shared between multiple bus routes. That arrangement creates a situation where riders have many options to make transfers between

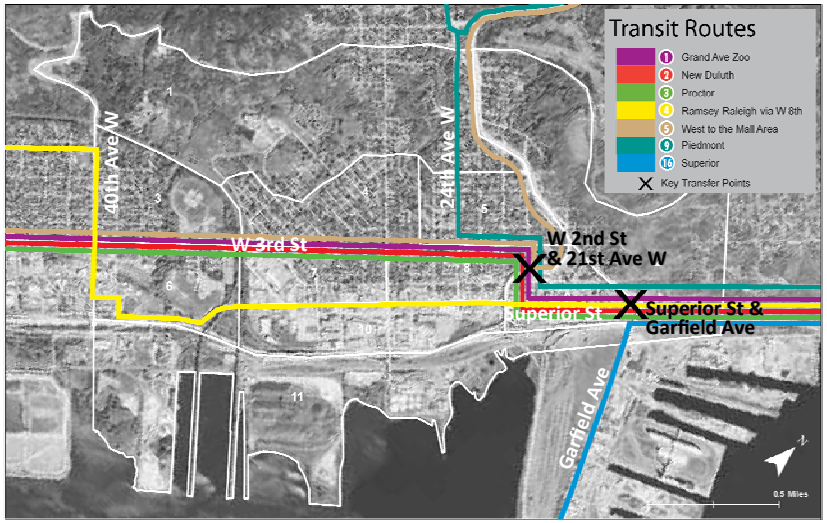
routes at a wide variety of bus stops throughout the neighborhood. Map 6.1 shows the eight route segments in the neighborhood in relation to the eleven sub-areas that were established in Chapter 3. It also identifies what are perhaps the two most important bus stops for making transfers: W 2nd Street & 21st Avenue W and Superior Street & Garfield Avenue.

The No. 1, No. 2, and No. 3 routes travel latterly across the hillside, using W 3rd Street, 21st Avenue W, and Superior Street. Those routes constitute the west mainline of the DTA's transit system, which is the part of the system that produces the greatest ridership in the Duluth-Superior metro area.

Another lateral route, the No. 4, runs along Superior Street, paralleling and providing connections above and below the west mainline. That route serves the uses along Superior Street southwest of 21st Avenue W, which are mostly commercial. It also travels up 40th Avenue W and W 8th Street, which is principally residential.

Routes No. 5 and No. 9 provide transit service up and down the hillside, using 24th Avenue W, 21st Avenue W, and US 53. Route 5 connects to Lake Superior College off of US Hwy 53, and Route 9 serves the residences between the park and US Hwy 53. Both routes provide connections between the Lincoln Park neighborhood and Lake Superior College and the Miller Hill Mall commercial center. Route 5 also provides service to the Duluth International Airport. Consequently, the bus stops nearest the US 53 ramps on 21st Avenue W are critical transfer points where riders on the mainline can wait for connecting buses to take them up the hillside. That bus stop has shelters for those who seek cover from inclement weather while waiting for their connecting buses (see Figure 6.2).

Last, but not least, is the No. 16 route, which uses Garfield Avenue to access the Blatnik Bridge (US-535) and provide service between the



Map 6.1 | Transit routes and key transfer points within the Lincoln Park study area

Image source: MIC (2014)

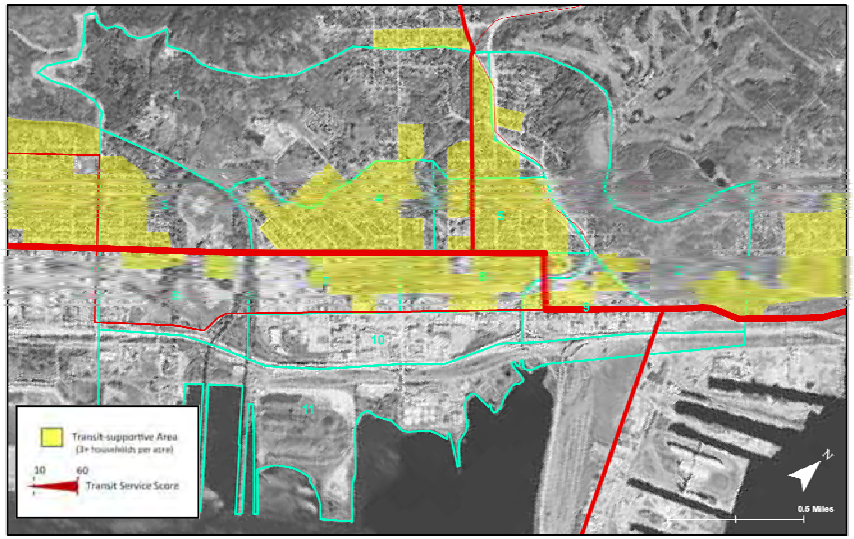
Figure 6.2 | The bus stop at W 2nd Street & 21st Avenue W

The bus stops at W 2nd Street & 21st Avenue W are important transfer points for riders making transfers between west mainline buses and buses traveling up and down the hillside.

Image source: MIC (2014)

Figure 6.3 | The bus stop at Superior Street & Garfield Avenue W

The bus stop at the southwest corner of Superior Street & Garfield Avenue is an important transfer point for riders eastbound transit riders whishing to travel to Superior, WI.



Map 6.2 | Transit-supportive areas and relative service levels of transit routes within Lincoln Park

City of Superior, WI and Downtown Duluth. The bus stop at the southwest corner of the Garfield Avenue & Superior Street intersection is likewise a crucial transfer point for eastbound riders who wish to connect with buses heading to the City of Superior. That stop also has a transit shelter (see Figure 6.3).

Observations made during this study suggest that, at times, the shelters at the two transfer points occasionally do not provide enough space for the number of passengers who wait there during inclement weather.

Service coverage:

One way of assessing the suitability of how transit routes are designed is to apply the concept of transit-supportive areas. The Transportation Research Board (TRB) has recommended a density of 3 or more households per acre as a standard measure of whether an area is transit-supportive or not. The TRB has also established a walking distance of ¼ mile (approximately three city blocks) from a busway as a threshold value that most people are willing to walk to access transit. Using the same criteria, Map 6.2 at right shows the location of DTA route segments within the Lincoln Park study area and sub-areas that were discussed in Chapter 3. The segments overlay the transit-supportive areas (areas in yellow) identified in the neighborhood. More than 90% of those areas are within three blocks of a busway, and therefore service coverage is considered good in Lincoln Park.

Service availability:

Map 6.2 also displays the route segments using different line widths. The line widths represent the relative service availability based on a combination of the service span (i.e. daily hours of service), the frequency of service, and the number of individual bus routes that use the segment. For the purposes of conducting a general planning-level assessment of service quality, these characteristics were indexed and combined into a relative "service score" (see Table A.1 (page 136) in this document's appendices). When considering those relative scores

against the backdrop of the transit-supportive areas, it can be seen that the route segment with the greatest level of service – the west mainline (W 3rd Street, 21st Avenue W, and Superior Street) – is optimally located to serve the concentrations of transit-supportive areas in the Lincoln Park neighborhood. It is worth noting, however, that the same level of service coverage does not exist in adjacent areas directly outside the study area.

Service span:

The hours within the day during which transit service is provided are another important element in the design of transit service. Figure 6.4 compares the total weekly hours of operation for each of the routes in Lincoln Park, while Table 6.1 (at right) breaks down those totals down by the hours each route is operating during the week, on Saturdays, and on Sundays. These parameters are important because the value of a service to users is in having it available at the times they need it.

From Table 6.1, it can be seen that the service span of nearly every route is reduced by approximately 20% on Saturdays, and - for a majority of them - are cut by about 50%, or eliminated completely on Sundays. The Route 1 buses do not run at all on the weekend, which is okay, since the other mainline routes (2 and 3) continue to operate. However, Route 4 is not offered at all on Sundays, and Route 5 to the Airport only operates for approximately 5 hours.

The TRB has offered a level-of-service (LOS) range for service span that is similar to the one shown for automobile travel in Chapter 4 on page 43. That range is shown in Table 6.2. TRB states that transit service becomes fairly inflexible at a service span of 12 to 13 hours (LOS D) for riders who need earlier or later access to destinations.

Although the DTA and MIC have heard public requests for transit service to run later on weekdays and on the weekends, it was not something that was heard much during the stakeholder engagement efforts for this study (see Chapter 2). Because the Lincoln Park

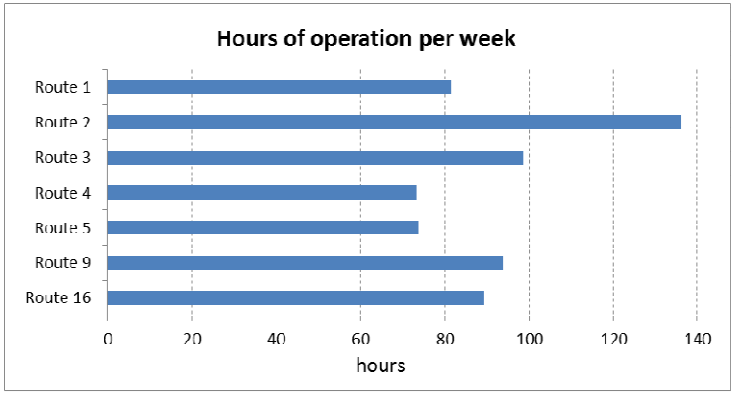


Image source: Google Earth (2015)

Figure 6.4 | Hours of operation for transit routes traveling through the Lincoln Park study area

Route No.	Description	Weekday	Saturday	Sunday
1	Downtown to Zoo	5:30a to 9:50p *(16 hrs, 20 min)*	*No service*	*No service*
2	Downtown to New Duluth	4:29a to 1:16a *(20 hrs, 47 min)*	6:39a to 11:50p *(17 hrs, 11 min)*	7:39a to 10:40p *(15 hrs, 1 min)*
3	Downtown to Proctor	5:40a to 9:10p *(15 hrs, 30 min)*	5:57a to 6:55p *(12 hrs, 58 min)*	10:04a to 6:26p *(8 hrs, 22 min)*
4	Downtown to Zoo	5:57a to 6:55p *(12 hrs, 58 min)*	9:16a to 5:45p *(8 hrs, 29 min)*	*No service*
5	Airport to Mall Area to Zoo	7:50a to 7:38p *(11 hrs, 48 min)*	9:41 to 7:27p *(9 hrs, 26 min)*	12:59p to 6:24p *(5 hrs, 23 min)*
9	Downtown to Mall Area	6:01a to 9:25p *(15 hrs, 24 min)*	8:45a to 6:10p *(9 hrs, 25 min)*	10:45a to 6:10p *(7 hrs, 25 min)*
16	Downtown to Itasca (Superior)	5:52a to 7:26p *(13 hrs, 34 min)*	6:44a to 7:35p *(12 hrs, 51 min)*	10:44a to 7:20p *(8 hrs, 36 min)*

Image source: Google Earth (2015)

Table 6.1 | Hours of operation for transit routes traveling through the Lincoln Park study area

Hours of service	LOS Rating
19-24	A
17-18	B
14-16	C
12-13	D
4-11	E
0-3	F

Table 6.2: | Level of Service (LOS) ratings for hours of transit service available

neighborhood has a substantial amount of low-income households, however, it is believed that a number of residents could be interested in using transit to access early morning (e.g. before 6am) or late evening (e.g. after 10pm) job opportunities, both during the week and on weekends.

Service frequency:

The frequency of buses is another crucial aspect of service design. It has implications regarding how long people have to wait for a bus, or how convenient it will be to make connections with other routes. Route frequency can have significant impacts on how a rider can plan out the other activities of their day, and whether they can even access activities due to timing.

For the routes in the Lincoln Park study area, the wait times (a.k.a. headway) between DTA buses vary throughout the day and between routes. Buses run more frequently on the weekdays during, and during peak travel periods. Figure 6.5 on the following page displays the number of buses that run per hour in the neighborhood, by route, for Weekdays and Saturdays. The set of graphs show that, with the exception of the west mainline segment (Routes 1, 2, and 3) the frequency of buses is typically one or two per hour during the non-peak periods. This means average headways of between 30 minutes and 1 hour, which does require transit users to significantly plan their day's routines around the bus schedule and potentially endure long wait times, especially if failing to meet necessary connections to other buses.

Research compiled by the TRB indicates that 20 minutes is a maximum desirable wait time for transit riders, and that headways longer than 20 minutes represent lower levels of service, unattractive to non-transit-dependent riders. That said, the MIC encountered almost no negative input about the frequency of Lincoln Park bus service during stakeholder outreach for this study. A couple of comments were received, however, regarding the timing of transfers to/from the Route 5 and Route 9 buses at the W 2nd Street & 21st Ave W transfer point. Riders have reportedly missed their connections at this location on occasion because buses did not arrive on time. A study of the daily schedules of the various routes show that, throughout the weekday, for instance, there are seven occurrences where westbound mainline buses arrive with 1 minute or less for riders to connect with the Route 9 bus, and ten more occasions where those riders have 6 minutes or less.

At the time of this study, the DTA was undertaking a system-wide modeling effort of routes and route timing and were looking at ways to improve the reliability of transfer times at the 21st Ave W stop as part of that effort. Pending the results of the modeling, the MIC is disinclined to make recommendations regarding the scheduling of DTA buses, other than to say that increases in the frequency of the Route 5, Route 5 buses, Route 16 buses (if financially feasible) could potentially both increase options for riders and ameliorate situations involving tight headways.

Connectivity, Access, & Demand

When it comes to fixed-route transit, connectivity is a matter of how well the physical routes are designed to get concentrations of residents to destinations of interest within the region. Accessibility, on the other hand, is a matter of how close the transit vehicles can get to the main entries of those destinations, as well as how easy and convenient it is for riders to move between those destinations and their bus seats.

Regional connectivity:

Map 6.3 on page 71 shows how the segments of transit routes in the Lincoln Park neighborhood fit into the larger transit system for the Duluth-Superior metropolitan area. A selection of key regional destinations and activity centers are also identified on the map, and as

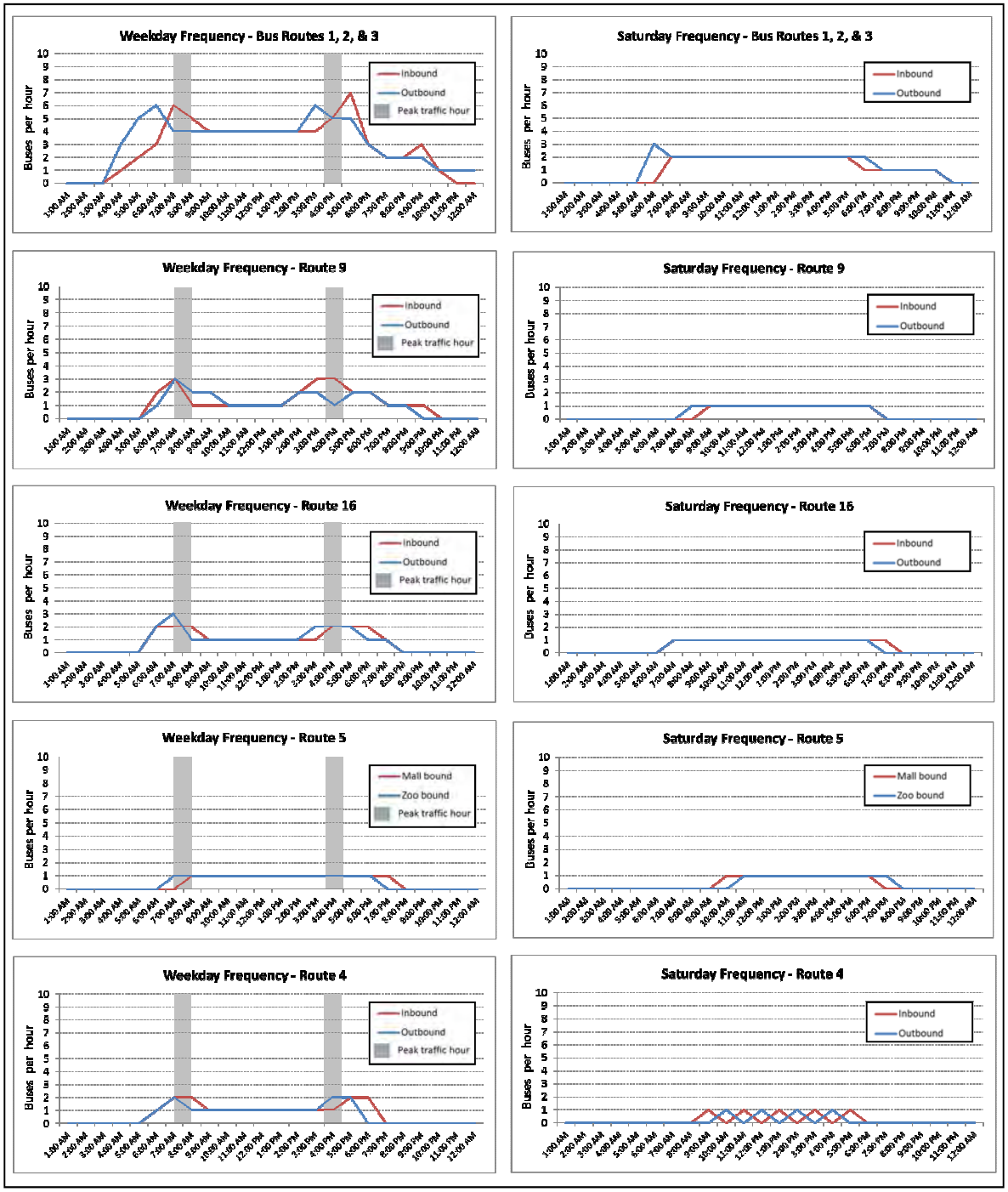
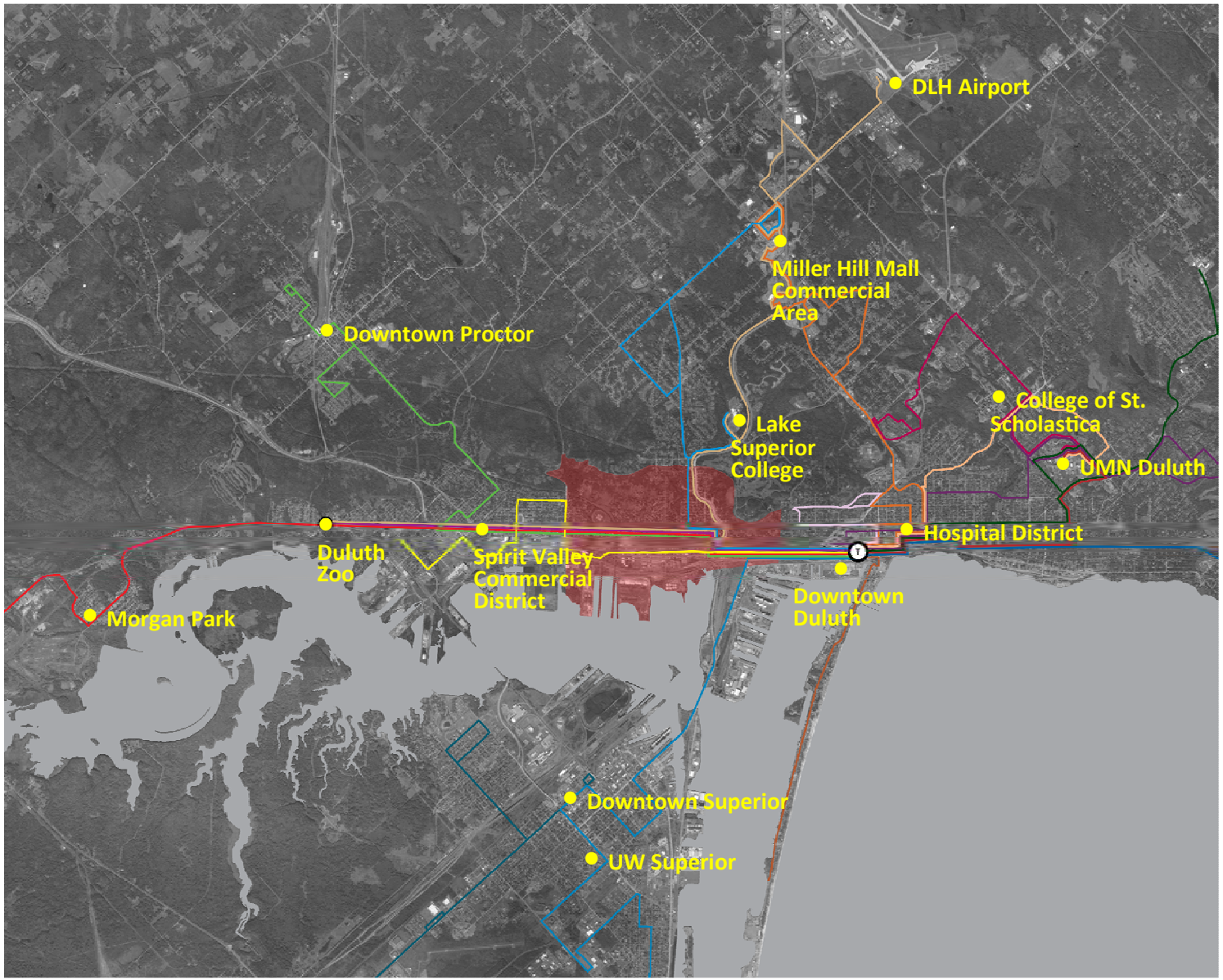


Figure 6.5 | Weekday and Saturday frequency of buses in the Lincoln Park neighborhood

Routes 1, 2, and 3 follow the same street alignments within the Lincoln Park neighborhood. Their combined operation results in a weekday frequency of four buses per hour, per direction, during the midday. Taken together, this represent the strongest level of transit service in the neighborhood. That level of service, however, is substantially reduced during the weekend—both in terms of frequency and total hours of operation.



Map 6.3 | Transit routes connecting Lincoln Park to key destinations and activity centers in the Duluth-Superior metropolitan area

In general, the DTA's Regular Route service provides the Lincoln Park study area with good connection to major activity centers in the metropolitan area.

the map shows, the DTA system provides good connectivity to those destinations. A more in-depth spatial analysis that included a wider range of destinations was conducted by the MIC which continued to support that general conclusion. However, one specific area of improvement in connectivity identified by Lincoln Park residents and other stakeholders was access to grocery stores - an important consideration, given the percentages of lower income residents and households with no vehicle ownership.

There are approximately eight grocery stores in the metropolitan area that are accessible by existing DTA routes. Access every one of those stores, however, requires Lincoln Park residents to either walk significant distances or make transfers to other route. This makes transit very inconvenient to use to shop for groceries. The nearest grocery store to the neighborhood is the Super One in the Spirit Valley commercial district. However, as seen in Figure 6.6, this store

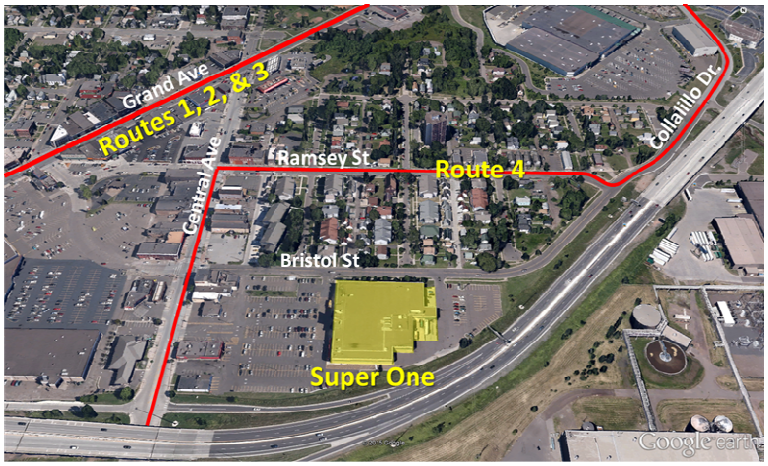


Image source: Google Earth, modified by MIC (2015)

Figure 6.6 | Location of bus lines relative to the Super One grocery store in West Duluth

The existing west mainline buses and the Route 4 buses do not provide convenient access to the closest supermarket to Lincoln Park.

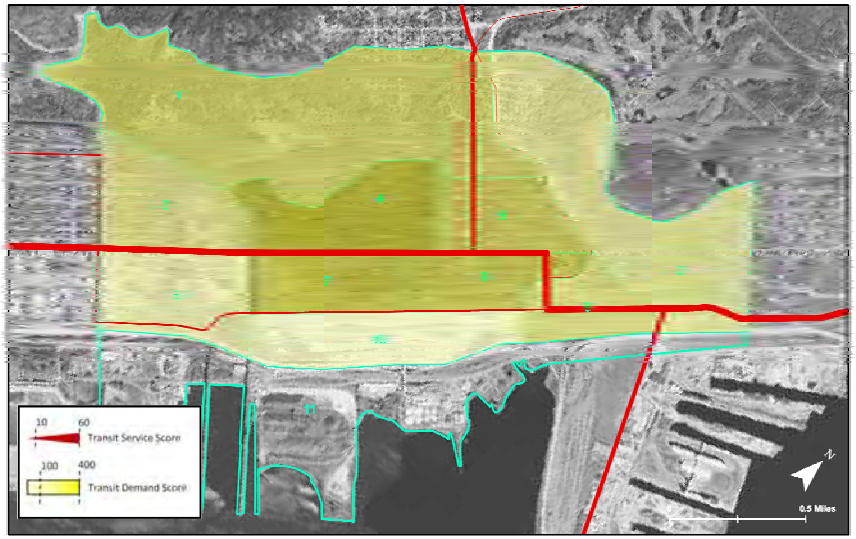
does not have ready access to/from transit. Even though the west mainline routes (routes 1, 2, and 3) are within the acceptable 0.25 mile threshold for walking distance and the Route 4 is only 0.10 miles away, both distances are still a challenge for carrying groceries. Various requests have been made to the DTA to, at a minimum, move the Route 4 from Ramsey Street to Bristol Street, but there is a residential density along Ramsey Street that produces significant ridership, including from a senior living facility with residents with ambulatory difficulties. At the time of this study, the DTA was in discussions with community organizations to explore possible solutions to improve transit accessibility to the Super One.

Neighborhood demand for transit:

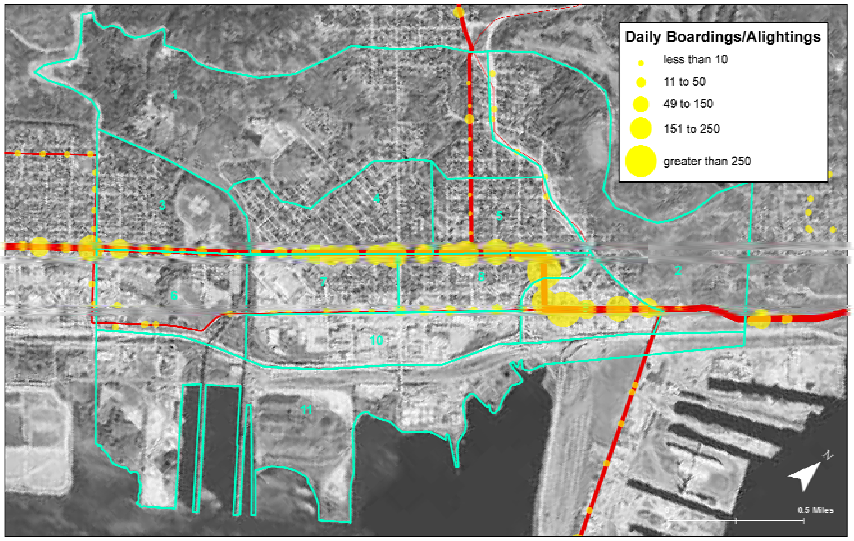
As already stated in this chapter and in Chapter 3, the demographics of the Lincoln Park neighborhood make it an important neighborhood to serve with public transit. The information on page 23 of Chapter 3 identified the concentrations of low-income, senior citizens, and those without vehicle ownership. It showed that sub-areas 4, 5, 7, and 8 stand out as having the highest concentrations of those characteristics, and are thus important from a public transit perspective.

Ambulatory difficulty and slope are two other factors that impact the accessibility of a transit route. For this study, both factors were included with the other three mentioned above in an analyzing potential local demand for transit. Using the sub-area structure established in Chapter 3, the five factors were indexed and combined to create composite scores of residential demand potential for transit for each sub-area. The results of that analysis are shown in Map 6.4 on the following page, and a table of the individual scores can be found on page 137 in the appendices of this document.

In Map 6.4, the areas with the deepest shade of yellow are those with



Map 6.4 | Geographic comparison of transit service scores with transit demand scores for Lincoln Park sub-areas



Map 6.5 | Average daily boardings and alightings at bus stops within the Lincoln Park study area

the strongest residential demand scores. Also shown in the map are the relative service scores of the different route segments in the study area. By comparing the two sets of scores, it can be seen there is a fairly good match between the position of the west mainline service and the sub-areas with the highest residential demand scores.

Map 6.5 (bottom left) shows bus stop count data that was provided to the MIC by the DTA. The different sizes of the circles in that map indicate the relative numbers of people either boarding or alighting a bus at those stops on an average weekday. When comparing the information in the map with that of Map 6.4, the residential demand scores appear fairly consistent with the DTA's count data. A slight difference is noted with respect to the strong demand in Sub-area 9. That area is the neighborhood's central business district, and thus high levels of transit activity would be expected. However, when accounting for the factors of slope and the ambulatory difficulties of the residential population in Sub-area 4, that zone has the greatest Transit Demand Score. In fact, more than half of the sidewalks in Sub-area 4 are at slopes in excess of 5% - a significant challenge for those with ambulatory difficulty. All that in mind, it is important to take note of the relative distance that residents in Sub-area 4 have to access the Route 9 connection to the mall area. Crossing a straight path from the SW edge of Sub-area 4 to 24th Avenue W is a distance of about 0.8 miles and crosses over the neighborhood's iconic park, which has its own slope issues, and no paved connections that cut cross it.

US 53 as a barrier:

US Highway 53 also represents a substantial impediment to accessing transit in the neighborhood, As a four-lane, grade separated roadway, it is difficult for residents living on its eastern side to access the transit routes on its western side. Some pedestrian-crossing elements were included as part of the 2003 reconstruction project. There are two bridge crossings and one tunnel crossings, each supported with

sidewalk connections, stairs and ramps in order to access both the Route 9 and Route 5 (see Figure 6.7). These connections are logically spaced at about 1/4 mile apart, which is appropriate, but the slope of the hillside must be kept in mind, as people are less inclined to walk distances to access transit on a slope.

A fourth connection that likely draws pedestrians is the intersection of W 10th Street because of its close and lateral proximity to the only transit shelter for Route 9 on the hillside. This intersection, however, is not signalized and provides no support for pedestrian crossings. The visibility of pedestrians to motorists is also limited due to the curvature of US 53 there. Therefore, the demand for, and safety of, crossings at this intersection should be studied to determine if and what kind of support would be needed.

The park as a barrier to transit:

Though an asset of immense value to the neighborhood, the park itself represents an impediment to accessing transit. As with Sub-area 4, the park also contains significant slopes. It runs approximately 1/2 mile up the hillside, with Miller Creek also vertically dividing much of the park into two pieces. It is not easily traversed from every point along its border, but there is a combination of paved trails, roadways, and bridges that already exist in the park that could be further built upon in order to provide a lateral connection across the middle of the park. Constructed to be ADA accessible, such a connection would help to allow a diversity of transit users to cross the park to get to the Routes 9 and 5 without having to travel all the way around the park, and minimizing the amount of slope they would have to travel. The path should be made wide enough to accommodate both pedestrians and cyclists. Since all DTA buses are equipped with bike racks, such a pathway would be a multimodal improvement for both residents and park visitors

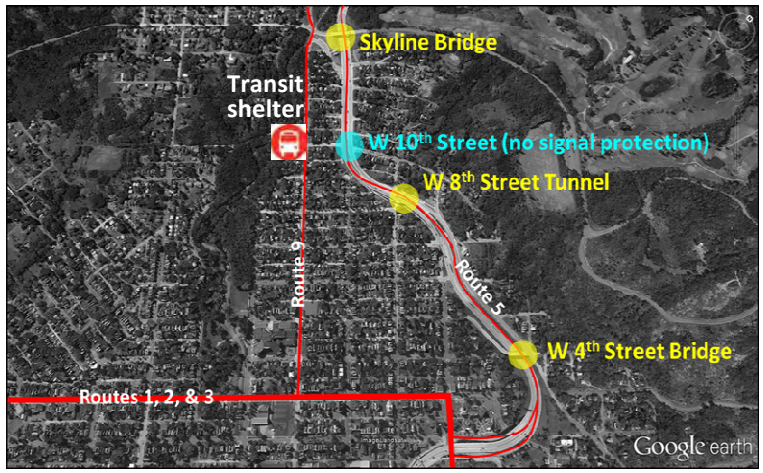


Image source: Google Earth, modified by MIC (2015)

Figure 6.7 | Pedestrian ways across US 53 to access transit

There are three established ways for pedestrians to cross US 53 without directly crossing the stream of high-speed traffic. A logical crossing spot to get to the only transit shelter on Route 9 in the neighborhood is to W 10th Street, which has no support for pedestrian crossings.

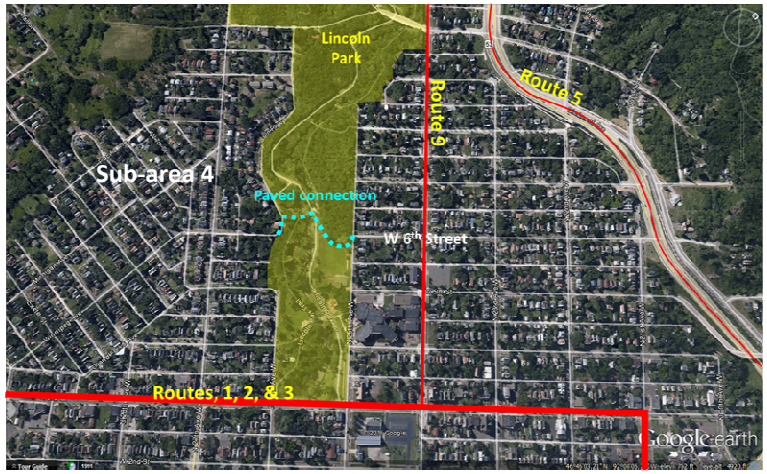


Image source: Google Earth, modified by MIC (2015)

Figure 6.8 | Suggested path across Lincoln Park to access transit

The length and topography of the iconic Lincoln Park create a unique barrier for residents living west of the park to access the mall-bound buses. Creating a paved trail connection mid way through the park could improve access.

Image source: Google Earth, modified by MIC (2015)

Figure 6.9 | Location of the middle school relative to transit

The Lincoln Park Middle School is located atop steep topography and away from the transit lines. This creates challenges for employees and parents of students who may wish to, or need to, use public transit to access the school.

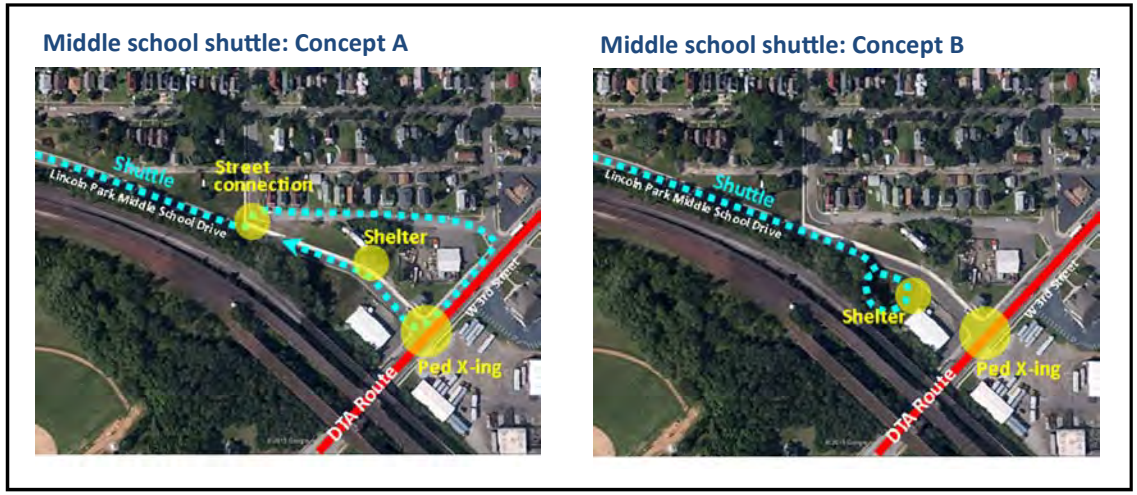
wishing to access transit. Figure 6.8 (previous page) offers one suggested alignment, using the existing bridge in the park.

Lincoln Park Middle School:

Another important challenge of connection and accessibility in the neighborhood is the isolated site of the middle school in the neighborhood. As shown in Figure 6.9, the school is located away from the transit lines. Issues of distance and slope also make walking between the school and the transit routes difficult for many people.

Lack of accessibility to the school by transit was an issue that was emphasized by stakeholders during this study. Low-income parents without personal vehicles have found it difficult to attend meetings, parent/teacher conferences, and other events held at the school, and requests have been made to the DTA to run buses to the site.

The DTA has determined that adding a trip to the school site is both cost-prohibitive and problematic for timing route connections. One possible solution that has been discussed between the DTA and



Source of images: Google Earth, modified by MIC (2015)

Figure 6.10 | Concept alternatives for a middle school shuttle / DTA bus transfer point

One possible solution for improving connectivity between the Lincoln Park Middle School and DTA service is to shuttle passengers to/from the DTA bus stop on W 3rd Street.

school officials is to enhance the intersection of Lincoln Park Middle School Drive & W 3rd Street at the bottom of the hill to serve as a transfer point between the DTA buses and a van shuttle operated by the school. Issues of topography, available right-of-way, parcel ownership, and funding would still need to be studied, but Figure 6.10 on the previous page offers two alternative concepts for the circulation of the shuttle and the placement of bus shelters for waiting riders. Concept A would require creating an access between Chestnut Street and Lincoln Park Middle School Drive. Concept B involves creating a cul-de-sac. Both concepts would require riders to walk approximately 150ft—200ft between the shuttle pick-up and the DTA stops and would be best supported with a crosswalk and enhanced pedestrian crossing treatment on W 3rd Street to increase pedestrian visibility.

Connection to Heritage Center:

Another issue of connectivity that was identified during this study was the lack of transit connection to the Clyde Iron/Heritage Center. In particular, for the benefit of youth who may be wishing to access the facility for recreational activities. Earlier requests have been made to the DTA to swing the Route 4 down to Michigan Street in order to pick up/drop off riders in front of the Heritage Center. The radii of existing intersections in the area, however, are too small to accommodate the turning buses. In light of this, the concept shown in Figure 6.11 was discussed as a solution. It aims to capitalize on an existing spur trail between the Cross City Trail along Superior Street and Michigan Street. It may be feasible to install a bus shelter along Superior Street and enhanced pedestrian crossing treatments such as a high visibility cross walk, and high visibility crossing signs to better serve those wishing to access the Heritage center by transit.

Source of images: Google Earth, modified by MIC (2015)

Figure 6.11 | Concept for transit connection to the Heritage Center

A transit shelter and enhanced pedestrian crossing could complement the existing spur trail to the Cross City Trail in order to create better connection between the Clyde Iron/Heritage Center and Route 4

Future Land Use Changes

The demand for and accessibility of transit will be affected by changes in both land use patterns and transportation infrastructure over time. Though future conditions cannot really be predicted in the present, there are a few changes currently being considered, planned, or observed which, nevertheless, have certain implications for transit in the neighborhood.

Zoning changes along Superior Street:

A number of zoning changes are being considered in the development of the City of Duluth's small area plan (SAP) for the neighborhood. Most of these would be supportive of increased transit along Superior Street. In particular, an extension of the F-5 zoning district eight blocks further southwest along Superior Street would influence future redevelopment there to follow a denser, mixed-use pattern, with buildings up to the street. Similarly, the proposal to change the industrial zoning in Sub-area 10 increases the potential for additional commercial activity in the area. The increased density and activity in that area would also likely create greater demand for service along the

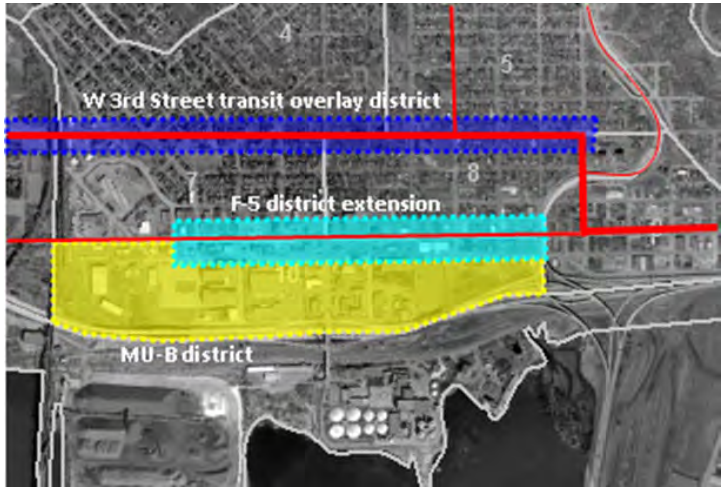


Image source: MIC (2015)

Figure 6.12 | Possible zoning changes that could support transit

Changing the industrial zoning between Superior St and I-35 to a Mixed Use-Business (MU-B) district, as well as extending the existing F-5 district would be positive for transit. Adding special transit overlay zoning to the W 3rd Street corridor would further protect the existing transit-friendly patterns there.

Image source: MIC (2014)

Figure 6.13 | Current redevelopment along the west mainline transit routes

The trend in recent redevelopment occurring further westward down the W 3rd Street/Grand Avenue corridor has been to site buildings away from the street and place sizeable parking lots in front. This trend is not supportive of walkable, transit-friendly environment.

Route 4. The locations of these areas are shown in Figure 6.12 at left. With redevelopment projects in these areas, there will be opportunities to incorporate transit amenities, such as ample waiting spaces for passengers, bus pull-outs, benches, or even transit shelters.

W 3rd Street corridor:

W 3rd Street is already a very transit-supportive corridor, but also has the potential for more mixed-use activities to develop along it in the future. This might occur through redevelopment of existing structures. However, the density and form requirements of the M-N zoning district that encompasses W 3rd Street are not as strong as the F-5 district on Superior Street, and redevelopment could actually transition to a less-dense, less transit-friendly pattern, especially further southwest along the corridor where the density begins to lessen. This is a phenomenon that is already being observed beyond the Grand Avenue & W 46th Street, where new redevelopment is taking on a more suburban and less transit-friendly form (see Figure 6.13).

Such a shift away from density would undermine the success of the already important west mainline of the DTA's system. This shift could be avoided with some added zoning protection. One way of doing this without redrawing the actual zoning districts is for the City of Duluth to create a thin Transit Overlay zone that adds a few additional density and setback requirements to only the land parcels that are directly along the corridor (see Figure 6.11 at top left).

Wade Stadium & Wheeler Field area:

A specific change that is planned along the W 3rd Street corridor is to create a stronger connection between Wade Stadium and Wheeler Fields and to promote a mix of commercial and recreational activities within that area. Such a change could generate greater demand for transit at the location, and so the design of redevelopment could

accommodate that demand with bus pull-outs, shelters, or other transit amenities (see Figure 6.14).

Can of Worms redesign:

As mentioned in previous chapters, MnDOT has begun considering a variety of redesign concepts for the I-35/I-535/US 53 interchange, as they anticipate needing to replace much of structure within approximately 20 years. Some of the ideas they are considering include lowering the elevated section of US 53 to at-grade and converting the freeway ramps at 21st Avenue W into an intersection or a roundabout. These concepts would greatly impact the design and operation of a key transfer point and one the DTA's biggest stops for riders. This potential change would be another reason for the DTA and City of Duluth to consider making 24th Avenue W the main transfer point for connecting different routes. That said, any redesign of the freeway ramps should include accommodations will likely need to continue serving the strong transit demand that is generated from the Midtowne Manner high rise apartments. This would include relocating existing shelters and possibly installing pull-outs for buses (see Figure 6.15).

Transit Maintenance & Operations

Successful transit service depends on user demand, while the efficiency and quality of that service relies on maintaining adequate funding. In recent years, however, the DTA's cost for operating the same levels of service for its regular-route buses has been increasing at an average rate of 4% per year, while its funding (including federal aid, state aid, and local taxes) has only grown about 2% per year (see Figure 6.15 on the next page). This means that the DTA has had to increasingly rely on returns of investments and other ancillary resources to fill in the growing gap. Making matters worse is an ongoing concern of possible cuts in federal and state funding.

Image source: Google Earth, modified by MIC (2015)

Figure 6.14 | Wade Stadium & Wheeler Fields: Opportunity for future transit-support development and an enhanced transit stop

A long-range vision of the City of Duluth is to enhance connections between Wades Stadium and Wheeler Fields. The change will likely be market driven and could a variety of forms anywhere within the blue area in the image above. Any such developments along the transit route could be complemented with an enhanced transit stop.

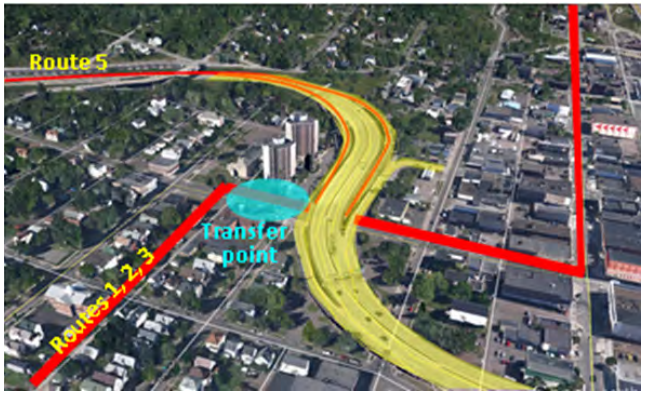
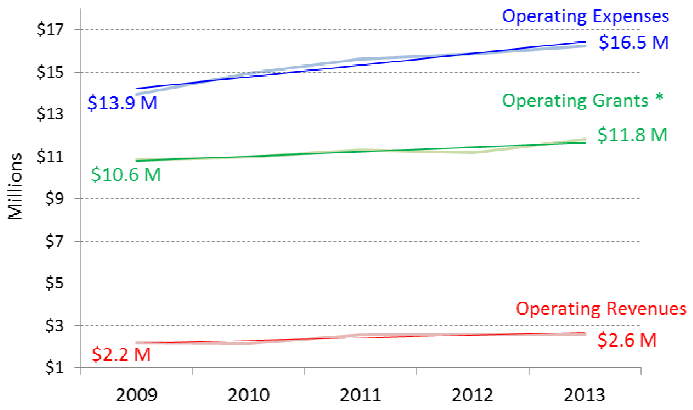


Image source: Google Earth, modified by MIC (2015)

Figure 6.15 | W 2nd Street & 21st Avenue W: Potential impact from future redesign of I-35/I-35/US 53 interchanges

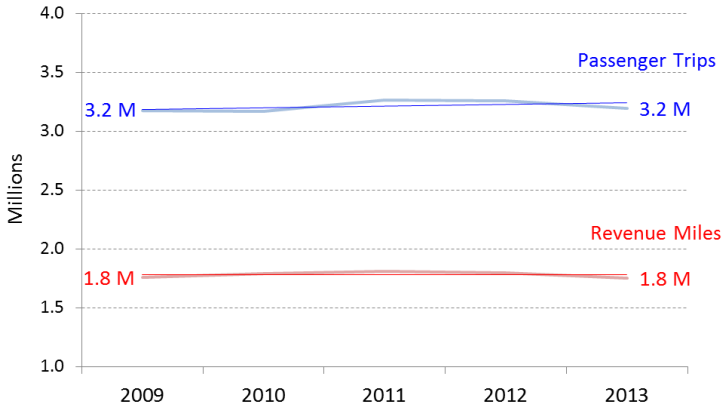
Some concept alternatives for a future reconstruct of the "Can of Worms" interchange include bringing the raised portion of US 53 to ground level. This could significantly impact DTA operations at a key stop for making route transfers.



* Includes federal aid, state aid, and local taxes
Data source: MN Office of the State Auditor (2014)

Figure 6.16 | Comparison of DTA annual operating costs, revenues, and grants (excluding STRIDE shares): 2009-2013

While the DTA's operating revenues (4.4% annual increase) increased faster than its operating costs (3.9% annual increase), it satisfies only a small portion of those costs. Comparatively, operating grants for the DTA's regular route service only grew at an average rate of 2.2% per year between 2009 and 2013.



Data source: National Transit Database (2014)

Figure 6.17 | Comparison of DTA regular route passenger trips and revenue miles operated: 2009—2013

The number of trips pervaded and route miles traveled were maintained at the same levels between the years 2009 and 2013.

As this study's analysis of service frequency and service span have shown, the Lincoln Park routes—with exception of the west mainline routes—are providing a basic, or even minimal level of service. The possibility of future reductions in funding could further reduce those levels.

Funding for public transit is largely contingent on the will of legislative bodies that seek justification for public expenditures. Transit investment becomes more justifiable when there is greater ridership demand, and a big part of inducing demand is to ensure convenient, high-quality service. This can include everything from the frequency of buses to the placement of transit shelters.

In light of this, the DTA, in concert with the City of Duluth, should seek ways to make meaningful improvements to service in Lincoln Park in incremental and cost-effective ways. Just as importantly, the City of Duluth should strive to encourage future development projects along existing transit routes to incorporate transit-friendly form and design elements, and amenities (e.g. pull-outs, shelter space, benches, etc.).

Chapter Conclusion

The information provided in this chapter demonstrates the importance of transit in Lincoln Park and recognizes that the DTA's existing transit system is well designed to serve the residents of the neighborhood. There is, however, some room for improvement, much of which will require coordination between the DTA and the City of Duluth to achieve over time.

Below is a summary of the considerations and concepts provided in the chapter. They reflect the existing conditions and future potentials identified during the study, and are discussed in the context of the three planning perspectives which framed the study.

Multimodal integration:

Transit is multimodal by nature; getting to or from a bus usually necessitates a pedestrian trip. Because the majority of Lincoln Park residents are within the recommended 1/4 mile walking distance from a DTA route, the system can be considered already fairly integrated. It must be recognized, however, that much of the neighborhood sits on the Duluth hillside, and that slopes and other impediments in Lincoln Park do create challenges for accessing transit for some individuals. A number of suggestions have been made for how to lessen the effect of these impediments to be barriers for people. Some incorporate other modes, such as integrating with a shuttle service to improve DTA access to the middle school. Others involve using paved trails to either access transit, or for transit riders to access activity centers not along existing routes, like the Heritage Center complex. Since all DTA buses are equipped with bike racks, connecting trails to bus stops is a logical multimodal objective for this neighborhood.

Public investment:

With the exception of the west mainline, current levels of service for transit in Lincoln Park are modest. The possibility of future reductions in funding threatens to further reduce those levels. Lowering levels of service, however, tend to drive demand even lower, which further makes it difficult to justify increases in public funding for transit. An antidote to this is to do everything that can reasonably be done to make transit more accessible and convenient. And this is the spirit from which a number of this chapter's recommendations are offered.

The recommendations include improving access to buses, making better connections, and aligning city zoning ordinances with the goal of promoting land use patterns and urban forms that are transit-friendly. A number of the recommendations will require additional investment and likely cannot all be done anytime soon. That said, however, unique opportunities arise from time to time, and it is advised that the DTA and City of Duluth collaborate efforts and be poised to seize upon them when they do. A number of the recommendations are also multimodal in nature and represent opportunities to maximize public investment dollars. Such opportunities could be approached as cost-sharing ventures - such as a possible cooperation between the ISD 709 and the DTA to operate a shuttle connection between the middle school and the west mainline bus routes. In a climate of diminishing resources, to strategically coordinate the objectives of multiple partners will likely be critical to achieving transportation infrastructure goals.

Future opportunities:

The potential for future changes in land use and infrastructure pose both opportunities and challenges for the transit routes in Lincoln Park. Zoning changes being considered as part of the City of Duluth's SAP would promote development patterns conducive to transit, yet more could be done in that vein to protect the transit-friendly nature of W 3rd Street – an integral part of the DTA system's west mainline. Meanwhile, some of the concepts being considered for a future rebuild of the "Can of Worms" interchange would impact the primary transfer stop for all West Duluth routes. It is recommended that MnDOT, the DTA, and the City of Duluth remain in close communication throughout the entire planning process for the interchange.