# TRANSPORTATION



## Transportation Mission

Duluth's transportation system will connect all users in a way that promotes safety, health, and quality of life.

# Sidewalks + Streets + Trails

## Walking

**GOVERNING PRINCIPLES FOR TRANSPORTATION**

**7** Create and maintain connectivity

**10** Take actions that enhance the environment, economic, and social well-being of the community

**12** Create efficiencies in the delivery of public services

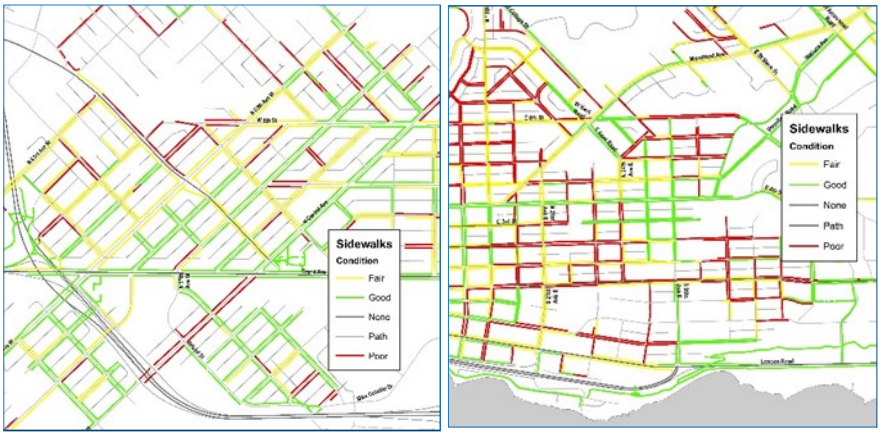
**13** Develop a healthy community

**14** Integrate fairness into the fabric of the community

Whether as a primary mode of transportation or a means to get from a parking space into a store, walking is a prevalent form of transportation in the city. Walking is affordable and accessible to a broad range of people, and supports active lifestyles.

The city's walking infrastructure consists of sidewalks, streets, trails, and skywalks. There are 403 miles of sidewalk in the city; about half of the city's streets were developed with adjacent sidewalks. The condition of those sidewalks varies, but every neighborhood is impacted by areas of poor condition. Because sidewalks have historically been built or reconstructed only when streets are rebuilt, they suffer from the general disinvestment Duluth has seen in its street infrastructure in recent decades. (For a discussion of street costs, see page T-16.) Some neighborhoods were developed without sidewalks on every street, such as Park Point, Duluth Heights, and Piedmont. Despite the lack of sidewalks, neighborhood streets in these locations are relatively safe for most pedestrians due to low traffic speed and volume.

Walking as a transportation mode is not only dependent on the existence of sidewalks or the traffic conditions of the neighborhood. If walking is to be a viable transportation alternative, residents need to safely and efficiently reach destinations regularly used for work, school,




Maps showing sidewalk conditions in Spirit Valley and East Hillside/Congdon. All neighborhoods have areas of poor sidewalk condition.

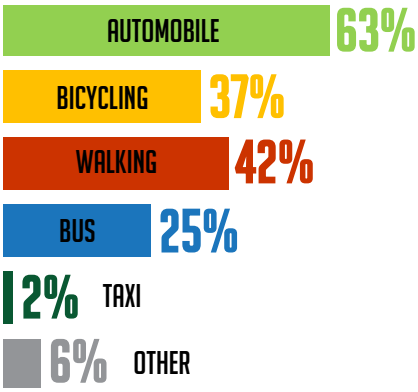
shopping, socializing, and recreational activities. "Walkable" refers to areas where destinations are within a short distance, where conditions are safe, and where the walking environment is enjoyable for users. The most pedestrian-friendly areas have relatively high density, mixed uses, low traffic speeds, and a combination of trees, lighting, landscaping, and other amenities to make walking enjoyable. Walkable neighborhoods often have shorter block sizes, such as areas of Duluth developed with a grid pattern, and networks of sidewalks and trails to allow route flexibility. Using these as guideposts, neighborhoods close to commercial/mixed use destinations with pedestrian accommodations are most conducive to walking as a transportation mode. Examples include areas adjacent to the Lakeside business district, Central and East Hillside, and Downtown. Areas where walking is unlikely as a transportation mode include the North Shore, and rural areas on the north end of neighborhoods such as Kenwood, Woodland, and Morley Heights. Areas where residents are further from likely destinations but could walk to a bus line, school, or other neighborhood destination include Duluth Heights, Piedmont, Bayview Heights, Smithville, Riverside, and Fond du Lac. Improvements to walking infrastructure will thus need to consider the context of the neighborhood and connections to other modes of transportation.

Walking is also affected by Duluth's hilly topography and northerly climate. Generally, people are willing to walk short distances uphill (a few blocks to ¼ mile), so topography only becomes a challenge for longer up-and-down hill commutes. Snow and ice present a greater challenge. Even twenty feet of uncleared sidewalk can force people to other routes or modes – or to walk in the street. Delayed sidewalk clearing leads to ice build-up that can last the entire winter. The lowest-hanging fruit to meet the City's transportation goals is simply: get sidewalks cleared.

An important component of pedestrian infrastructure is facilities that provide accessibility for all. This plan also supports the ADA Transition Plan, completed by the City in 2017.



**Ideally, what would be your preferred method of transportation for everyday travel?**




*Source: Imagine Duluth 2035 Survey. Participants could select up to two options.*

# Biking

Like walking, bicycling is affordable and promotes active transportation. In order for cycling to be considered a transportation option, bicycle infrastructure needs to 1) be open year-round (i.e. plowed or cleared of snow) and 2) connect destinations, rather than exist just within one area (so, the Lakewalk is included, but trails within Hartley Park are not). Bicycle infrastructure suitable for transportation needs is shown on page 5. The Lakewalk, Cross City Trail, and Campus Connector are separated multi-use trails. London Road, Anderson Road, and Pecan Avenue are on-road bike lanes that utilize paint to

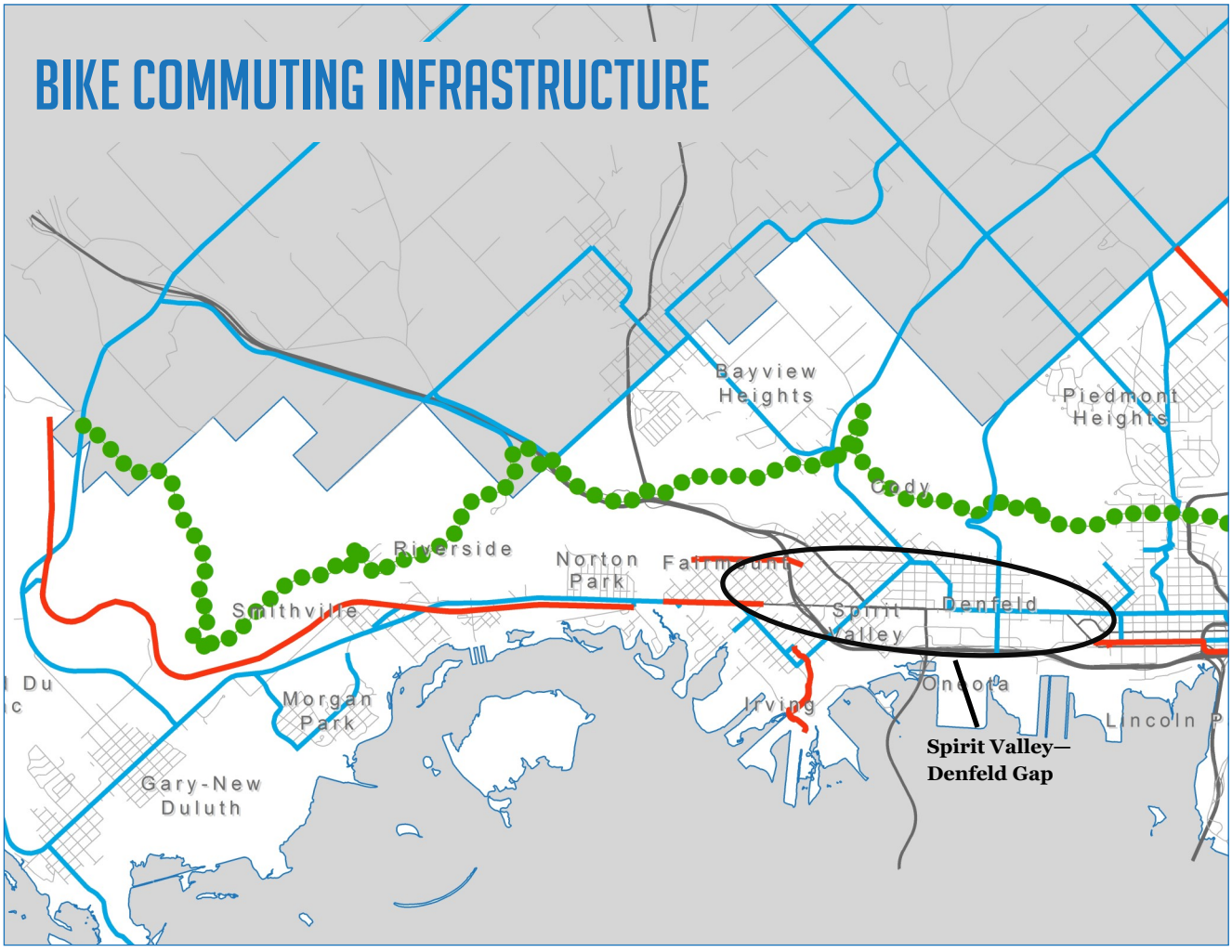
Streets + Trails

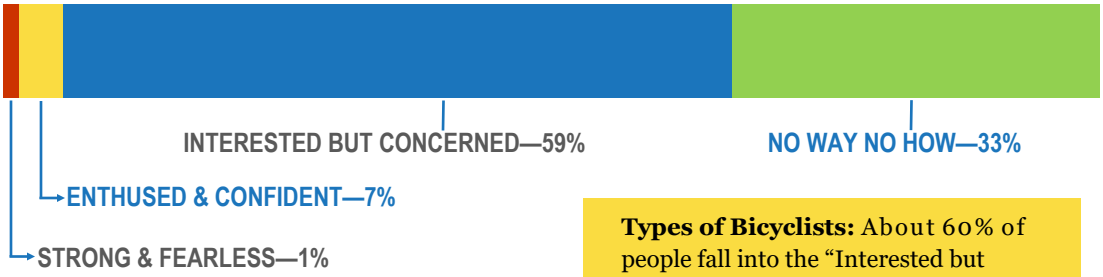
separate bikes from traffic lanes. The remaining bike infrastructure shown is designated bike routes, where bikes are encouraged to use road shoulders or otherwise share the road with vehicles but do not have their own space. The Duluth Superior Metropolitan Interstate Council (MIC) generally conducts bike counts twice a year, with the highest bike counts in the UMD area.

A frequent and useful way of describing bicycle users, originally developed by the City of Portland and supported by transportation research, is using the categories of: Strong and Fearless (about 1% of bicyclists), Enthused and Confident (about 7% of bicyclists), Interested and Concerned (about 59% of bicyclists), and No Way No How (33% of bicyclists).

In the last several decades, as private vehicles have dominated the street landscape, most other modes – including bicycling – have been eclipsed because high vehicle speeds and the size of personal vehicles present safety hazards. Duluth's network, like those in many other cities,

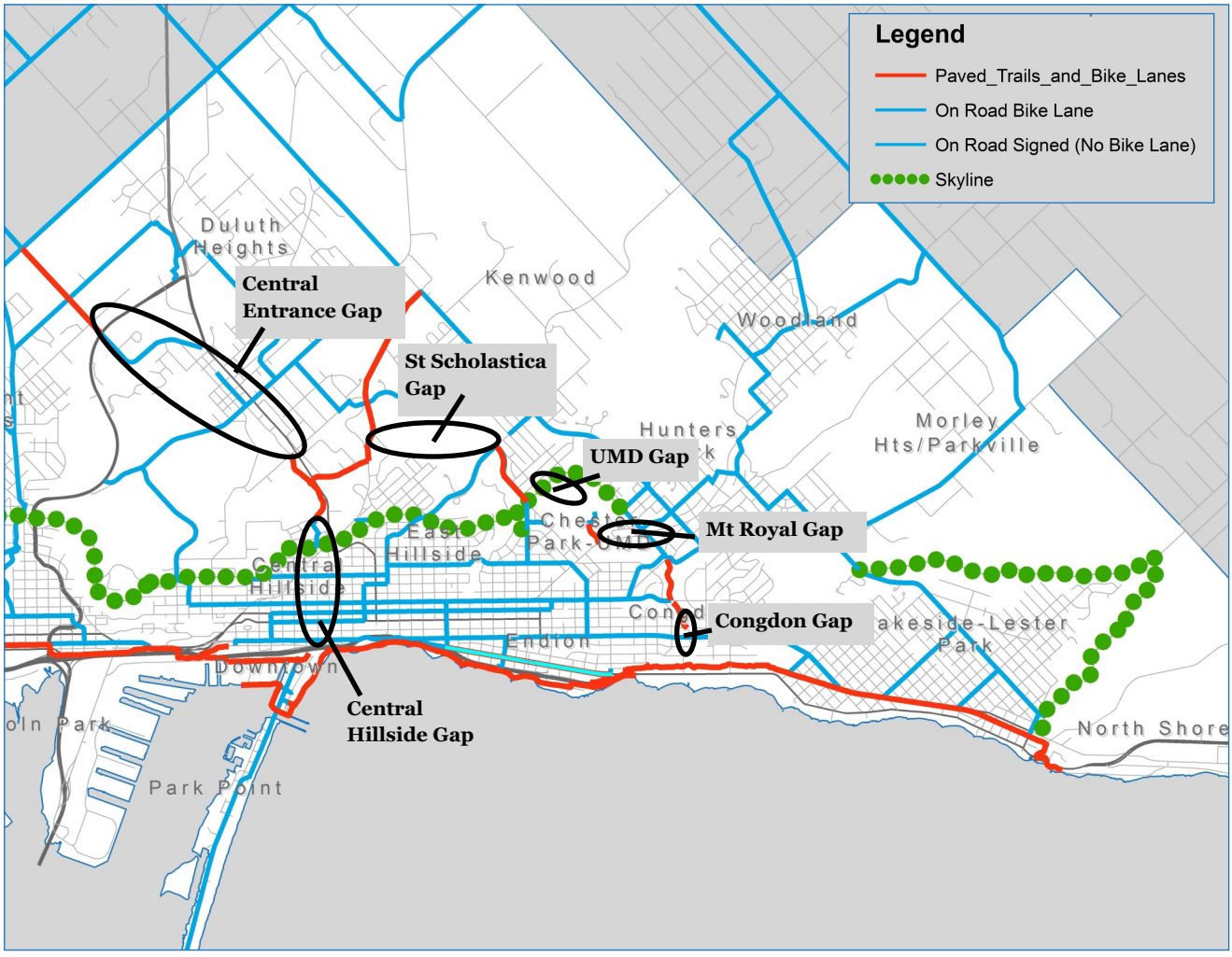
**Bike Commuting Infrastructure:** ***Red lines*** show paved multi-use trails and dedicated on-street bike lanes. ***Blue lines*** delineate signed bike routes, and the ***green dotted line*** is Skyline Parkway.



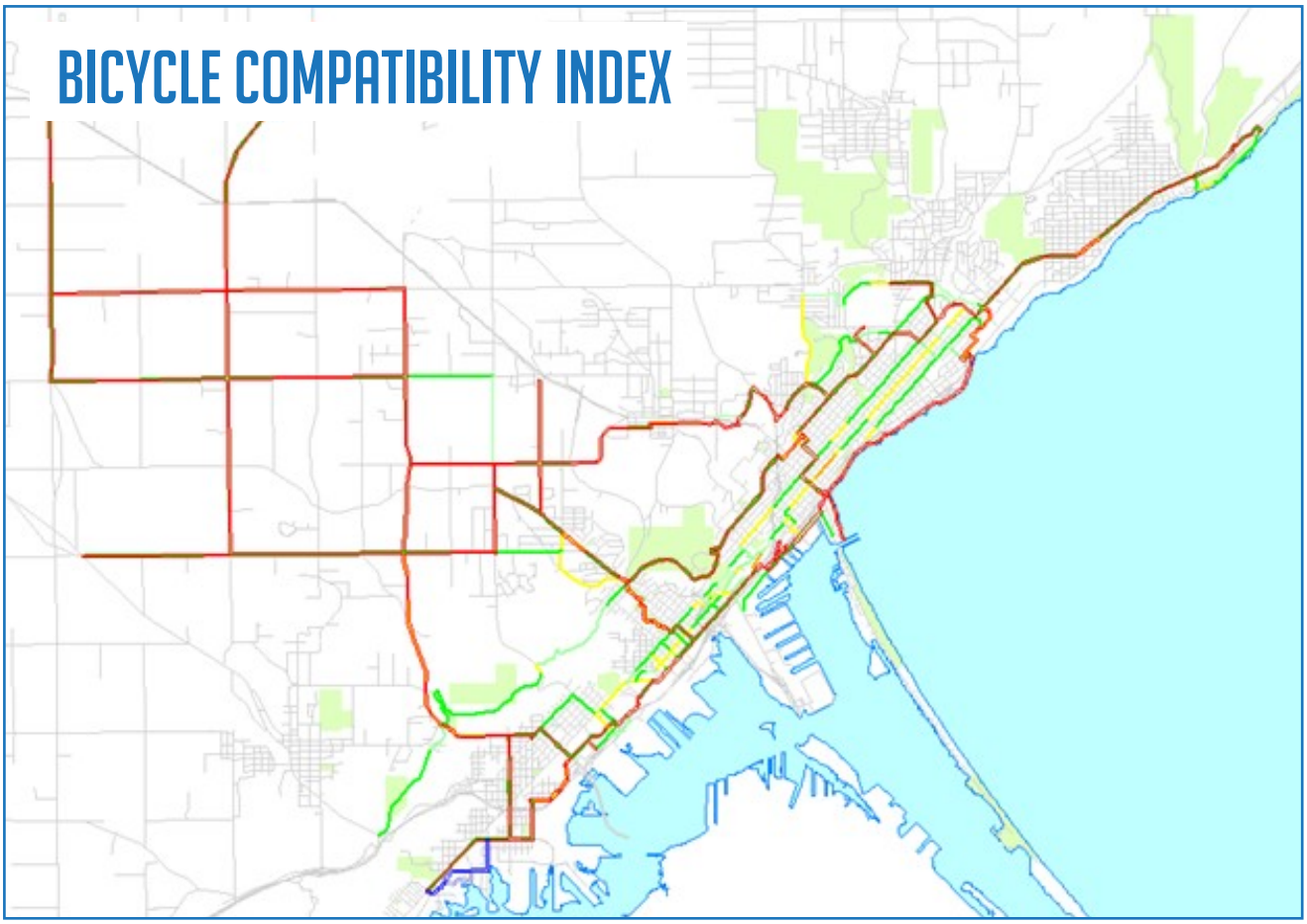



**Types of Bicyclists:** About 60% of people fall into the "Interested but Concerned category," and would bike more if better infrastructure existed.

requires skill and comfort in bicycling with vehicles, and appeals to the Strong and Fearless category mentioned above, as well as to some of the Enthused and Confident – depending on their location and route. This leaves out a majority of the potential bicycle population, suggesting a latent demand; many more people could consider bicycling as a form of transportation, even if only for some of their daily travels, if the infrastructure was convenient and safe.



# BICYCLE COMPATIBILITY INDEX



The Bicycle Compatibility Index was developed in 2002; green shows streets more compatible with bicyclists and red shows streets less compatible with bicyclists.

The need to develop a level of service analysis for bicycle route planning led the MIC in 2002 to create the Bicycle Compatibility Index (BCI), developed out of a research project funded by the Federal Highway Administration (FHWA) (see map above). This index shows low levels of service (particularly on rural roads due to high vehicle speeds), areas of the Lakewalk that are congested, and city streets with high traffic volumes, such as Superior Street. The BCI does not evaluate intersections and does not consider grade (elevation change) of routes. A better metric, called Level of Stress, has since been developed, but bike infrastructure in Duluth has not been evaluated using this metric.

A best practice in transportation planning is to enhance safety of everyone on a street by using protected bike lanes – where bicycles are separated from vehicles by a physical barrier, such as tube delineators, a curb, or parked cars. At present, Duluth has no protected bike lanes.

# Transit



Aside from walking, transit is the longest-running mode of transportation in the city, first using street cars and switching to buses in the 1930s. Today, the Duluth Transit Authority has an average yearly ridership of over 2.8 million. Transit reduces congestion on streets, reduces land needed for parking, and has fewer negative environmental impacts than travel in private vehicles. Because it does not require a large capital investment from users, it is a financially feasible transportation mode that supports equity for all citizens.

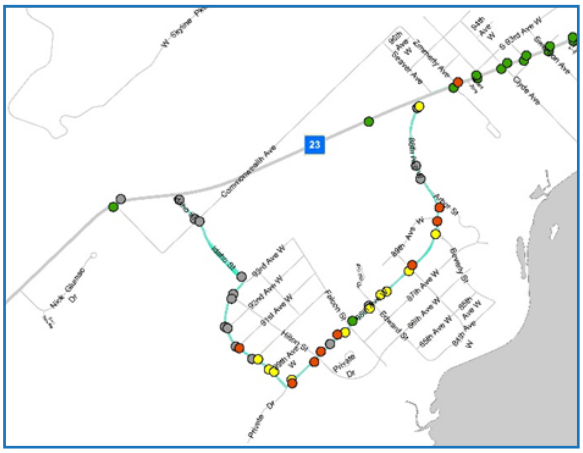
A map of the transit system can be seen on pages T-8 and T-9. Most neighborhoods in Duluth are connected by transit, with the exception of the North Shore. However, the frequency of buses varies. While the three most frequent routes have 15 minute frequencies during peak hours, most routes only operate at 30-60 minute frequencies during the peak. For off-peak hours, most operate at 60-minute frequencies.

The transit routes correlate with where people live. The relative population density of neighborhoods in Duluth, along with their transit access, is shown on page T-10. The highest density neighborhoods – Central Hillside, East Hillside, and Endion – are served by several transit lines. Transit routes also correlate with where people are likely to work. Job concentrations, as also shown on page T-10, are highest in the Downtown/Hillside neighborhoods, UMD and St. Scholastica campuses, Rice's Point/Port area, Miller Hill Mall area, United Health Care, and Oneota Business Park.

**Aside from walking, transit is the longest-running mode of transportation in the city**

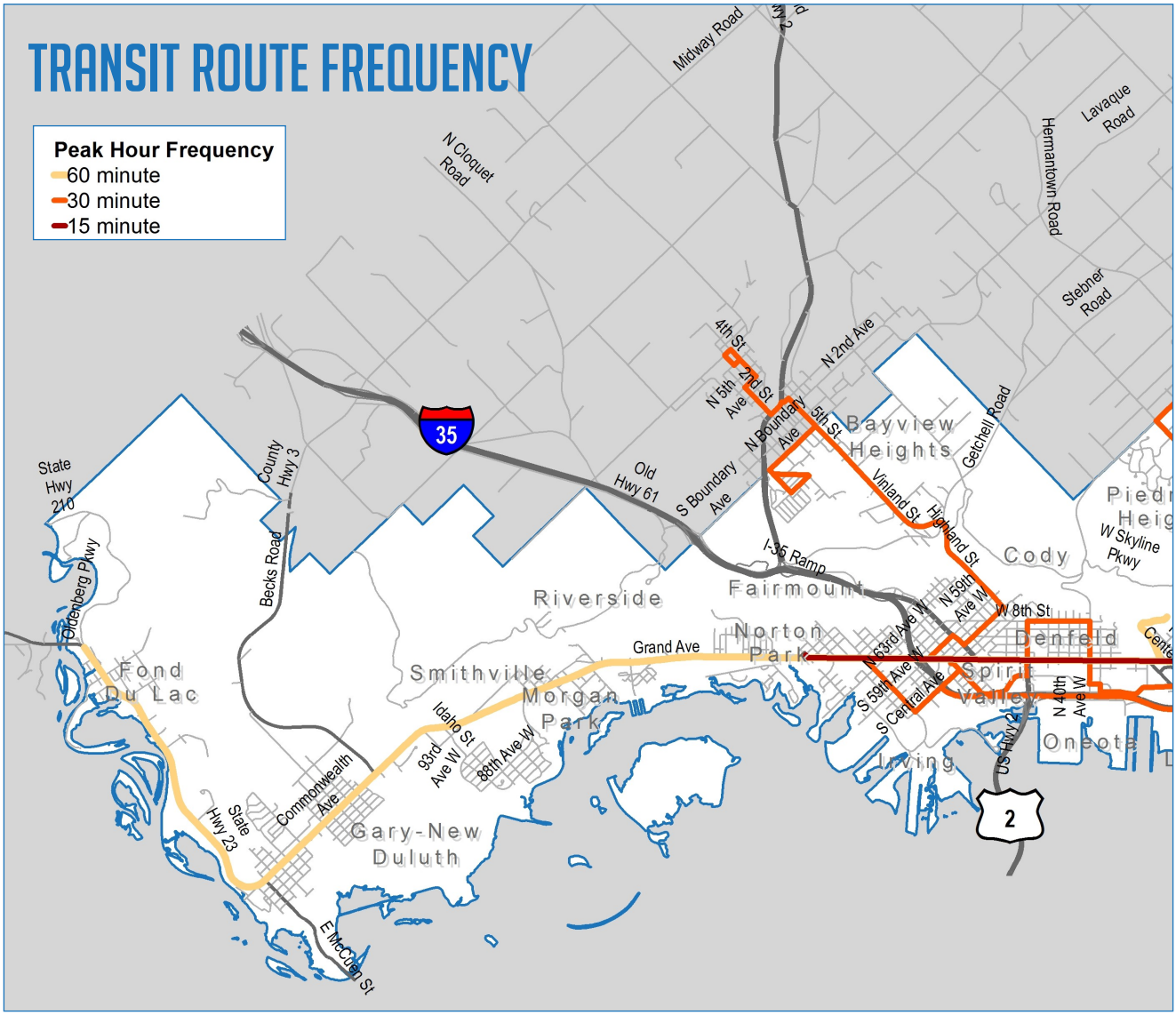


These insets show the Morgan Park (left) and Lakeside (right) neighborhoods. All transit routes have varying levels of sidewalk condition connecting to stops. A green dot indicates good sidewalk condition, a yellow dot medium sidewalk condition, a red dot poor sidewalk condition, and a gray dot indicates no sidewalks adjacent to the stop.



While the DTA maintains park and ride lots in Piedmont and Woodland, most transit users walk to the nearest bus stop. Lack of safe walking accommodations discourages people from accessing bus stops. In addition, areas with sprawling land use patterns separated by large parking lots require people to walk further at the beginning/end of their trip. Duluth's relatively low population density results in lower trip frequency, making transit a less convenient option. Many transit stops lack shelter from wind and rain, or even a sidewalk or landing pad. To meet transit users' needs and ensure an effective transit system, other cities have used Transit Oriented Development (TOD), which refers to development of compact, walkable, mixed-use areas. Transportation planning thus needs to be closely linked to land use and economic development planning.

The DTA monitors system performance and uses tools that allow dispatchers to monitor vehicles in real time. The system currently lacks

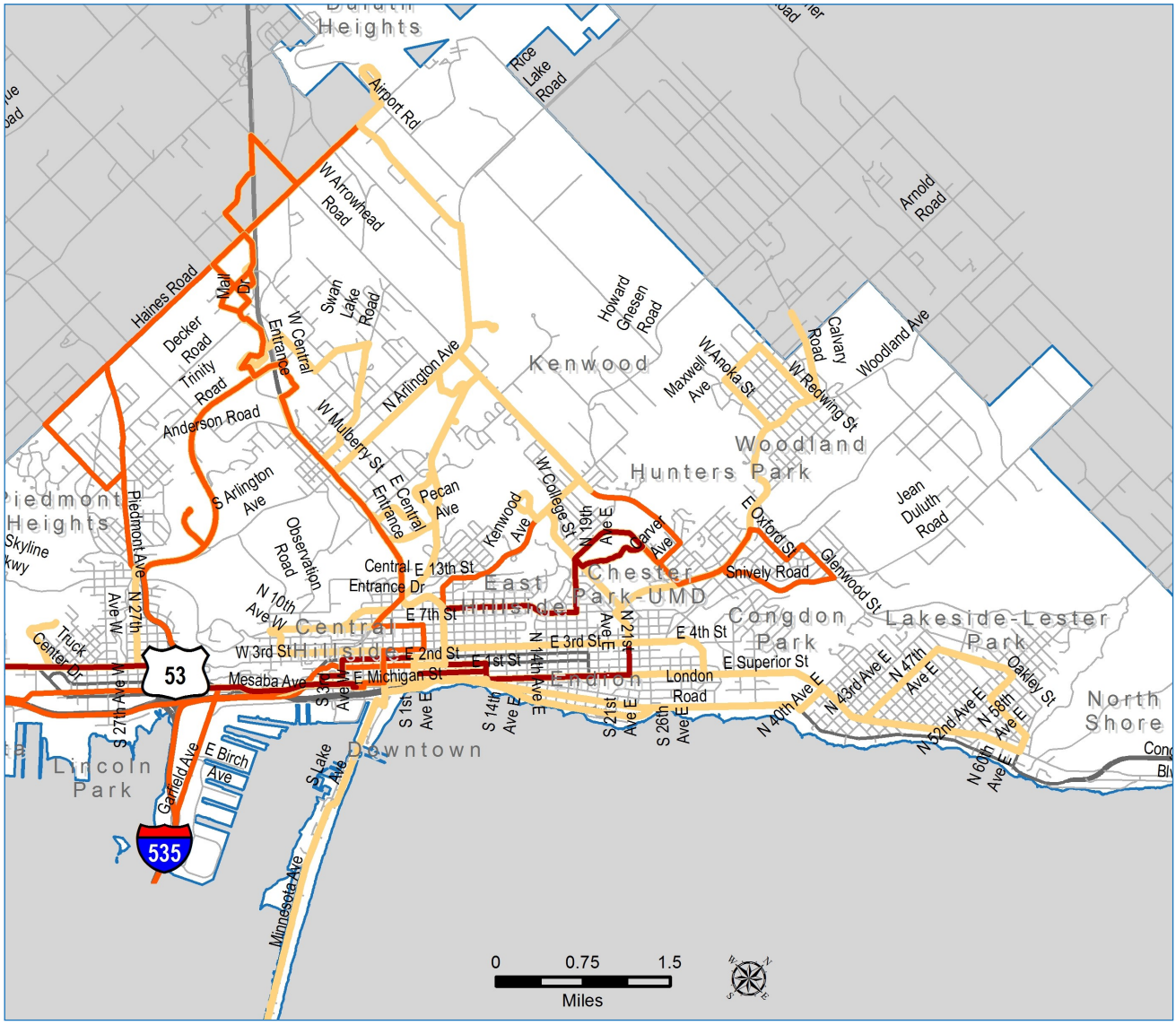


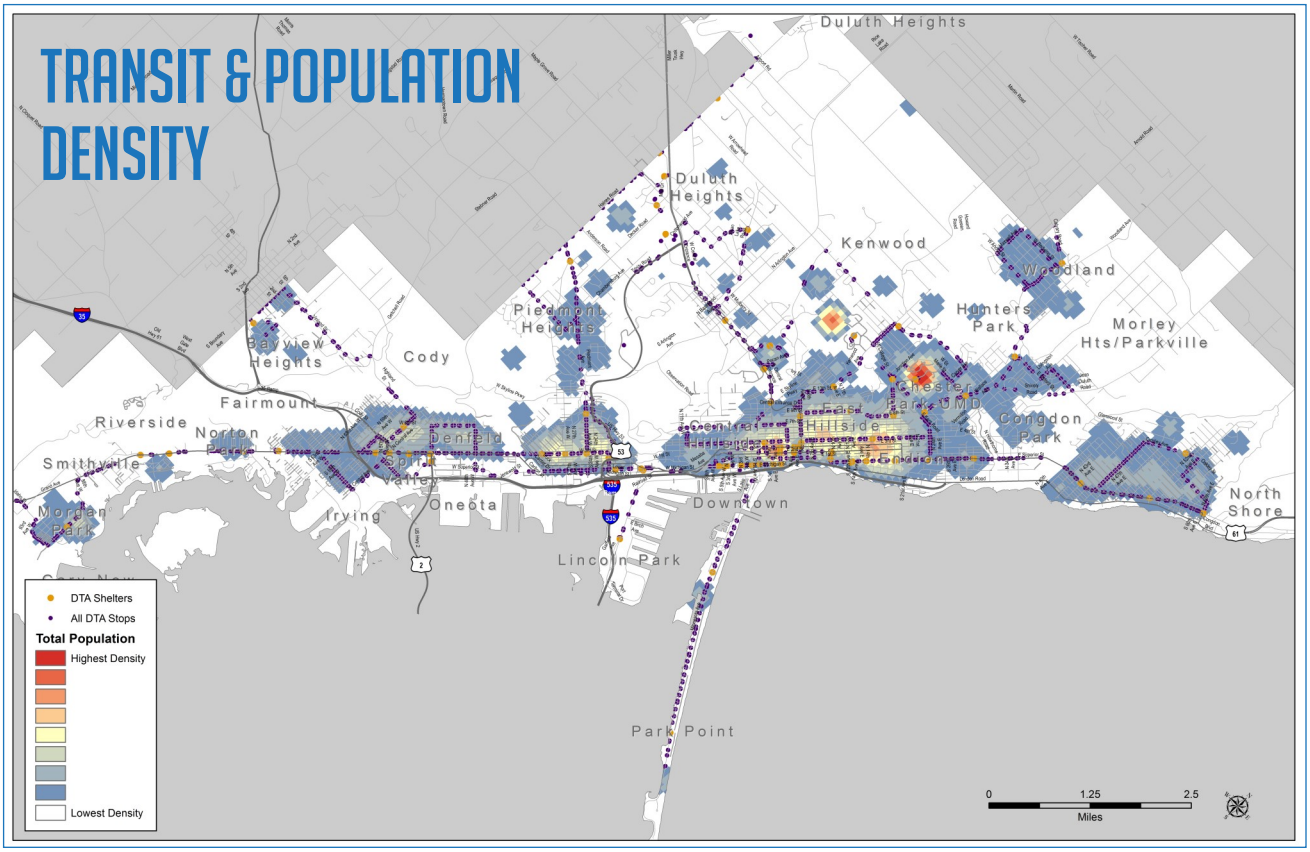
informational tools that effectively convey this real-time data to customers, which leads to requests such as a smart phone app with map, or increased real-time signage at stops.

## Private Vehicles

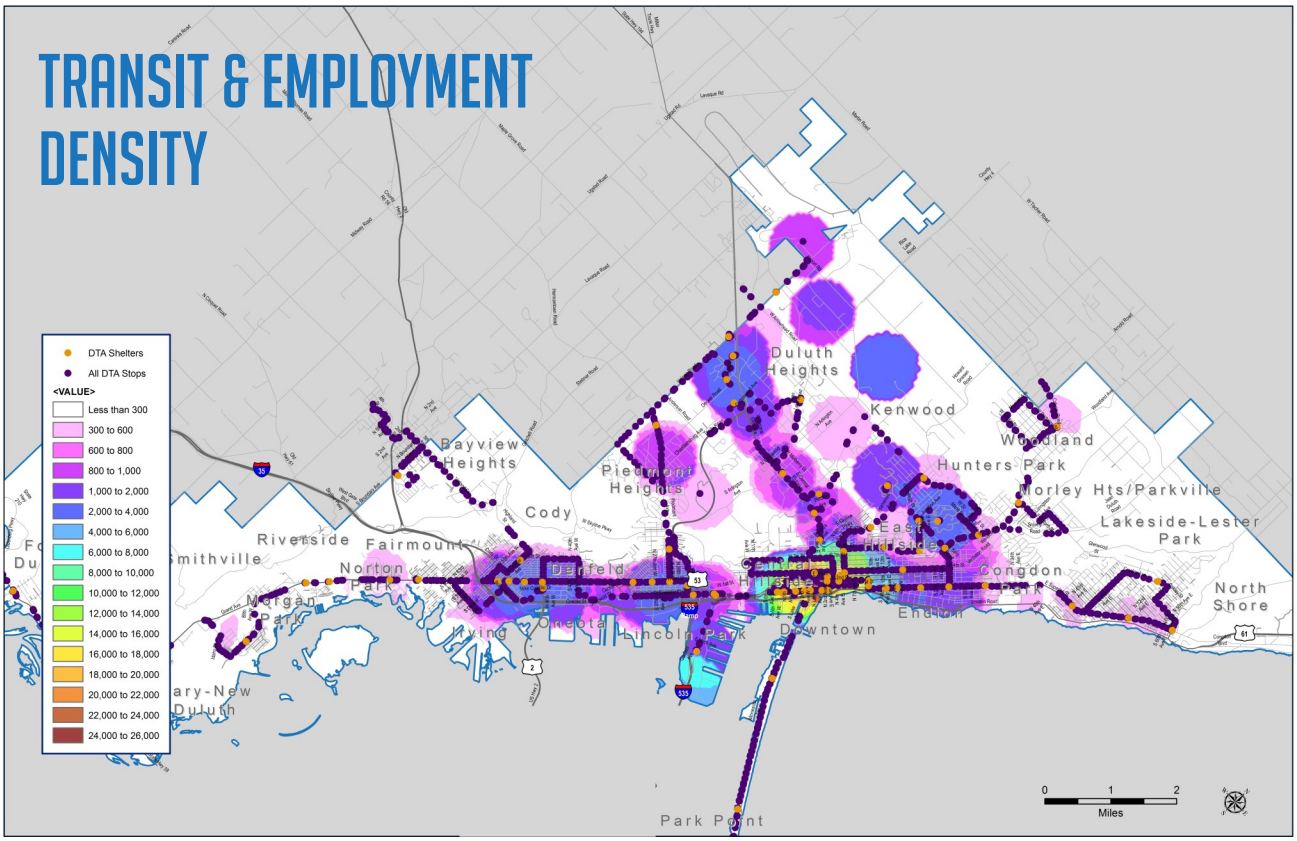
# Streets

Duluth developed as a series of small towns along Lake Superior, often with long distances between these population centers. As such, lengthy road infrastructure was built to support and connect these neighborhoods. This road infrastructure was also built to support a population of 120,000 (at one point predicted to reach 300,000) traveling among those neighborhoods versus Duluth's current population of 86,000. Together, the City of Duluth, St. Louis County, and MnDOT oversee 450 miles of roads within city limits, resulting in the network shown on pages T-10—T-11.

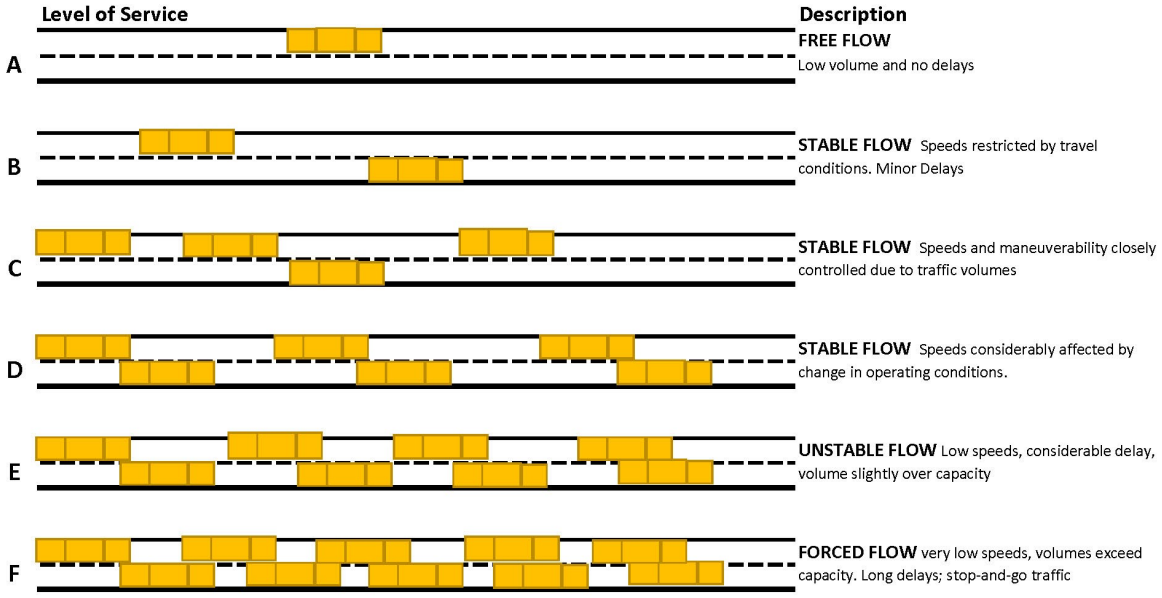





This map shows where people live, with colors of the clusters corresponding to density. Purple dots represent DTA bus stops. The existing bus system corresponds well to these population centers.




This map shows employment centers, with the purple dots representing DTA bus stops. With an exception of areas in Duluth Heights and Kenwood, the bus system serves all major employment hubs.




Overall, Duluth's road network experiences very little congestion. The capacity of a road network is measured with Level of Service (LOS), a vehicles-to-capacity ratio. Roads and intersections can be assigned LOS A-F, as shown in the graphic above.

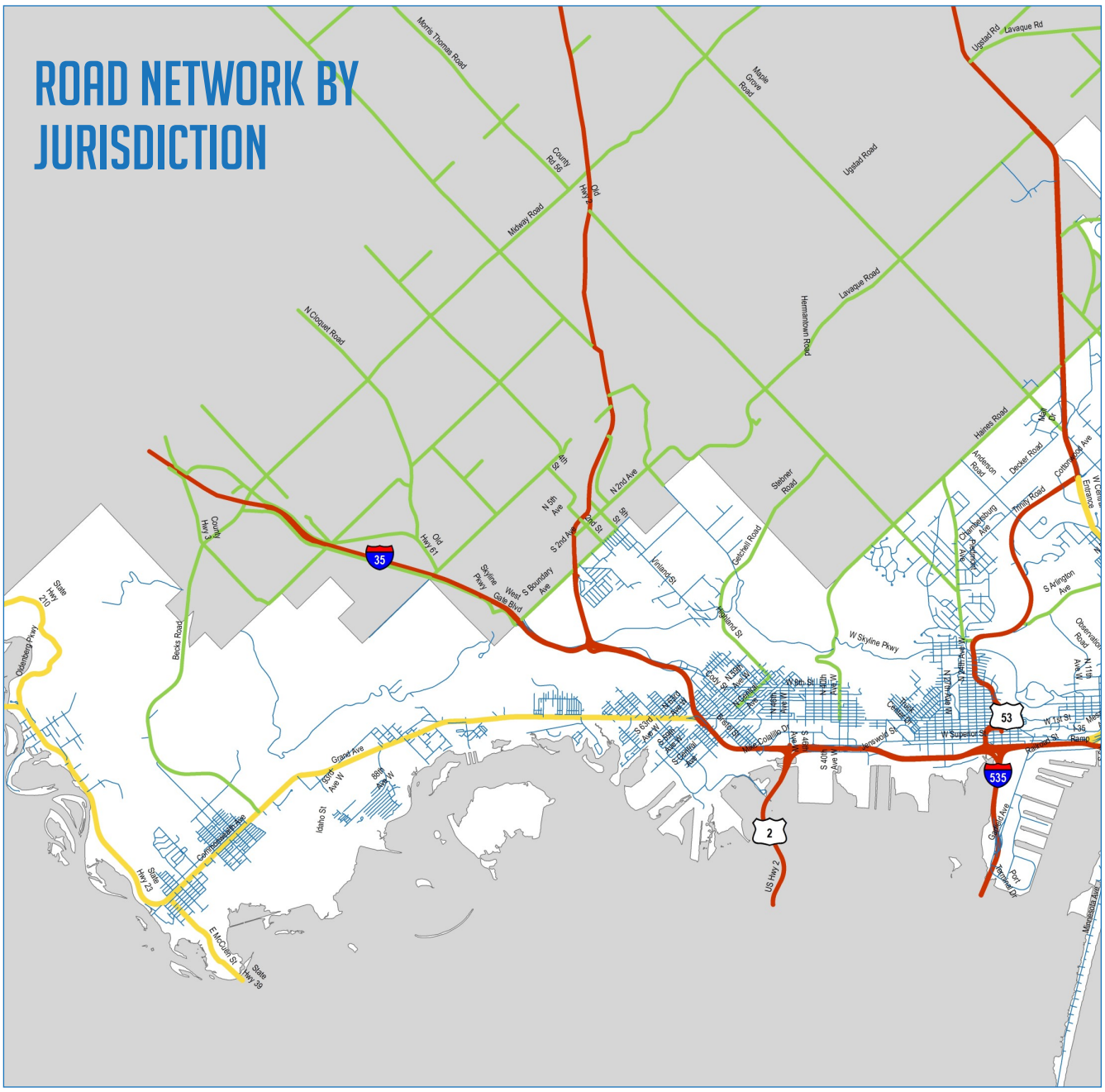
LOS E and F are considered to be congested. Forecasts for 2040 show a small percentage of Duluth roads are expected to experience congestion, based on existing projections, as shown in the map below.

Note that this congestion is for peak hour only (the busiest time of day), and these streets will likely operate acceptably for most hours of

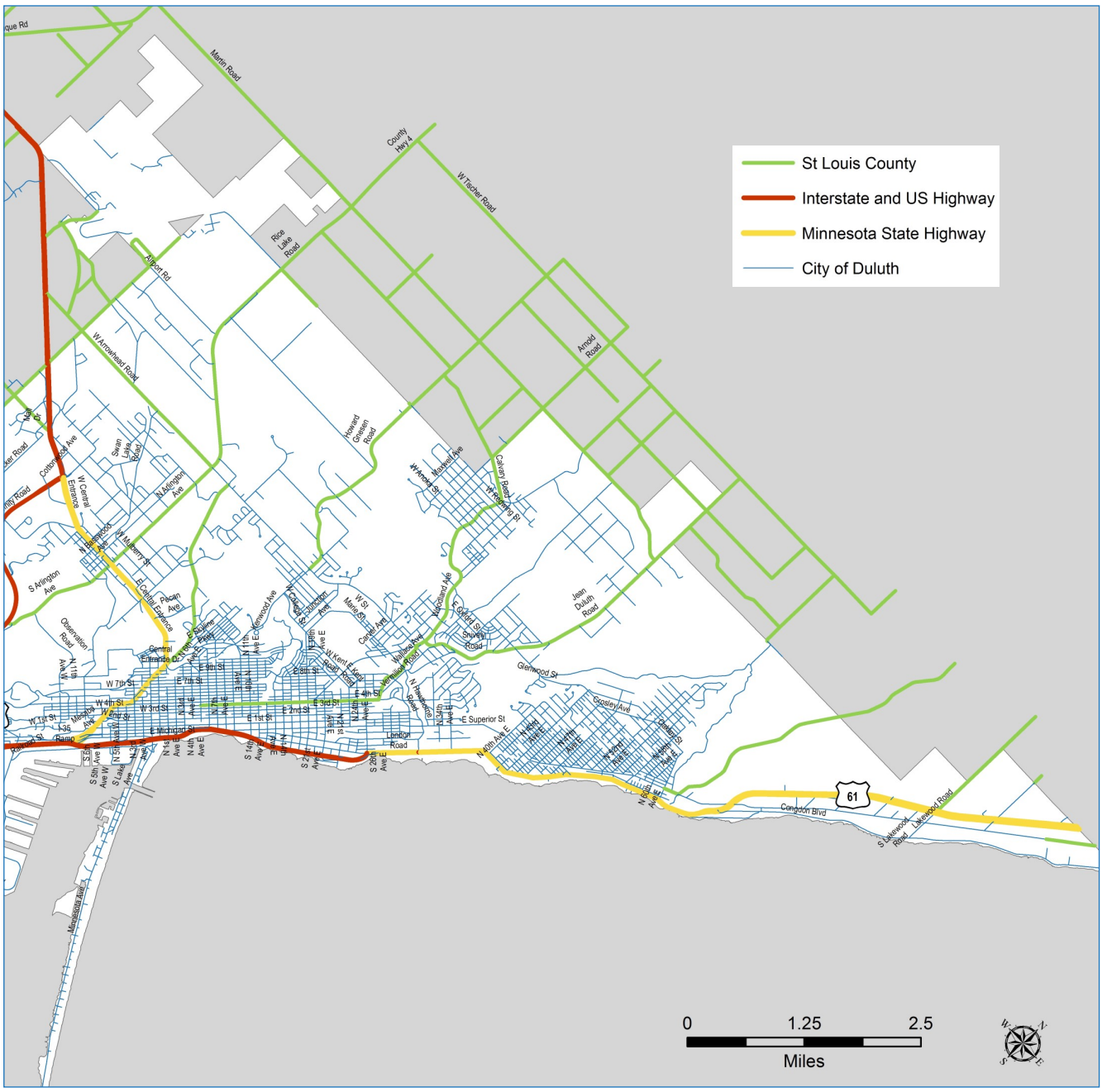

Forecast congestion for 2040: orange represents LOS E and red represents LOS F. *Source: Connections 2040 by Duluth-Superior Metropolitan Interstate Council.*

the day. The forecast suggests that strategies should be considered for these segments to accommodate the potential future demand. Such strategies may include upgrading parallel facilities, managing demand through access control and other measures, increasing transit services, or even expanding the existing lane capacity, if necessary.

Although LOS is an important factor to consider, especially for arterial roads, it is not feasible or desirable to have a road network that always operates at free flowing conditions. In an urban area, driver behavior is influenced by supply and demand. As more lane miles of road become

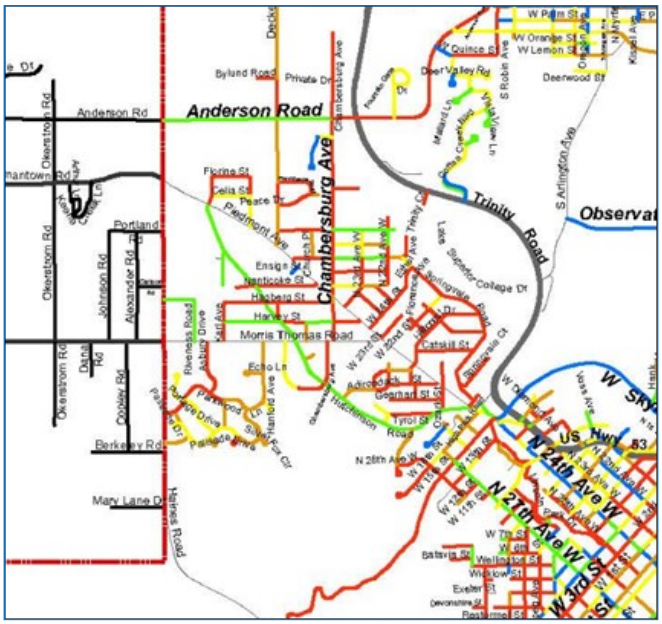


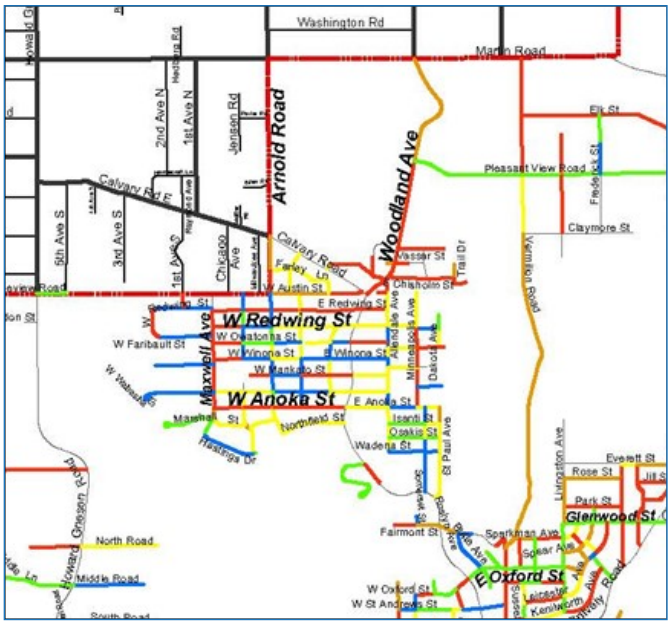
available, more drivers either choose to take the new route or drive more frequently, thereby increasing congestion even as new lane miles are added. In addition, the space needed to build new roads creates a more sprawling development pattern, causing people to have to drive further to reach destinations. In some cases, adding new roads or new lanes actually worsens congestion. Moreover, requiring streets to have LOS A often results in wide, expensive streets that negatively impact the surrounding neighborhoods. Every street has a surrounding context, and to best fit into the city's network, congestion should be only one of the factors considered.

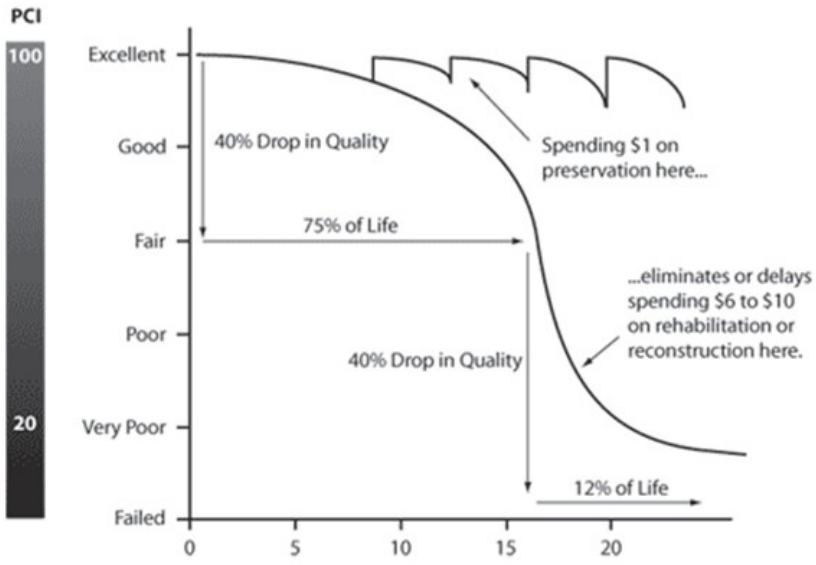


While road capacity is not a problem, road condition is another matter. Inadequate funding has led to disrepair, which can cause myriad problems ranging from increased vehicle wear and tear to businesses choosing not to locate to a neighborhood. Street conditions need improvement, not just for private vehicles but also for other modes; transit, bikes, and freight all rely on city streets as well. Even those pavement areas in better condition require investment in maintenance and preservation to ensure those roads do not deteriorate past a point where they can be maintained. An example of pavement condition over its life cycle can be seen in the figure on the next page, along with an expanded life cycle if maintenance such as crack sealing, sealcoating, and overlays are used.

Sample street conditions in two Duluth neighborhoods. Piedmont is on the left, and Woodland is on the right. Red shows streets in the worst condition; green shows streets in the best condition.






Spending money on basic street maintenance is more cost efficient than waiting until the street needs major rehabilitation.

Safety on roadways is regularly evaluated, including the severity of crashes and accident frequency. The Duluth Police Department and Engineering Traffic Division also periodically review crashes and investigate speeds and pedestrian crossings. Duluth is relatively safe, compared to other cities, and overall low traffic speeds on local streets contribute to fewer severe accidents. However, crashes still occur, including occasional fatalities.

Car parking is a necessary component of vehicle-based transportation systems. Off-street parking is typically provided as accessory to another use and often required by zoning regulations, while on-street parking is shared by neighboring land uses. On-street parking can also be used to buffer sidewalks and bike facilities. However, too much parking can indirectly incentivize increased driving, contributing to congestion. Devoting too much land to parking detracts from other modes by separating destinations further, and devoting too much right of way to parking uses up space that could be used for other modes. Parking is costly to build and maintain.

The use of private vehicles is expected to change drastically in the coming decades, with the increase in car share (such as ZipCar), ride share (such as Uber and Lyft), and self-driving cars. Particular trends anticipated with new technology include: less area needed for parking lots and structures; increased demand for “curbside” space used for pick-up and drop-off; less roadway space devoted to account for driver error; and pedestrian crossings located where needed instead of only at intersections.

# Local Street Costs

Local streets are the backbone of the city's transportation system, providing facilities for private vehicles, transit, bikes, walking, and freight. The cost of each square foot of this paved asset to the City and its citizens can be quantified. As an example, a standard 24' wide street, with curb and gutter for stormwater but no sidewalk or amenities, costs approximately $1,000 per linear foot to build or reconstruct, in estimated 2017 dollars, including underground utilities. Streets have a typical life span of 60 years, with major repairs needed about every 20 years, and minor maintenance, such as pothole filling and crack sealing, as needed each year. This means that every linear foot of street, maintained according to this ideal standard (and after adding maintenance expenses) costs the community approximately $23.30 a year (again, 2017 dollars). This estimate does not include snow plowing costs, or additional street elements such as lighting or sidewalks, but still adds up to $50 million a year. The city does not meet this ideal scenario; many local streets are in disrepair. Many stretches of Duluth's utility lines are over their expected life span, some over 100 years old.

**Example Local Street Cost**

50'x130' urban single family lot

50 linear feet of street frontage;

cost divided with 50' lot across the street:

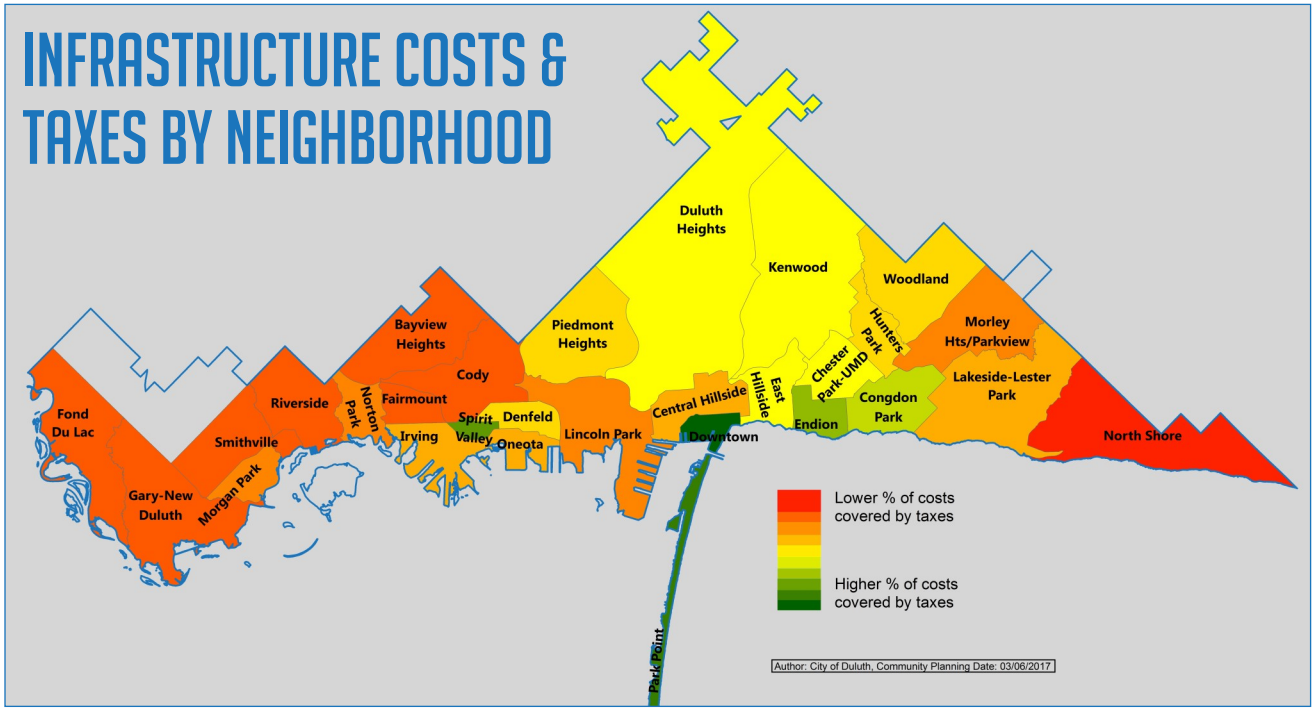
50 LF x $11.65 per year =

$583 per year

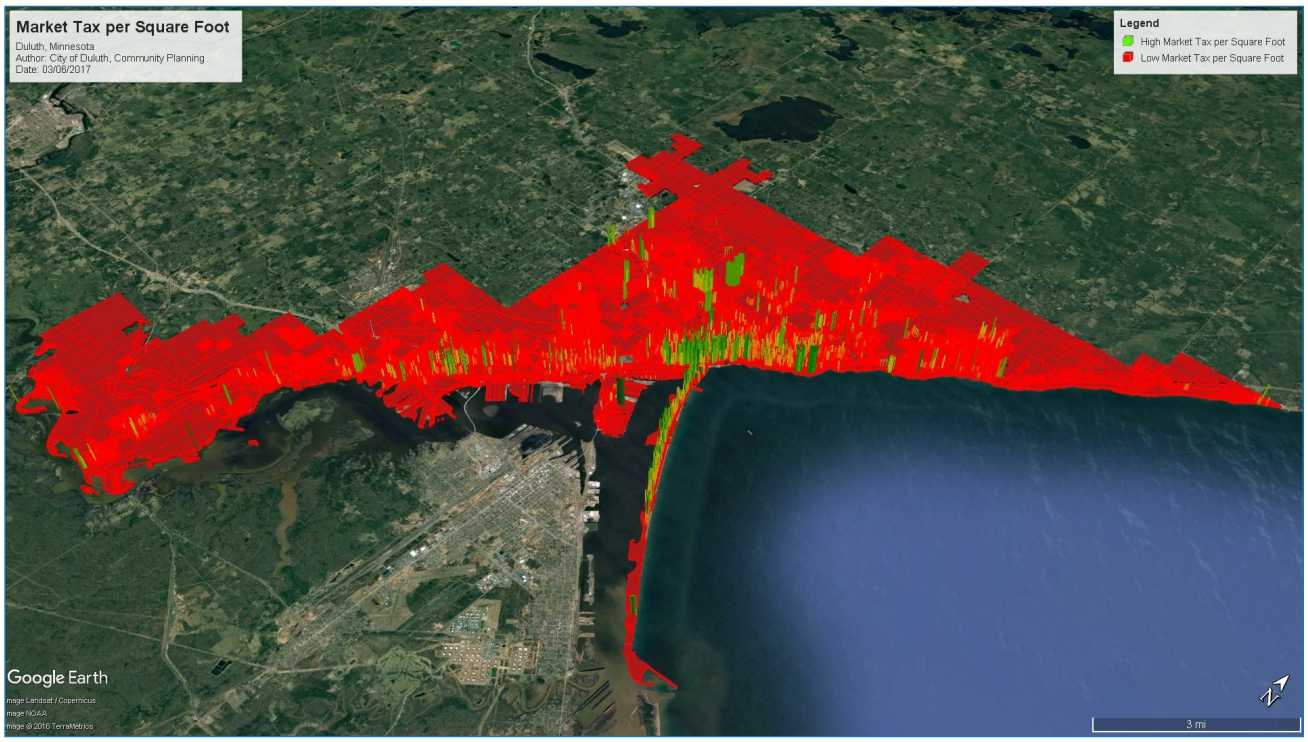
Duluth's low-density areas result in fewer properties to share the costs among, so everyone pays more. The "ideal" maintenance described above would require a homeowner on a 100-foot wide lot to pay $1,165 a year just for street costs.

Properties that contribute higher property taxes per linear foot of frontage better support the infrastructure serving those properties. Maps of relative infrastructure costs as compared to the tax base of neighborhoods, and of properties contributing higher tax per linear foot of street, are shown on page T-17. The top tier for cost recovery includes Downtown, Park Point, Spirit Valley, and Endion – some of the most densely developed areas with some mixed-used properties. Congdon is also among the top; this neighborhood contains larger and more expensive homes, but also includes multi-family residential and commercial development close to the waterfront. Strategies to bring in more revenue and reduce the infrastructure burden could include increasing density in the other neighborhoods and incrementally increasing property values, particularly in neighborhoods that are already more densely developed, such as Lincoln Park.

# INFRASTRUCTURE COSTS & TAXES BY NEIGHBORHOOD



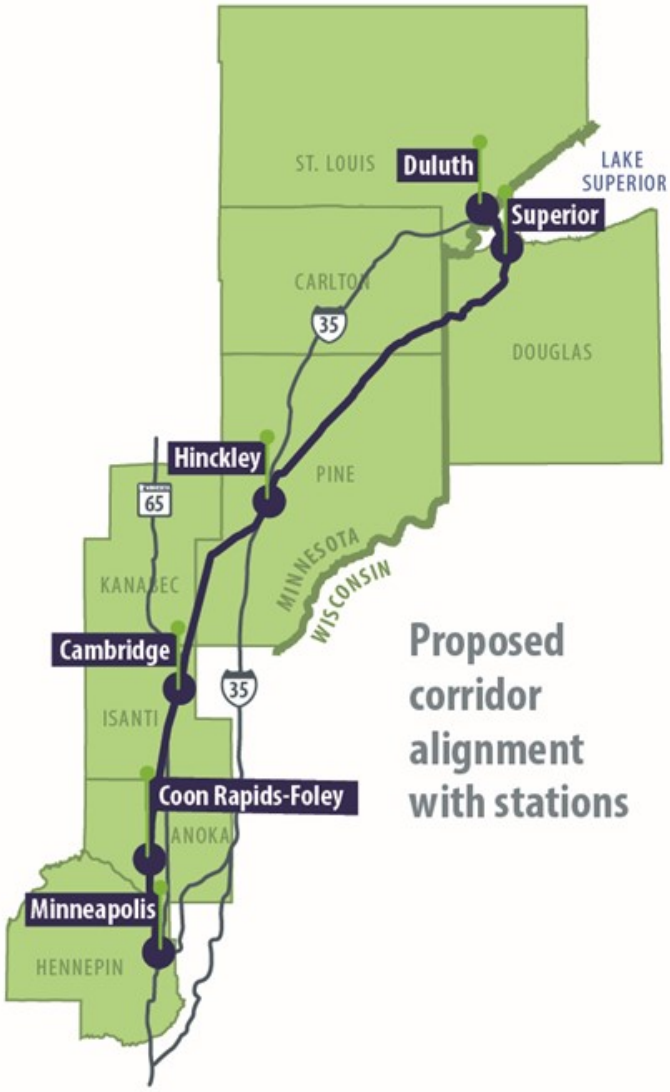

# INFRASTRUCTURE COSTS & TAXES BY PARCEL



# Passenger Rail

Rail

Passenger rail disappeared from Duluth in 1985, when Amtrak discontinued service to Duluth and the Twin Cities. Fifteen years later, the St. Louis and Lake Counties Regional Railroad Authority commissioned a study to examine the feasibility of returning passenger rail to the Twin Cities-Duluth corridor. Since then, detailed technical feasibility and ridership studies, a Tier II Environmental Assessment, and engineering designs have been completed for the proposed Northern Lights Express (NLX). Now in final design, NLX would introduce intercity passenger rail between Minneapolis and Duluth. Trains would make four round trips per day on an existing rail line. Planned facilities in Duluth include a station adjacent to the Depot (at Michigan Street and 5th Avenue W) and a potential maintenance facility that, if built in Duluth, would be located between I-35 and Railroad Street. Passenger rail supports environmental and economic development goals; it provides much more fuel-efficient travel between Duluth and the Twin Cities than single-occupancy vehicles; and it provides convenience, safety, and comfort for travelers. It also provides another transportation option for people without cars, and those with accessibility challenges.




Source: MnDOT

Once arriving in Duluth, passengers could use multiple modes to get around the city – something transportation planners refer to as "last mile" planning. The station area planning should include a multimodal emphasis, considering wayfinding and looking at connections to various modes. NLX and station area planning should be closely coordinated with other Downtown-area analyses, and include a wide range of applicable stakeholders.

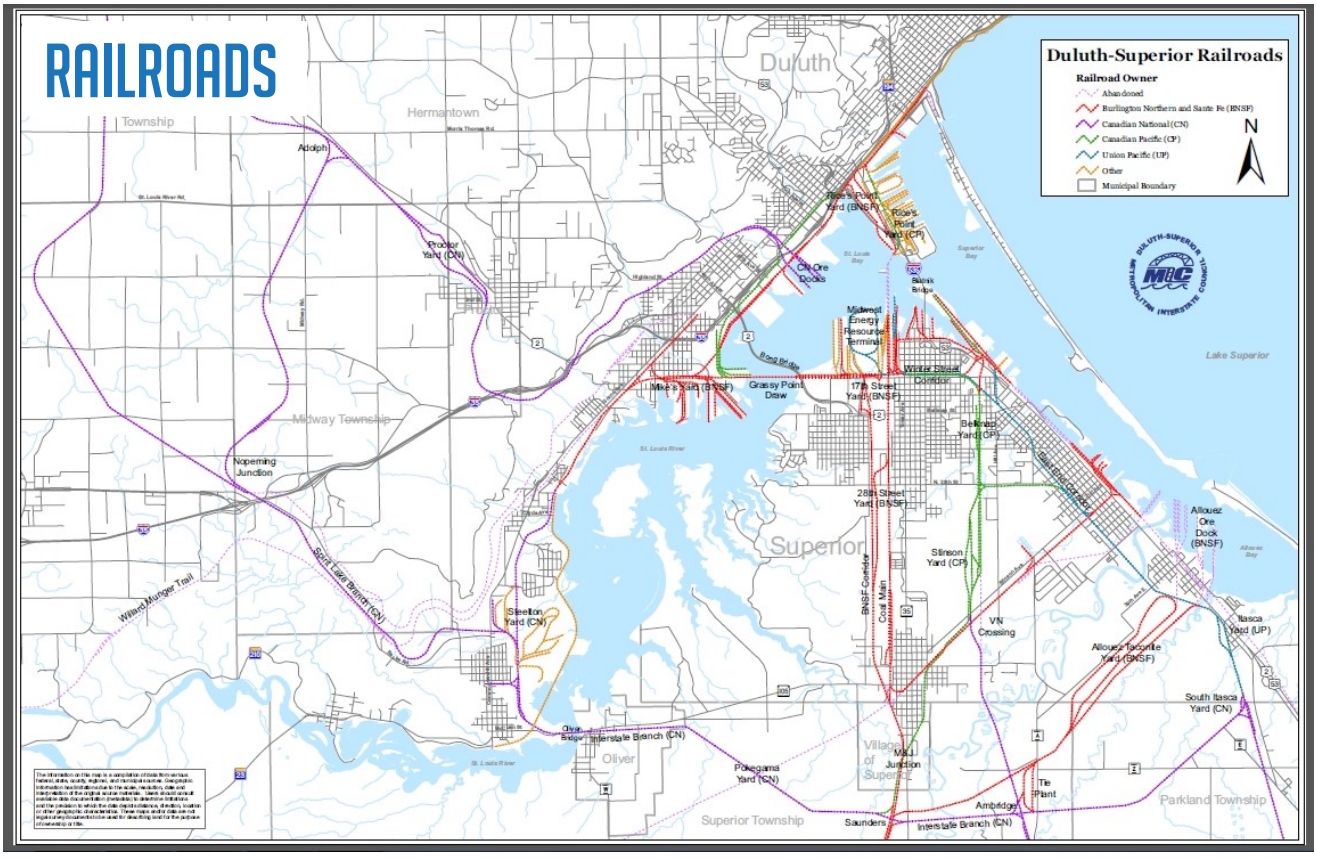
# Freight

Rail
+Air
+Streets
+ Water

Duluth has become a major regional, national and international freight center for the port, rail, trucking and airport facilities that support Duluth's economic base.

## Rail Freight

The Twin Ports have a history of rail freight dating back to the mid-1800s; because of this long history, they are served by more railroads than many communities, including four Class I railroads: Burlington Northern Santa Fe (BNSF), Canadian National (CN), Canadian Pacific (CP), and Union Pacific (UP). The rail network is important for moving a variety of commodities, especially heavy bulk goods. BNSF dominates many markets in the state including bulk freight, crude oil, agricultural products, and intermodal traffic. UP primarily transports agricultural products, ethanol, and coal. CN (formerly DMIR) transports most of the taconite produced in Minnesota, along with a mix of bulk and intermodal goods. CP's primary commodities include grain, coal, crude oil, and intermodal freight. Railroads collectively operate 10 rail yards in the Twin Ports. Railroads don't exist in a vacuum, but instead are part of an integrated system coordinated with trucks, barges, and pipelines.



Because one train can carry as much freight as several hundred trucks, railroads are cost-effective and produce key public benefits, including reduced highway congestion (particularly on major corridors like Interstate 35), lower emissions, and reduced need for costly highway repair and maintenance. Unlike trucks, barges, and airlines, freight railroads operate almost exclusively on infrastructure they own, which they have built and continue to maintain and fund themselves.

The City does not anticipate significant investment in additional new rail corridors; however, private development of rail lines such as scenic railroads may occur. Utilization of the existing rail lines is expected to increase based on current trends in rail car traffic in the Duluth Seaway Port, which could lead to capital investments in current rights-of-way. It is important to protect and preserve existing rail corridors even if their current utilization is low, as a means of attracting business and future developments.

## Air Freight

The Duluth International Airport (DLH) facility provides air cargo services for high-value and/or time-sensitive goods. Scheduled express air cargo operations are conducted by FedEx and UPS, operating daily service.

FedEx typically operates about 520 operations per year. UPS operates daily aircraft service at Duluth, contracted under Bemidji Airlines, totaling approximately 730 operations per year. US Postal Service mail is transported under contract by an air carrier as belly cargo. Other non -scheduled air cargo and freight is normally processed through the Fixed Base Operator (FBO) facilities.

At this time, regional air cargo is sufficient for the area. However, larger scale efforts for air cargo with ground delivery (multimodal) service could be developed at DLH, as the airport has sufficient runway capacity for big planes. Consideration of air freight capacity expansion should be given for future business and economic interests in the area. Additionally, an evaluation of the roadways within the airport zone and vicinity should be completed to be able to support an increase in truck traffic for additional air cargo.

# Truck Freight

Trucking is an essential transportation mode for moving high-value goods throughout the region. The roadway system is comprised of interstate, state, county, city, and township roads that allow freight to be transferred effectively. According to the American Trucking Association's national forecast, the amount of goods hauled by trucks will grow by more than 3 percent annually over the next five years.

To determine the most efficient, safest, least disruptive truck routes to and through the Duluth area , the roadway system should be evaluated for future growth of truck freight movement. The Duluth-Superior Metropolitan Interstate Council (MIC) will be completing an update to the 2001 Duluth-Superior Truck Route Study in 2018. The update is due primarily to changes in the roadway network, traffic patterns, and locations of freight-generating businesses, as well as federal and state laws and plans regarding truck routing that have influenced truck movements. This study will examine current truck routes and the factors that influence truck movements in the Duluth-Superior area, and update the 2001 recommendations.


Source for photos on this page: Duluth Seaway Port Authority

One known freight improvement being planned by MnDOT is the reconstruction of the I-35/I-535/Hwy 53 interchange. Known as the "Can of Worms," the interchange currently has merge conflicts and weaving problems, as well as 33 bridges that are structurally deficient and at the end of their lifespans. The reconstruction will relocate all exits and entrances to the right side of the freeway and provide lane continuity for through I-35 traffic. This project will provide direct access for overweight permitted loads, particularly large bulk cargo items such as wind turbine components. The interchange currently has an AADT (Average Annual Daily Traffic) of 72,200, with 3,450 of those being heavy commercial traffic.

# Water Freight

The Duluth-Superior Port consists of 19 square miles of land and water with 17 miles of dredged shipping channels. The harbor is the largest freshwater port in the world, averaging 38 million metric tons of cargo annually. The port hosts up to 1,100 lake-carrier and oceangoing ship visits each year. The port offers

connections with four Class I railroads, on-dock rail for direct transfers, and a rail-truck-marine intermodal terminal.

In 2016, the MIC completed the Duluth-Superior Port Land Use Plan. A priority of the Port Plan is to ensure the protection of industrial land from encroaching non-compatible uses, which can restrict operations and discourage investment in business and infrastructure. Once land in the port area is developed for commercial and/or residential use, it will be difficult to convert back to port-related industry use. Among port-related businesses, 60% state that their business is directly dependent on access to a deep draft channel, 80% say there are opportunities for creative mixed land uses, 62% agree specific areas could be designated for non-maritime activities, and 83% have recently or are planning to make major investments.

The port area is developed with docks (for coal, iron ore, grain, salt, and other commodities), cargo terminals, fueling depots, and a shipyard. Many of the currently operated docks have the potential for increased efficiencies to move more cargo.

# Passenger Air

Air

The Duluth International Airport (DLH) provides services for commercial, general aviation, and military use. Duluth is the second busiest commercial service airport in Minnesota. Total passengers for 2016 was 255,296, which includes both enplanement and deplanement. Total annual passengers could reach 350,000 by 2027, an increase of 38% over current totals.

In the past 10 years, airport activity trends have generally been increasing, with aircraft traffic remaining proportionally consistent amongst the commercial (15%), general aviation (70%), and military (15%) users.

The airport has a $3.1 billion annual impact to the local economy (2010), including the Minnesota Air National Guard Base. Three large regional employers located on site include AAR Corporation, the Duluth Air National Guard base, and Cirrus Aircraft.

State Highway 53 is the principal arterial roadway providing access to the airport, with a network of surrounding city and county roads connecting terminal facilities. Ground transportation includes taxi service, rental cars, public bus service provided by the Duluth Transit Authority, and scheduled shuttle bus service provided by Jefferson Lines.

The airport has been aggressive in efforts to increase and improve air service to the region. These efforts have included submitting applications to increase air service under the Small Community Air Service Development Program and working with other airports and the state to improve regional air service. Further, the airport recently built a new terminal and parking structure which provide better vehicle access and passenger facilities to improve travelers' experience. The airport could accommodate at least one more commercial carrier.

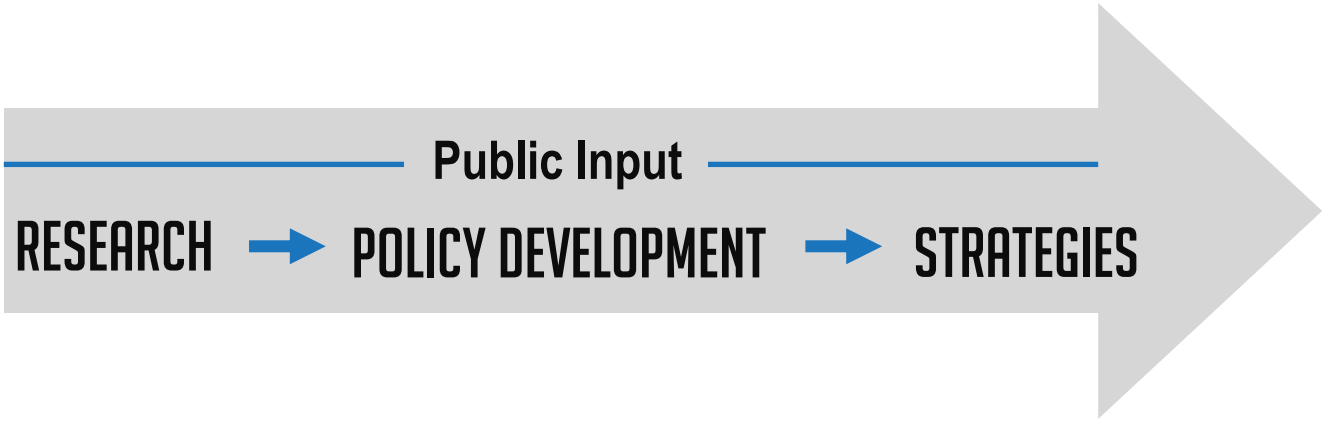
Source: Duluth Airport Authority

A second airport, Sky Harbor, provides services for business and recreational users and is located at the end of Park Point, just 5 miles from Downtown. Sky Harbor has a land runway approximately 3,050 feet long, two sea runways, and a ramp and dock for sea plane access.

Sky Harbor will be realigning its runway over the next 3 years. The plan includes rotating the runway 5 degrees into Superior Bay where 7.5 acres of additional bayside shoreline will be created by filling in shallow waters. That slight shift toward the bay would be enough to avoid the old-growth red and white pines, some 200 years old and 100 feet tall, that are part of a protected scientific natural area. The current runway would be removed and a new 2,600-foot runway built.

# Policies & Strategies

The research and input throughout Imagine Duluth 2035 led to development of six broad policies that also reflect the Governing Principles. Each policy was then further expanded into specific strategies to be carried forward to implementation.




## Policy #1 – Improve street conditions to function better for everyone

**Asset management** is a system of planning for street maintenance and reconstruction in order to make the best use of resources. Activities can range from simple maintenance such as chip sealing and crack sealing, to targeted reconstruction.

*Streets are used for almost all modes of transportation in the city. Deferred maintenance and lack of investment impact automobiles, transit, pedestrians, and bicyclists. This policy focuses on maintenance, reconstruction, and incremental improvements of the street network.*

S1. Continue the City's asset management plan to extend the life of pavement.

S2. Seek to maintain a minimum Pavement Quality Index of 70 for streets, particularly along transit lines, high-traffic areas, and bike routes.

S3. Prioritize implementation of the ADA Transition Plan, with a focus on ADA Priority Areas, Core Investment Areas, and pedestrian connections in the mall area.

S4. Develop a funding source dedicated to installation and maintenance of sidewalk networks.

S5. Whenever conducting resurfacing or reconstruction activities on city streets, identify opportunities for installing pedestrian and bike facilities, including on-road bike lanes, for all locations identified in the City's adopted bikeway system plan.

S6. Ensure that sidewalks and crosswalks are rapidly cleared of snow (and continuously cleared, in Core Investment Areas), to ensure ease of system use by all residents.

S7. Continue to develop, improve, and implement recommendations from Safe Routes to Schools plans to enhance safety for children around schools and throughout the community.

S8. Ensure that when utility repairs are conducted, roadway surface is restored to a preferred condition, and when possible seek to locate new or improved utilities outside the driving lanes.

S9. Adopt measures to reduce vehicular travel speed and improve intersection safety, especially in busy areas, to improve overall safety conditions, reduce injuries, and eliminate deaths.

S10. Monitor and adopt best practices for self-driving vehicles.

S11. Because use of electric vehicles is increasing, plan for necessary infrastructure to support their use.

## Policy #2 – Reduce infrastructure costs through innovation and wholesale design change

*The existing infrastructure needs far exceed reasonably foreseeable funding. This policy aims to reduce costs in the long term through strategic reductions in width and linear miles of city streets.*

S1. Evaluate city street design standards to reduce replacement costs and ongoing maintenance and plowing needs by allowing or requiring narrower street widths whenever possible and appropriate.

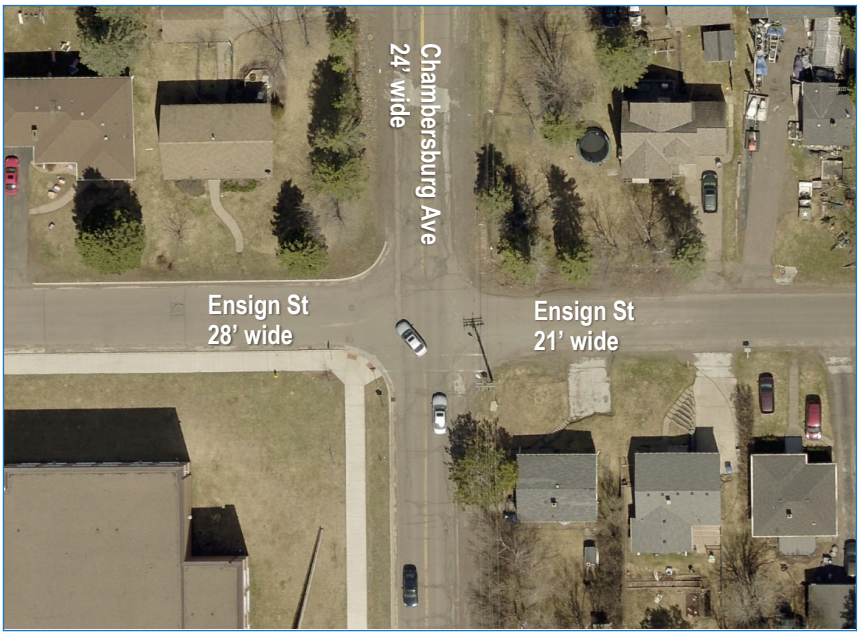
S2. To reduce speeds, increase safety, and lower costs, ensure the use of appropriate urban or rural design metrics for new or reconstructed streets (depending on the applicable area of the city). When possible, use updated engineering standards such as NACTO Urban Street Design Guide.

# COMPARISONS OF CITY ROAD WIDTHS

N 47th Avenue E & Otsego Street. *N 47th Avenue E is 48' wide, far beyond what is needed for two driving lanes; no parking is allowed on this street. Otsego is 28' wide and allows parking. Reducing the width of 47th would have minimized maintenance costs and would slow traffic.*


N 24th Avenue W and W 6th Street. *N 24th Avenue W is 32' wide, far beyond what is needed for two driving lanes; no parking is allowed on this street. W 6th Street is 28' wide and allows parking. This is another example of a street where unnecessary width increases maintenance and reconstruction costs.*


Chambersburg Avenue and Ensign Street. *Ensign Street is 28' on the west side of Chambersburg and 21' on the east side of Chambersburg. Both allow parking. Because Ensign is a low-volume residential street, less street width would reduce maintenance and construction costs.*



**S3.** Develop options for eliminating alternate-side parking requirements, such as through the use of "snow emergencies," to allow for a reduction in street width in those locations where on-street parking is only allowed on one side of the street.

**S4.** Evaluate streets in low density areas that could be replaced, reduced, removed, or made private to more effectively utilize maintenance budgets and long-term capital replacement funds.

**S5.** Consider maintenance burdens resulting from street use by trucks and waste haulers, and options to reduce such street use through citywide policy changes.

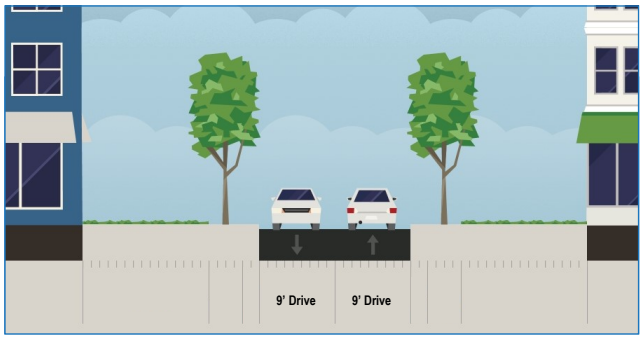
**S6.** Improve long-term infrastructure effectiveness through strategic use of green infrastructure, especially to support urban boulevard trees, transportation-adjacent wetlands, streams, and Lake Superior.



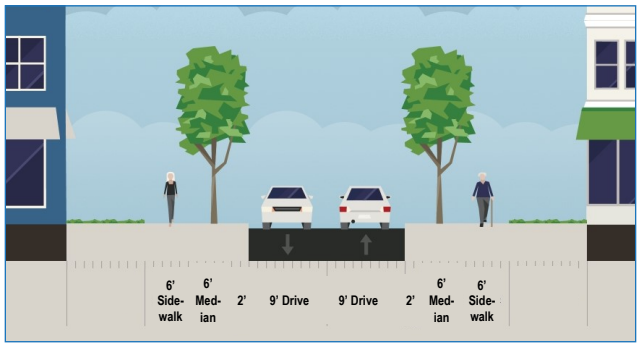



# EXAMPLES OF NARROWER WIDTHS

## Residential Streets Without Parking

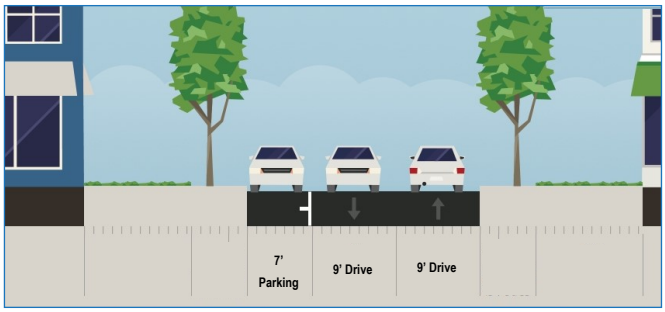



No sidewalks

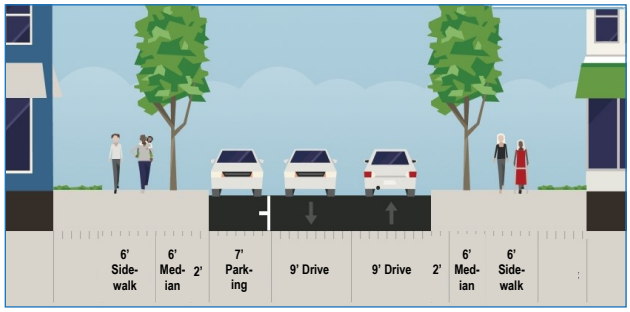



Sidewalks

## Residential Streets With Parking




No sidewalks




Sidewalks

# Policy #3 – Add to the transportation network by systematically enhancing multimodal options

*Multimodal options allow for efficient, equitable, healthy transportation. This policy identifies improvements needed to effectively extend these options to a wide range of Duluthians.*

**Multi-modal transportation** covers transit, bicycle, and pedestrian travel, as well as automobile travel – including car sharing, carpooling, and rideshare. Important enhancements in multi-modal transportation include wayfinding, sidewalks connecting to destinations, space dedicated for bike racks, and connections between modes.

**S1.** Recognize that people are pedestrians at some point in their daily travels—even if walking is used in conjunction with other modes—and prioritize pedestrian safety and comfort in transportation improvements.

**S2.** Update development policies to ensure new development includes appropriate supporting infrastructure; options in Core Investment Areas, ensure this includes the full suite of transportation options.

**S3.** Update the UDC to include best practices for vehicle parking, bicycle parking, pedestrian connections, and transit stop requirements. Such requirements should be standardized for all modes.

**S4.** Minimize or eliminate use of angled or perpendicular parking to improve safety conditions for bicyclists, except where perpendicular parking is necessary or required due to steep topography.

**S5.** Consider options for expending parking meter revenue near where it is collected, and manage pricing to increase on-street cost, making it more comparable to ramp pricing.

**S6.** Develop programmatic actions to promote rideshare, carshare, and bikeshare programs. Incentivize employer support for biking and transit use.

**S7.** Conduct analysis of options for improving uphill/downhill connections in areas of high housing, job, and tourist density, especially between key destinations and areas where people seek to travel without use of a personal vehicle. The analysis should include an evaluation of a mode's capital and operational investments and requirements.

**S8.** Maintain existing public stairways and add new stairways where appropriate. Add bike rails where appropriate. Consider naming stairways using unique identifiers, and install signage to add to the level of public awareness and enjoyment.

**S9.** Identify study area and multi-modal needs for the future Northern Lights Express station.

**S10.** Standardize regulatory requirements for installation of bike racks to ensure ease of maintenance and security of bikes against theft.

**S11.** Complete planned trails and bike lanes to connect gaps in the bicycle route network. Prioritize protected bike lanes over unprotected bike lanes. Increase bicycle parking, both public and private, in coordination with partners.


Sample ideas from the focus group of how to improve a streetscape for all modes.

**S12.** Prioritize transit route service and expansion between areas of the greatest population and employment densities, in coordination with the Duluth Transit Authority. Seek to establish a network of specific routes with rapid frequencies, such as between Downtown and Lincoln Park.

**S13.** Improve transit amenities and transit stop conditions, creating a prioritized strategy for capital investment to reflect continuous incremental improvements in partnership with the DTA. Focus initially on investments in and around Core Investment Areas.

**S14.** Increase bike capacity on buses and identify ways for non-traditional bikes to travel by bus.

**S15.** Minimize transit system route changes that negatively impact service to transit-dependent people in the city.

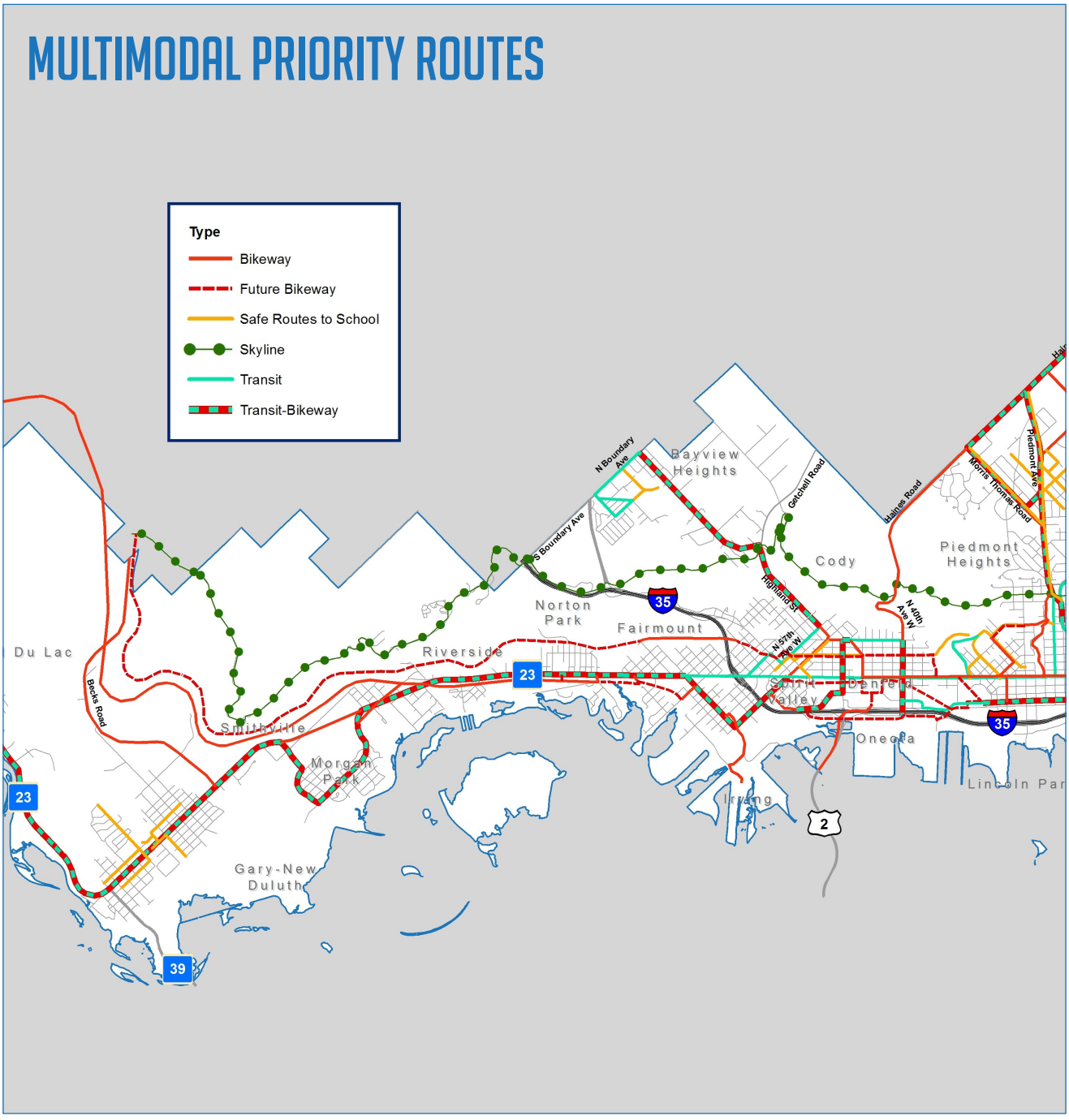
**S16.** Develop implementation actions to prioritize snow removal at transit shelters and along sidewalks serving transit stops.

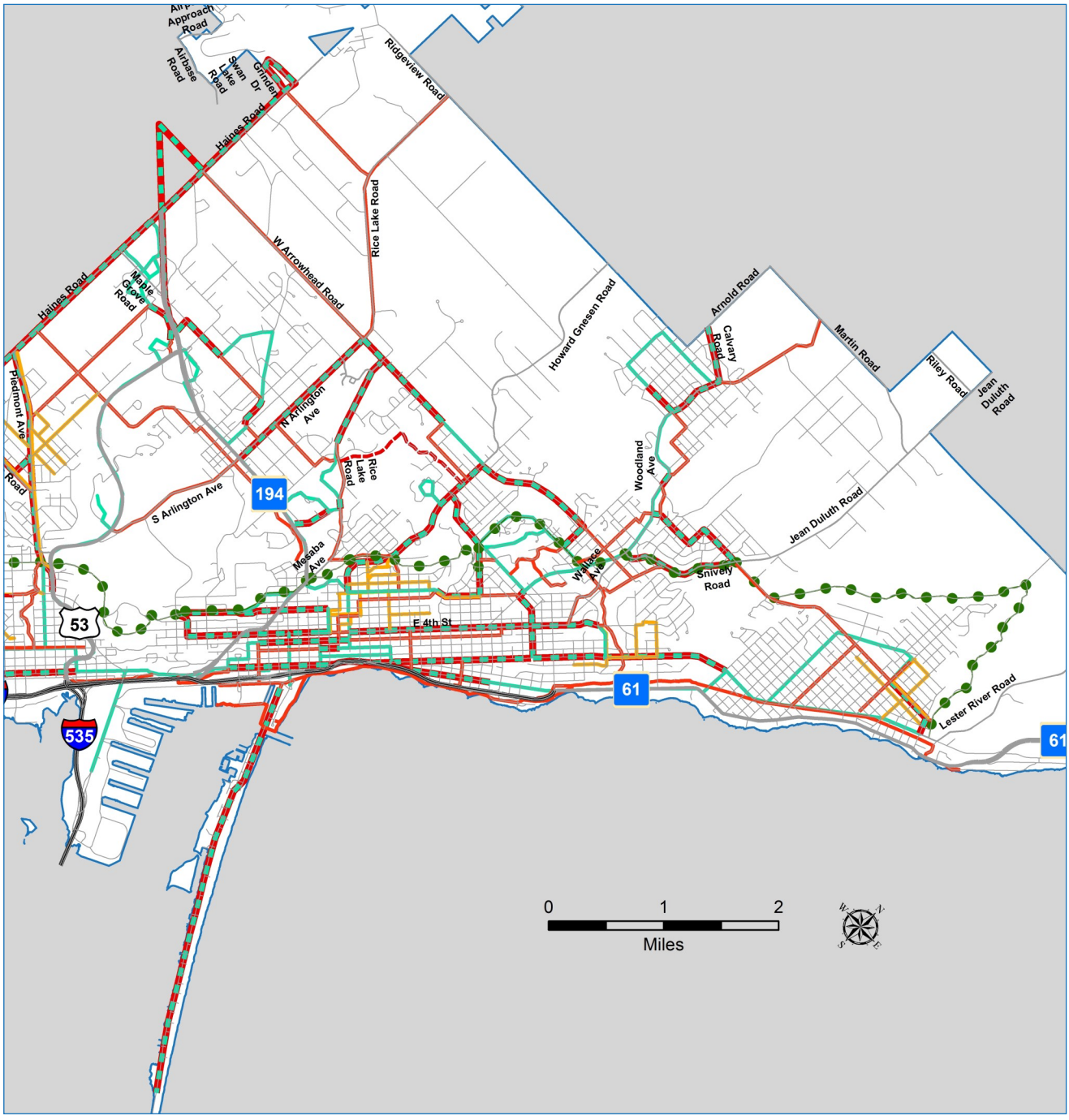
**S17.** Collaborate with the DTA to improve transit branding and marketing, including user-friendly tools such as smartphones, and updates to bus stop signage and design.

**S18.** Improve 'park and ride' design and marketing.

**S19.** Work with the DTA to consider system improvements such as creation of a Bus Rapid Transit corridor (or similar); alignment of route schedules with schools, airport, and businesses; and access to grocery stores.

# MULTIMODAL PRIORITY ROUTES




Airport Approach Road
Airbase Road
Swan Lake Road
Grinden Dr
Haines Road
Ridgeview Road
Rice Lake Road
W Arrowhead Road
Haines Road
Maple Grove Road
Piedmont Ave
Road
N Arlington Ave
S Arlington Ave
194
Rice Lake Road
Mesaba Ave
53
E 4th St
535
61
Howard Gnesen Road
Arnold Road
Calvary Road
Martin Road
Riley Road
Jean Duluth Road
Woodland Ave
Wallace Ave
Snively Road
Jean Duluth Road
Lester River Road
61
0
1
2
Miles

# Policy #4 – Improve system condition and connections in and between Downtown and Canal Park

*This area of Duluth was consistently identified as having unique transportation needs compared to the remainder of the city, due to congestion and volume of commuters and visitors. Access to and within this area requires creative strategies for events and peak times as well as consistent and easy-to-understand wayfinding.*

S1. Develop a dynamic parking information system to direct commuters and visitors from regional infrastructure to the most effective available parking opportunity in either downtown or Canal Park.

S2. Conduct an evaluation of parking demand and potential use in downtown and Canal Park, taking into account the unique walksheds arising due to obstacles and topography.

S3. Enhance partnerships with MnDOT, the DTA, and the DECC to improve sidewalk, bike, and road conditions for all users between Downtown and Canal Park.

S4. Expand opportunities for transit circulation and stops in Downtown and Canal Park. Consider expansion of the 'downtown fare zone' to locations further east and west, and improve residents' and tourists' awareness of such transit ridership opportunities.

S5. Improve pedestrian crossings in high-traffic areas through the use of mid-block crossings, bumpouts, and signal phasing.

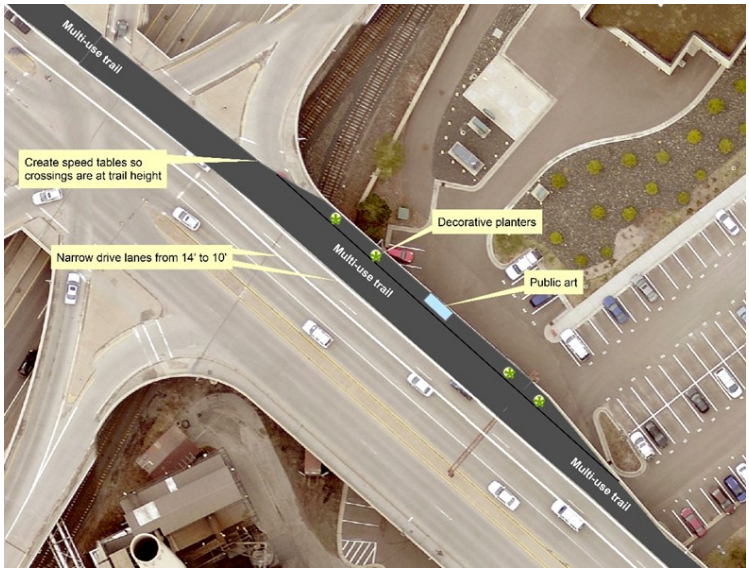
S6. Improve alleys Downtown and in Canal Park to create new commercial opportunities. Focus first on the alley between S. Lake Avenue and Canal Park Drive, where existing conditions function as a woonerf (shared pedestrian/street area). Consider eliminating one-way alley conditions and creating unique named identifiers for Downtown alleys.

S7. Evaluate and update Downtown's streets plan to guide future improvements, including the eventual likelihood of conversion of one-way streets to two-way streets.

S8. Improve options for walking in Canal Park through evaluation of changes to Buchanan Street, the Baywalk, and other areas.

S9. Identify options for downtown plazas to serve pedestrians and increase the livelihood and level of activity downtown.

S10. Complete the skywalk system and enhance wayfinding both within and between skywalks and street-level access points and destinations.




## Policy #5 – Base decisions about transportation infrastructure primarily on improving city and neighborhood vitality, and not solely on automobile through-put

*Transportation systems impact neighborhoods where people live, work, and play. These networks can either negatively impact the city through excess noise, speeds, or creating sprawl, or positively impact neighborhoods by helping to create identifiable destinations.*

S1. Implement use of traditional elements of the transportation landscape as public art opportunities. Use existing models where cities allow art on utility cabinets, on pavement at intersections, and on bike racks and fire hydrants.

S2. Establish a high standard for transportation infrastructure within all Core Investment Areas, including ample pedestrian infrastructure, well-designed parking areas, a legal structure for shared parking, and an adequate level of bike parking.

S3. Expand and retain urban trees during street construction and other improvements when appropriate..

S4. Installation of green infrastructure should emphasize both environmental and aesthetic amenities. Maintenance plans for green infrastructure should be included for any installations.

S5. Incorporate creative placemaking and art into street, transit, and trail projects.

S6. Use appropriate lighting to promote safety for all modes.

S7. Strengthen connectivity standards to require more pedestrian and bicycle paths through parking lots to increase local access to businesses and services.

## Policy #6 – Protect and enhance regional transportation networks, especially for purposes of expanding opportunities for movement of freight

*Freight movement is vital for Duluth's economy and its identity as a port city. Freight has become increasingly intermodal and interconnected; this policy supports truck, air, water, and rail needs.*

S1. Support the work of the HTAC, DSPA, USACE, USCG, and other stakeholders to ensure continued maintenance of Duluth's shipping channels and port facilities.

S2. Promote the use of appropriate regional freight corridors and intermodal facilities for the success of water-borne commerce and shipping by truck and rail.

S3. Seek to ensure that reconstruction of the Twin Ports Interchange at US Hwy 53 and Interstate 35 meets the competing needs of freight transportation, safety, and neighborhood connectivity and improvements, particularly in Lincoln Park.

S4. Support infrastructure improvements at the Duluth International Airport, including through development of the 3-21 crosswind runway. Structure economic development policies and opportunities for growth in such a way as to support increased activity at the airport.

S5. Collaborate with the MIC, DIA, and DSPA to develop a plan for coordinated transportation investments to support the export and mobility of freight by truck, air, and rail.

S6. Expand public-private partnerships with rail freight companies to maintain, improve, and expand rail infrastructure.

# Funding & Projects

The above policies and strategies introduce an ambitious suite of transportation improvements throughout the city, many of which require the City to procure funding from various sources. Specific projects include:

- Yearly crack sealing and chip sealing where needed to preserve the life of existing streets.
- Reconditioning and reconstruction of streets used for transit lines, bike routes, or with high traffic volumes that have a Pavement Quality Index lower than 70.
- Implementation of a snow emergency plowing system.
- Improvements to Skyline Parkway for all modes.
- Reestablishment of the Snow Angels program to aid with sidewalk clearing, and staffing for enforcement of snow violations.
- Sidewalk improvements to bring all sidewalks within ¼ mile of a transit stop to "fair" or "good" condition.
- Implementation of the ADA Transition Plan, including pedestrian improvements in the mall area.
- Install bumpouts, crosswalks, and other pedestrian crossing improvements where called for in Safe Routes to School plans and Core Investment Areas.
- Upgrades in technology to implement dynamic pricing strategies in parking ramps and on-street parking.
- Creation of a bike sharing feasibility study.
- Transportation infrastructure that facilitates up/downhill mobility (i.e. aerial gondola).
- Completion of the Campus Connector.
- Creation of a bike facility connecting the Cross City Trail to London Road, through Downtown.
- Completion of the Cross City Trail.
- Widening and/or reconstruction of the Lakewalk from Canal Park to 21st Avenue E.
- Planning and implementation of bicycle parking in rights-of-way.

- Pedestrian and bike improvements on the Lake Avenue and 5th Avenue West bridges, to include either widening the bridge structures or narrowing drive lanes to gain space for multiple modes.
- Plan for Downtown streets and streetscape.
- Improvements to the alley between S Lake Avenue and Canal Park Drive.
- Reconstruction of the Baywalk behind the DECC.
- A parking plan for Downtown and Canal Park.
- Twin Ports Interchange funding that connects Lincoln Park to Courtland Street.
- Transportation funding can be complex. The City will work to seek funding from sources including:
    - Federal state aid road funds;
    - Federal and state funds for MnDOT roads;
    - Safe Routes to School grant opportunities;
    - Public health funding;
    - Local tax revenue;
    - Green infrastructure grants;
    - Transit funding, such as the Small Starts program.

As projects are implemented, they will be subject to further review and consideration by appropriate City departments and commissions, as well as other agencies. Updates to this section (Funding & Projects) shall be incorporated as comprehensive plan implementation proceeds.