



DEVELOPMENT PLAN - VOL.II

DESTINATION MEDICAL CENTER
ROCHESTER, MINNESOTA
VOLUME II - PLANNING DOCUMENTS



The DMC Development District will experience an influx of targeted civic and transportation investments to support substantial employment growth and private investment.

Images from Nelson\Nygaard

SECTION 7.0 TRANSPORTATION PLAN

7.1 INTRODUCTION

7.1.1 DMC TRANSPORTATION PLAN PURPOSE AND STRATEGY

The City of Rochester, Olmsted County, and State of Minnesota have the unique opportunity to establish the world's foremost medical destination built around a vibrant and growing urban center. The DMC initiative will sustain and support a new 24-hour community where employees are able to enjoy dinner after work without fear of missing their ride home; where patients and their families arrive in a city with a multitude of activities connected by beautiful streets and numerous mobility options; and where downtown residents can meet their daily needs within a short walk. Transportation investments herein provide the connective fabric to tie the DMC vision together and spur economic development.

The DMC has established goals to increase the downtown workforce by 35,000 or more employees and to increase visitation to 6-7 million visits annually. Accommodating Mayo Clinic growth along with other private commercial and residential development will require substantial mode shift from single-occupant vehicles to transit, non-motorized travel, and ridesharing. This mode shift will be engendered by unprecedented infrastructure investment and other policy mechanisms discussed in subsequent sections. These investments are fundamental to sustain quality access to downtown for workers and visitors and to move people within the downtown area. They also support the broader goal of the DMC Development Plan – to make Downtown Rochester a world class destination city with the world's best medical center at its core.

A primary function of this Transportation Plan is to provide investment guidance for DMC transit and transportation infrastructure funding. This recognizes the need for enhanced workforce access and quality transportation options to grow a competitive, diverse, and sustainable economic center in Rochester. The transportation element of the DMC Development Plan serves as a guiding investment strategy based on sound market analysis and full integration with the 20-year DMC development program. It guides investment of DMC dollars directed to transit and transportation projects, including \$116 million in State Transit Aid (approximately \$47 million of which will come from Olmsted County), and public infrastructure funding to support other transportation related improvements such as streets and parking structure. The strategy has been established to leverage DMC funding with City/County Capital Improvement Plan (CIP) funding, projects identified in the sales tax extension (approved in 2013), current and future State (MDOT)

funding, and potential federal funding / investments that may be available to support these improvements.

The Transportation Plan responds to the rapidly changing needs of a fast-growth urban center by determining the mix of investments that serve both mobility and destination building functions. This plan leverages the ability of each transportation investment to deliver on broader DMC and Rochester community objectives related to economic development, livability, quality of life, destination placemaking for residents and visitors, social cohesion, and ecological sustainability. This plan identifies the transportation investments that will:

- Cost effectively accommodate anticipated demand for both regional trips to/from and short trips within downtown Rochester
- Catalyze economic development
- Establish a vibrant place and destination community
- Contribute to realizing the DMC objectives established in Section 1.1

The DMC transportation framework and its associated investments reflect major changes transpiring in Rochester over the next 20 years. These changes include:

- Intense land use development in the downtown area
- Concentrated employment growth particularly in districts with major Mayo Clinic influence
- Rise of downtown as a residential neighborhood
- Increased demand for downtown access
- Critical need for destination placemaking connecting new and existing activity centers
- Rapidly changing travel behavior, consumption preferences, and essential living infrastructure

SUPPORTING THE DMC'S EIGHT CORE AREAS

The DMC Transportation Plan is not just an investment strategy; it is specifically designed to help realize the DMC vision. Grounded on input and support from the broad community, the Destination Medical Center Corporation (DMCC) identified eight core areas that deliver a world-class destination medical center and underpin the Development Plan. These include:

- Livable City, Retail & Dining
- Sports, Recreation & Nature
- Hotel & Hospitality
- Commercial Research & Technology
- Health & Wellness
- Learning environment
- Entertainment, Arts and Culture, & Civic
- Transportation

Not only will the DMC Transportation Plan keep Rochester's residents, employees, and visitors moving,



FIGURE 7.1-1 - DMC TRANSPORTATION PLAN SUPPORTS THE EIGHT CORE AREAS

The recommended investments established in the DMC Transportation Plan help to achieve the Core Areas of the DMC Development Plan as well as the DMC vision.

Image from Nelson\Nygaard

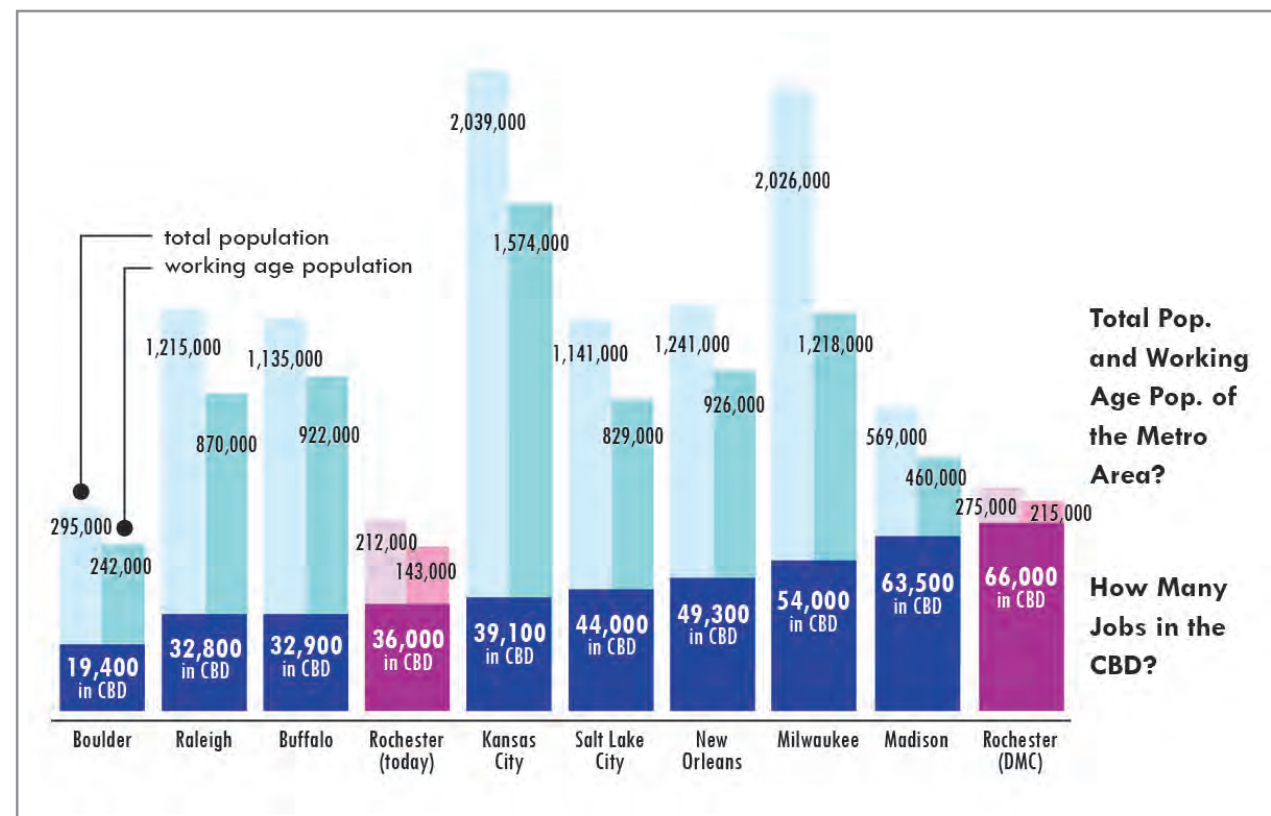


FIGURE 7.1-2 -PEER COMPARISON: RATIO OF DOWNTOWN JOBS TO REGIONAL POPULATION

The ratio of downtown jobs to regional population in Rochester is very high when compared to cities around the United State. The workforce challenge is particularly evident when projected downtown jobs (Rochester – DMC) are compared to future working age population.

Source: American Community Survey 2013

RESPONDING TO CHANGING MOBILITY CHALLENGES AND TRENDS

During the next 20 years, Rochester's employment in the downtown core alone is projected to increase by nearly 65% – this could lead to as many as 35,000 additional people accessing downtown and utilizing the City's limited road space each day. Couple this with increases in visitors, the downtown resident base, and the growth and expansion of UMR and the demand for transportation improvements magnifies. In addition to the challenge of accommodating growth, the DMC Transportation Plan responds to a number of important trends and challenges, including:

- **Workforce demands higher than population growth:** Commute trips into downtown Rochester are highly concentrated during peak travel hours and results in a significant impact on traffic operations. Over the next 20 years, downtown Rochester is expected to experience a 65% growth in total jobs and a 30% increase in population. As demonstrated in Figure 7.1-2, this represents a widening gap between working age residents and needed workforce. This drastic increase in growth will require improvements to the current transportation network to provide effective mobility options to employment locations within downtown Rochester. Taking commuters off the road and onto transit frees up road space and available parking for downtown visitors, business people, patients, customers, and other who drive the local economy.
- **Limited land and increasing property values:** Early analysis of parking required to support the anticipated DMC travel demand without any shift towards transit equates to nearly 180 acres (or 7,854,889 square feet) of surface parking. This would consume eight full city blocks of six story parking structures. Increased access by transit significantly reduces the needed parking footprint. Reduced parking requirements results in better use of downtown property, eliminates construction costs for structure parking that can be as high as \$25,000 - \$60,000 (2014 dollars) per stall, and reduces operating and maintenance costs associated with parking. Cost savings yielded from parking will free up revenue for other uses.
- **Changing transportation preferences:** Transportation preferences among younger generations are changing – young adults are driving less and show a clear preference for options to bike, walk, and take transit. The millennial generation is the first generation in decades that drives less than their parents and the number of young people with a driver's license is declining.¹ Mobile technologies have changed how this generation connects with their peers, how and where they choose to live, how they work, and consequently how they travel. Attracting workforce to attract the next generation of employee to Rochester will require a truly multimodal transportation system with options for all workers and travel needs.
- **Unending public health challenges for visitors:** While Olmsted County ranks number one in health outcomes in Minnesota amongst residents, Rochester's seat as an international medical destination positions it for a continued push for world-changing health outcomes; Rochester has the opportunity to be a living laboratory for healthy and active transportation.
- **Growth in personal technology:** Reliance on technology is increasing at an unprecedented pace and provides an opportunity to expand the availability and use of public transit and other shared mobility options like car share, bike share, and on-demand transportation services.

Investing in a balanced transportation system provides an opportunity to respond to these current and impending societal trends.

¹ According to the Federal Highway Administration, from 2000 to 2010, the share of 14 to 34-year-olds without a driver's license increased from 21 percent to 26 percent. Federal Highway Administration, Highway Statistics 2010—Table DL-20, September 2011.

7.1.2 TRANSPORTATION PRINCIPLES FOR THE DMC

Transportation plays a crucial role in urban development by providing access for people to education, markets, employment, recreation, health care, and other key services. Rochester is no different. The world's healthiest cities – economically, socially, environmentally, and personally – share common traits in their urban form and transportation systems:

- Land use patterns that encourage short trips
- Improvements and facilities that make walking and bicycling safe, comfortable, and enjoyable
- Street networks that effectively balance the use of modes to optimize movement of people, not cars, and facilitate movement of goods
- Transit systems that link people to jobs, provide high quality service throughout the day, and are accessible to users of all ages and abilities
- Streets, vehicles, and facilities that are designed to accommodate all users, including those with mobility impairments, disabilities, and other special needs
- Built environments that allow city dwellers and visitors of all ages to be active, recreate, and exercise outdoors while being part of vibrant neighborhood life
- Access and parking management policies, programs, pricing, and incentives that support the efficient use of sustainable transportation infrastructure

No two cities have the same mix of these elements; each responds to local economic, demographic, topographic, and environmental conditions. However, all great cities have transportation systems that share these features and conditions.

Most importantly for the DMC, the powerful combination of investments and strategies that move Rochester toward a balanced, sustainable transportation system is a foundation for accommodating new development, diversifying the economy, and meeting DMC economic development targets.

The Destination Medical Center plan proposes nine key transportation principles. Each guides the development of a set of phased projects, investments, and actions.

1. MAKE IT EASY, AFFORDABLE, AND CONVENIENT FOR PEOPLE FROM SOUTHEAST MINNESOTA AND AROUND THE WORLD TO GET TO DOWNTOWN ROCHESTER

Rochester's relative isolation from a large metro area and large international airport or transportation hub is a competitive challenge that Rochester and the Mayo Clinic must face head on.

Today, most visitors, patients, and workers arrive in downtown Rochester by car. For first-time visitors, finding their destination and parking can be a daunting experience. The majority of visitors to Rochester including Mayo Clinic patients will continue to arrive by car. Mayo Clinic has indicated that this option is favored by many patients as the length of stay is often unknown and flexibility is an important element of the patient experience. Patients and visitors will arrive to inviting downtown gateways, legible wayfinding and public information, and parking directional signage to guide them to convenient parking locations.

World-class pedestrian facilities and frequent transit service will await them.

The plan includes new parking to accommodate more visitors, patients, and workers, prioritizing in-district parking for the most economically productive uses. The plan also calls for increased access by bus and shuttle, by air to Rochester International Airport and MSP, and for the possibility of a future passenger rail link between Rochester and the Twin Cities.

Early planning efforts are underway for a high-speed rail link between the Twin Cities and Rochester, however, even if this effort succeeds, it could be decades before planning, environmental clearances, property acquisition, design, and construction is complete. It is likely that a high-quality, all-day transit connection between Minnesota's two largest urban areas will be established before that time to serve growing demand for Mayo Clinic access. While visitation to Rochester will more than double over the next 20 years, the market for regional transit will continue to be driven by the commute market traveling to and from downtown Rochester primarily for employment purposes. This increased demand will require fast, convenient, comfortable, and affordable transit service. The DMC Development Plan envisions a Central Station neighborhood anchored by the Transit Terrace, an intermodal facility and point of connection for current and future expanded regional and local transit and transportation services, including Twin Cities to Rochester service.

The Rochester International Airport is a critical access point for Mayo Clinic, Rochester, and Southeast Minnesota and is vital to the DMC's success. However, it is important to recognize the challenges of growing service at a small market airport in the current airline market. The plan stresses maintaining Rochester International Airport as a regional point of arrival/departure, while strengthening the surface transportation linkage between Rochester and Minneapolis – St. Paul International Airport.

2. BRING 30% OF THE WORKFORCE TO DOWNTOWN ROCHESTER ON TRANSIT BY 2035

If Rochester's downtown employment projections are reached (a sign of DMC success) and commuters continue to travel as they do today (about 70% of people drive alone), roadways will be severely congested and 180 acres of surface parking or eight full city blocks of six story parking structures will be required. Analysis shows that Rochester will need at least 23% and as many as 30% of commuters to travel by transit to downtown in 2035 to ensure that the roadway system continues to operate efficiently and parking construction does not supersede planned development. There is a strong economic case for implementing transit improvements that meet this goal, specifically:

- Transit delivers employees from the region needed to fill the local workforce gap.
- Transit commuting reduces parking demand, providing more road space and parking for priority visitors including patients, tourists, and retail customers.
- More transit commuters allow highest and best use of downtown property.
- Transit commuters reduce parking need allowing tax producing uses (commercial uses produce 20 times the tax revenue of a structure parking stall).
- Transit commuting reduces traffic and allows pedestrian improvements and walkable neighborhoods central to the DMC strategy.



A conceptual rendering of a transit circulator operating along 2nd Street SW. The circulator is projected to generate between 11,080 to 14,550 trips per average weekday.

Image from Nelson\Nygaard

Transit, shared mobility like car share, and other non-auto modes are emerging as the preferred means of transportation for the Millennial generation—the workforce of tomorrow. Investing in transit not only serves a mobility and economic development function for the DMC, but also represents a key employee attraction and retention strategy. Rising evidence suggests that the Millennial generation is exhibiting a dramatic shift away from driving toward transit and other non-auto modes. This trend appears to persist even as economic conditions continue to improve. The DMC Transportation Plan, particularly the transit strategy, responds to the rising tide of young Americans that seek an alternative to a car-intensive lifestyle.

The transit strategy also recommends new transit amenities that serve the people living in Rochester. Residents will enjoy fast and reliable transit to downtown and transit circulation between DMC destinations. This strategy will be further elaborated and intricately linked to the City's Comprehensive Plan Update.

The DMC transit strategy is multifold. It includes:

- A state of the art regional transit center (the Transit Terrace) that anchors the new Central Station neighborhood and provides downtown facilities to accommodate expanded commuter coach services (assumes operations will expand with increased workforce) and regional intercity coach service between the Twin Cities, Minneapolis –St. Paul International Airport (MSP), and Rochester. This center is positioned to facilitate the potential for future rail access between the Twin Cities and Rochester, but the strategy is not dependent upon that use.
- New downtown transit pathways that consolidate bus services on fewer streets, provide proximate access to employment centers, and include improved, climate controlled passenger facilities.
- A modern streetcar circulator that provides high frequency, reliable connections between Saint Marys Place, Heart of the City, Downtown Waterfront, the Government Center, Barcelona Corner (residential neighborhood), Discovery Square, and Central Station (Transit Terrace).
- Improved pedestrian access to transit and high quality transit stops and stations with weather protection and climate control.

Transit services and facilities will be supported by a strong set of programs and commuter incentives to use transit. These should include flexible benefits that allow transit commuters the flexibility to drive occasionally. Building flexibility to drive and park occasionally into commuter benefit programs gives the downtown economy a boost by allowing commuters to stay downtown to dine, shop, and enjoy cultural activities (see Principles #3 and #7).

3. CREATE A PARK-ONCE DOWNTOWN ENVIRONMENT CONNECTED BY A FREQUENT DOWNTOWN CIRCULATOR

Downtown retail consultant Roger Brooks indicates that in most communities, the majority of downtown retail and restaurant spending happens after 6 p.m. Rochester does poorly in retaining its workforce in the downtown after work hours. Transit schedules and parking management are two of the factors that limit downtown employees' ability to stay in downtown to shop, dine, and recreate. A goal of the plan is

to create a park-once environment linked to a frequent downtown transit circulator that provides workers, residents, and visitors opportunity to park in or on the periphery of downtown and to move about without their car. Operating frequently and over long hours, the circulator provides mobility for people who are moving about downtown and connects remote parkers to their vehicles with frequent transit that operates into the late evening hours. Development of new downtown parking ramps, peripheral parking facilities, and the downtown circulator will be phased. Early phases of the plan will focus on creating new parking supply to support increased visitation and private development. The plan envisions phased development of the circulator with the east-west (initial phase) connecting Saint Marys Place to a redevelopment area south of the Government Center and the North-South segment (latter phase) connecting the SE terminus to Discovery Square and Central Station. Circulator project phasing would be coordinated with three large parking reservoirs developed on the west end, southeast, and north end of the transit line.

This strategy will help to eliminate the need for as many as 6,000 to 8,000 parking stalls in the downtown core, freeing land for tax-producing, developable space.

Enhanced branding for the park-once system, parking wayfinding for drivers and pedestrians, and incorporation of real-time parking information are all elements of the parking system that will be added to increase efficiency and enhance the visitor experience.

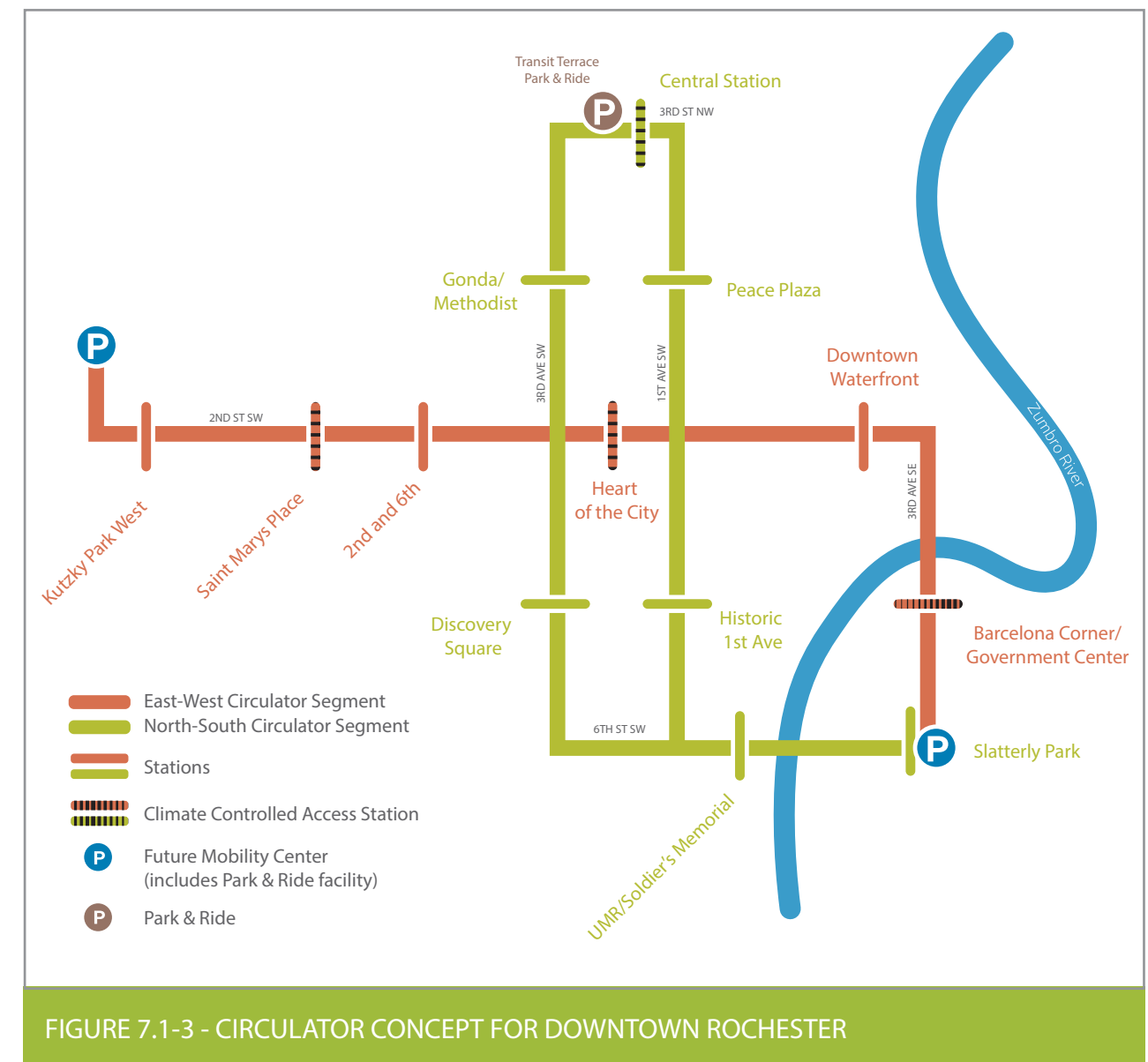
4. BUILD SHARED-PARKING PRIORITIZED FOR ECONOMIC DEVELOPMENT

Parking standards and management play an important role in determining the quality of a city's built environment. The DMC Development Plan assumes a shared parking approach—the simple concept of utilizing parking facilities jointly among different buildings or businesses in an area to take advantage of different peak parking characteristics.

A shared parking approach to access planning reduces parking demand in the DMC Development District by about 33% at plan buildout. Parked at current standards, the DMC development program will generate demand for about 38,000 new parking stalls downtown. Encouraging land uses that have different demand to share parking can reduce that demand to 23,000 stalls, roughly 17,000 accommodated in the DMC Development District. That equates to a reduction of in-downtown parking demand of 11,000 stalls, \$143 million to \$288 million in parking construction costs avoided, and reductions in annual operating costs. Parking demand analysis and assumptions are summarized in Section 7.4.1.

Some sharing occurs today within the public supply, but many opportunities are missed. While this is an operational strategy requiring coordination and some staffing resources, it is built into the assumptions backing the public facilities plan.

While shared parking is simple in concept, it is often challenging in application, due to the many public and private development and funding interests required to plan, design, and fund expensive parking structures. A successful shared parking approach will require regulatory changes and a new level of public-private cooperation in managing the system. Principle #7 addresses parking and access management.



The circulator concept will carry residents, visitors, and employees between park-and-ride locations, new mixed use neighborhoods, and other key downtown destinations.

Image from Nelson\Nygaard

5. CREATE WORLD-CLASS STREETS, DESIGNED FOR PEOPLE

Downtown Rochester is the economic heart of the region; its streets are the arteries that move the city's economic lifeblood – workers, patients, visitors, retail customers – and the goods they need and consume. In every successful downtown, street space becomes a commodity with demand that exceeds supply. Policy choices around management of this valuable resource shape the trajectory of a city. As transit commuting and visitation increases, the preponderance of trips in downtown will be on foot. Street investments recommended in the DMC will emphasize designs that place pedestrians first, ensuring walking on the street is safe, comfortable, and interesting. Streets will carry access and circulation traffic efficiently, but at speeds that are appropriate for a walkable and thriving downtown. Streets will not be designed to promote high-speed trips, through traffic that doesn't have a destination in or near downtown, or large truck traffic that is not delivering goods to the downtown or adjacent neighborhoods. Basic principles for street investments recommended in the DMC include:

- Focus design on movement and access for people, not cars. Thriving cities focus design on moving people efficiently using a balanced system of modes.
- Create places for people to linger, relax, and enjoy a rich civic life. The downtown street system forms the city's largest and most economically productive public space. Street designs should create opportunities for spontaneous connections, street side commerce, and great retail places.
- Streets, skyways, and subways should be designed to accommodate users of all ages and abilities. More than most other U.S. cities, downtown Rochester has visitors with a wide range of mobility needs, disabilities, and mobility challenges.
- Use private development to leverage improvements to the public rights-of-way. Unprecedented development offers opportunity for the City to leverage construction activities to improve sidewalks, roadways, and small pedestrian-oriented public spaces.

Broadway, 2nd Street, Civic Center, 6th Street, as well as 1st, 2nd, 3rd, and 4th, Avenues are all streets considered for investment in the plan.

6. CREATE AN EXCEPTIONAL PLACE FOR HEALTHY, HUMAN-POWERED TRANSPORTATION

Cities around the North America and worldwide have recognized that a strong economy attracting a young, diverse, and well-educated workforce requires walkable urban neighborhoods, comfortable streets that accommodate non-motorized transportation, and excellent urban recreation options. Downtown Rochester's street and trail network will serve as a living laboratory whereby the Mayo Clinic can educate its patients and actively promote healthy and active living via human-powered mobility. The plan proposes a world class downtown-oriented pedestrian and bicycle trail system designed to connect Rochester's downtown to outlying neighborhoods. The urban trail network, branded as the City Loop, will promote a connective greenway system throughout the downtown that encourages private investment and enhances the quality of life for residents. The City Loop will be a marketable reason people come to Rochester, not simply a safe, enjoyable, healthy way to move about. The Loop will be an attraction and will help catalyze and organize land use development. The City Loop offers connections to each DMC district, ties visitors, residents and workers to nature, culture, and entertainment, and provides a place for visitors of all ages, interests, and abilities to recreate within steps of their downtown hotel.

Linked to the City Loop network, a public system of shared bicycles, provided by Nice Ride Minnesota (which is interested in expanding to and has funding available for Rochester), will allow visitors, residents, and employees to affordably secure a bicycle for short trips between major destinations.

Other supportive investments that will expand active transportation and recreation opportunities include a world-class wayfinding system, a full service bike station, pedestrian enhancements along key downtown streets, as well as expansion and redesign of downtown's protected pedestrian pathways (the subways and skyways).

7. FORM A DOWNTOWN ROCHESTER ACCESS AUTHORITY

Developing and implementing a comprehensive downtown access and parking program is critical to achieving the DMC mission. Recognizing that DMC legislation directs funding to infrastructure improvements, not programmatic or operational activities, this strategy is critical to ensuring DMC investments are optimized.

A key part of this strategy would be forwarding the work done to date to develop a Rochester Downtown Transportation Management Association (TMA). Based on a year-long study involving the City of Rochester, the Rochester Downtown Alliance, the Chamber of Commerce, the Mayo Clinic and others, a draft business plan and work plan for a TMA have been developed. The identified mission of the TMA directly supports the DMC vision; it is to:

- Create a thriving environment for business and community by building partnerships, delivering targeted transportation programs, and fostering economic vitality.
- Create a denser, more walkable, mixed-use downtown, the Rochester TMA promotes the availability of transportation options to effect reduced use of the single occupancy vehicle.



The Indianapolis Cultural Trail signifies a national groundswell for increased investment in downtown walkability and placemaking.

Images from Nelson\Nygaard

The TMA concept could be strengthened by integrating the City parking program (and potentially elements of the Mayo parking system over time) so that management activities and programs focus on the most efficient, economically productive, and customer friendly set of access program and parking management strategies. Financially, such an organization would be structured like a traditional parking authority, but with a broadened mission to manage employee and customer access and experience. Merging parking and transportation demand management functions would create an **Access Authority** that could effectively manage access demand.

The Access Authority would establish public-private partnerships focused on managing access resulting in significant changes in commute mode behavior as well as cost savings and value benefits to public and private stakeholders. Success of the DMC will require a significant transition of employees into commute modes such as transit, car/vanpools, walking, and cycling. The organization would facilitate this transition by providing management support and programs to reduce drive alone trips from 71% (2010) to 61% (2020) to 50% (2035) at a *minimum*. The aggressive target is to reduce drive alone trips to below 50%.

The Access Authority staff provides customized programs for employees, business owners, and property owners in the areas of transit, biking, ridesharing, and walking. The key to the program's success will be a coordinated and strategically focused partnership between public agencies, downtown property owners, employers, and employees. Desired outcomes of this partnership will include (but not be limited to):

- Lower transportation costs for downtown employers and employees
- More marketable downtown properties
- More efficient and effective use of existing and future parking supplies
- Better efficiencies in the use of land and reduced parking development costs (for both private and public sectors)
- Greater transit ridership
- Reduced traffic congestion
- A strong strategic transportation partnership between the public sector and the downtown business community
- Measurable success based on consensus targets for access and growth

8. INVEST IN SUSTAINABLE TRANSPORTATION INFRASTRUCTURE AND PROGRAMS THAT REDUCE THE ECOLOGICAL FOOTPRINT OF THE CITY

As Rochester's economy grows, so will its potential for environmental impacts including increased energy use for transportation. There is opportunity for the DMC to dramatically increase economic production and benefits for Rochester and SE Minnesota, while reducing these impacts through green building, energy efficiency, and increasing green space and tree cover. All of the previous seven principles stress sustainable transportation and contribute to reduced single-occupant driving and greenhouse gas emissions. Increasing the percent and number of people commuting by transit, adding transit modes that consume less fossil fuels, moving downtown circulation trips to electric transit, and walking all lead to less greenhouse gas emissions and less harmful pollutants from transportation vehicles. Perhaps more importantly, diverse, high-quality transportation options allow denser buildings and mixed-use

neighborhoods where the overall carbon footprint is greatly reduced when compared to single use, auto-oriented development.

9. USE DMC FUNDING TO LEVERAGE PUBLIC AND PRIVATE TRANSPORTATION INFRASTRUCTURE FUNDING

The DMC is an unprecedented opportunity to leverage funding for transportation infrastructure investment. Every area of investment presents opportunities to leverage non-DMC and non-local funds. Having local match funds in hand is an exceptional benefit when applying for many grant sourced funds. For example, Federal Transit Administration transit capital project grant programs such as Small Starts use local match funding as 50% of total project eligibility scoring. Having funds identified and immediately available ensures the highest possible score under this criterion.

This plan identifies opportunities to leverage other local, state, federal, and private funding for each prioritized capital project. Plan success won't be measured by what DMC funding can buy, but rather by the total of the investment it can leverage.

10. ESTABLISH AND MAINTAIN A TRANSPORTATION NETWORK THAT IS ACCESSIBLE AND INCLUSIVE TO PEOPLE OF ALL AGES, ABILITIES, AND STATES OF WELLNESS

Each day, downtown Rochester accommodates a range of workers, visitors, and residents. Unlike most downtowns, however, many who visit are sick, permanently or temporarily disabled, or seeking wellness. Accessibility is key to this strategy. The DMC envisions a downtown where people feel safe, secure, and comforted when moving around. This is particularly critical as Olmsted County's senior population (ages 65 and over) is projected to increase by 189% over the next 35 years. At the most basic level, this means providing accessible facilities on streets, skyways, subways, and where people transition between street and building. True success, however, is for all people, no matter their ability level, to have a delightful and interesting experience in Rochester. With barriers to mobility removed, people of all ages and abilities will be able to experience the destination place that the DMC strives to become.

This plan also recognizes the economic diversity of the Rochester community and the visitors it attracts. According to the Center for Neighborhood Technology's Housing + Transportation Affordability Index, the majority of households in Rochester's neighborhoods and counties immediately surrounding Olmsted County experience housing and transportation costs over 45% of total household income.¹ Traveling to and from Rochester and between its downtown destinations should be affordable and convenient regardless of economic condition. This is particularly important for low-wage service workers, a group that will increase significantly as visitation rises and the hospitality sector expands. Transportation investments recommended in subsequent chapters aim to provide affordable and equitable access for workers, visitors, patients, and residents.

¹ The traditional measure of affordability recommends that housing and transportation costs comprise no more than 45% of income.



Images from Nelson\Nygaard

7.2 OVERVIEW OF CURRENT SYSTEMS

Rochester exhibits many of the ingredients necessary to create a well-connected, active, economically thriving, and high quality urban destination center. The Development District is characterized by its walkable scale, dense street grid with relatively short block lengths, strong anchors (that will only grow stronger with sub-district expansion and concentrated investment), densely concentrated employment base, strong transit culture (necessitated in part by a constrained parking supply), and connections to a renowned regional trail network. The Transportation Plan builds upon the strengths of the existing transportation system and services, but also addresses where the system needs to build person moving capacity to meet the DMC's economic objectives.

This chapter summarizes the key elements of the Development District's transportation system; the building blocks that make downtown Rochester a great place. Additional findings within this chapter illuminate the access and mobility challenges facing the Development District today and in the future. Specific details related to the following modal systems are presented in the DMC Transportation Plan appendices:

- **Appendix 7:** Existing parking facilities and transportation demand management programs and impacts.
- **Appendix 8:** Detailed information related to existing transit services, key transit corridors and productivity, downtown transit center, park-and-ride system, and transit route information including local fixed route (Rochester Public Transit), regional commuter (Rochester City Lines), and private shuttle ridership, service frequencies, and service days and span.
- **Appendix 9:** Information related to existing street network classifications, the role of streets in downtown Rochester, traffic volumes, and intersection performance.
- **Appendix 10:** The quality of the existing pedestrian and bicycle environment including walking and bicycling network information, crossing facilities, and bicycle and pedestrian counts.

7.2.1 DMC DEVELOPMENT DISTRICT WORKFORCE ACCESS CHALLENGE

Rochester's downtown employment population compares to cities and metropolitan areas several times its size. Although a robust 10% of its workers commute by transit and almost one-fifth of people commute by carpool and active transportation (shown in Figure 7.2-1), anticipated growth for the Development District over the next 20 years points to an even larger employment population and a share of the metropolitan area job base comparable to cities with much more developed transit systems. The current portion of downtown commuters taking transit compares well to cities with similarly-sized downtowns, but still means that many new commuters will arrive by vehicles—and as a result will need parking. Downtown's available land is limited, surrounded by established residential neighborhoods, and dedication of land to parking structures to enable this level of employment growth will severely limit options for expanding Mayo Clinic, UMR, and other employment generators.

When strictly considering downtown employment, Rochester is comparable to cities that are much larger. However, many of these downtowns account for relatively small shares of their region's employment base, often close to 10%. Automobile commuting has driven the expansion of employment throughout these metropolitan areas. Cities with downtown employment concentrations comparable to Rochester's, such as Boulder or Madison, have taken a different policy approach that focus on transit and managed parking districts.

7.2.2 ACCESS AND MOBILITY PATTERNS

Understanding who accesses the DMC Development District, when or how often they arrive, and where they originate is essential to understand the implications of future growth and the changing needs of those that access jobs and health care in Rochester. Analyzing regional travel data is also important to understand latent demand for alternatives to driving to the DMC. The following sections document regional and citywide travel patterns and offer a cursory understanding of internal trip making within the Development District.

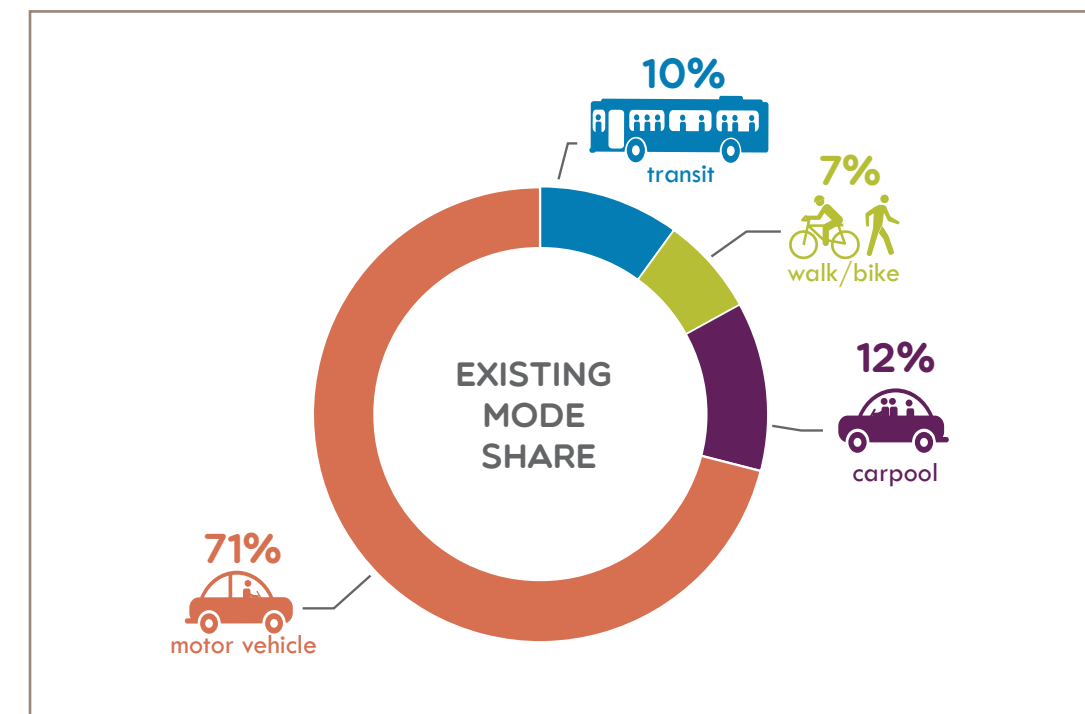


FIGURE 7.2-1 - EXISTING MODE SHARE (2014)

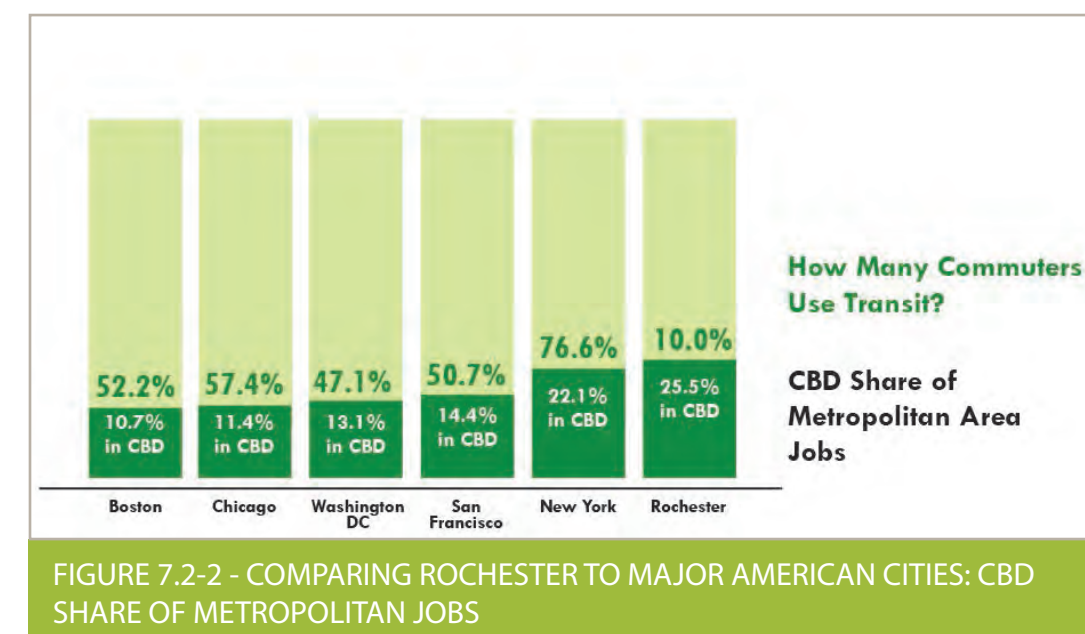


FIGURE 7.2-2 - COMPARING ROCHESTER TO MAJOR AMERICAN CITIES: CBD SHARE OF METROPOLITAN JOBS

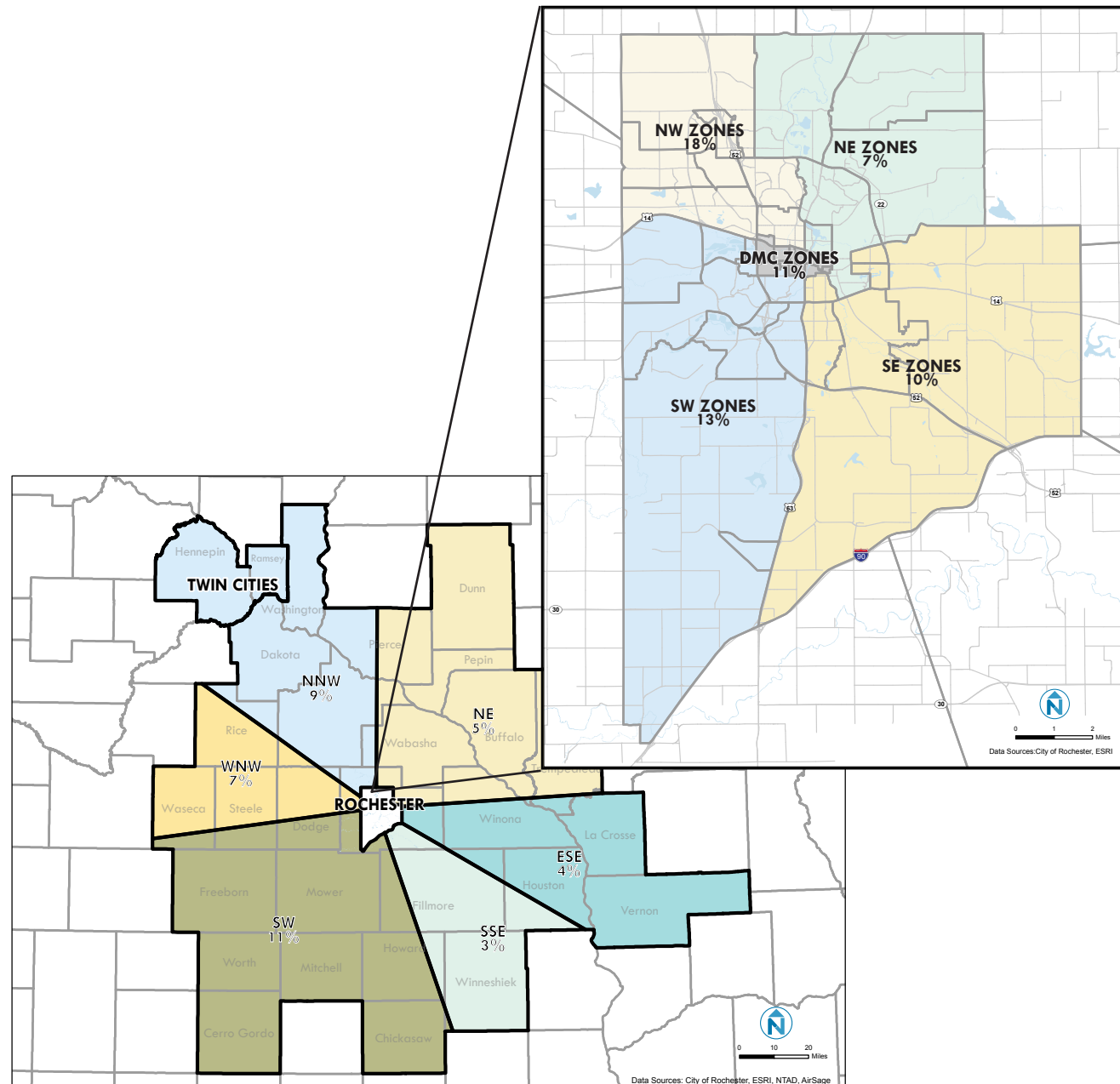


FIGURE 7.2-3 - PERCENT OF TRIPS TO THE DMC AREA FROM TRAVEL ZONES IN THE EXURBAN AND THE GREATER ROCHESTER AREA

Source: AirSage

7.2.2.1 REGIONAL TRAVEL PATTERNS

According to data obtained from AirSage Corporation¹, 60% of all travel to the Development District originates from within Rochester's city limits (in the zones shown in Figure 7.2-3). The northwest portion of Rochester generates the most trips to the Development District, with 18%. Of the 40% of trips to the DMC Development District from beyond Rochester, the greatest amount (11%) comes from the southwest of Rochester (including Austin and Albert Lea), with 9% from North-Northwest (including 3% from Hennepin and Ramsey Counties).

Visitor trips are slightly more likely to be generated from beyond Rochester, at 46% of the total. Visitors are also more likely to come from the northwest corridor along TH 52 including Hennepin County and Ramsey County with 10% of the total). Short and long-term visitor trips account for 10% of the total trips to the DMC Development District.

Nearly half of work trip commuting is from exurban areas, at 43% of the total. The southwest quadrant is again the dominant generator of trips at 11% of the total. Within the Rochester area, the northwest quadrant of the region accounts for 21% of the work trip commuters, followed by 15% from the southwest quadrant.

The following are additional key findings for trips destined to the DMC Development District:

- AM peak period trips are dominated by work trips at 60% of the total, with visitor traffic accounting for 8%.
- In the midday (47%) and PM peak (66%) time periods, resident non-work trips are the highest of the trips destined for the Development District; the nature of these trips, which could include trip activities similar to a visitor, cannot be determined (only that the activity is non-work and destined to the DMC Development District).
- Long-term visitors (of more than a couple of days) account for 84% of the visitor trips, with 94% of the AM peak period visitor trips.
- Visitor traffic, as a percent, is highest in the midday at 15% of the total trips, and 10% of the overall daily trips to the DMC Development District.
- Trips from Hennepin and Ramsey County include a significant amount of visitor traffic – these would be visitors to the DMC Development District who are staying in the Hennepin/Ramsey county area. As much as 11% of the total visitor traffic is coming from those two metro counties.
- Trips from Hennepin and Ramsey County include a significant amount of visitor traffic – these would be visitors to the DMC Development District who are staying in the Hennepin/Ramsey county area. As much as 11% of the total visitor traffic is coming from those two metro counties.
- Approximately 700 non-work trips per day are made by residents of Hennepin or Ramsey County to the DMC Development District. While the nature of these trips cannot be determined, they may include activities similar to a visitor. This number of trips is over 80% higher than the number of non-resident visitor trips to the DMC Development District from Hennepin and Ramsey counties.

¹ Data presented in this section was derived from locational signaling data from mobile devices purchased from the AirSage Corporation. This data was used to assess the origins and purposes of travel to the DMC Development District, which informs the transportation planning process. While not a statistically controlled dataset, it does contain over 40,000 records sampled to the DMC Development District, and includes both resident and visitors to the Rochester area. Travel is aggregated to the area generally corresponding to the DMC study boundaries, four quadrants of the greater Rochester city and suburban area, and six quadrants of the exurban area surrounding Rochester, including Hennepin and Ramsey counties.

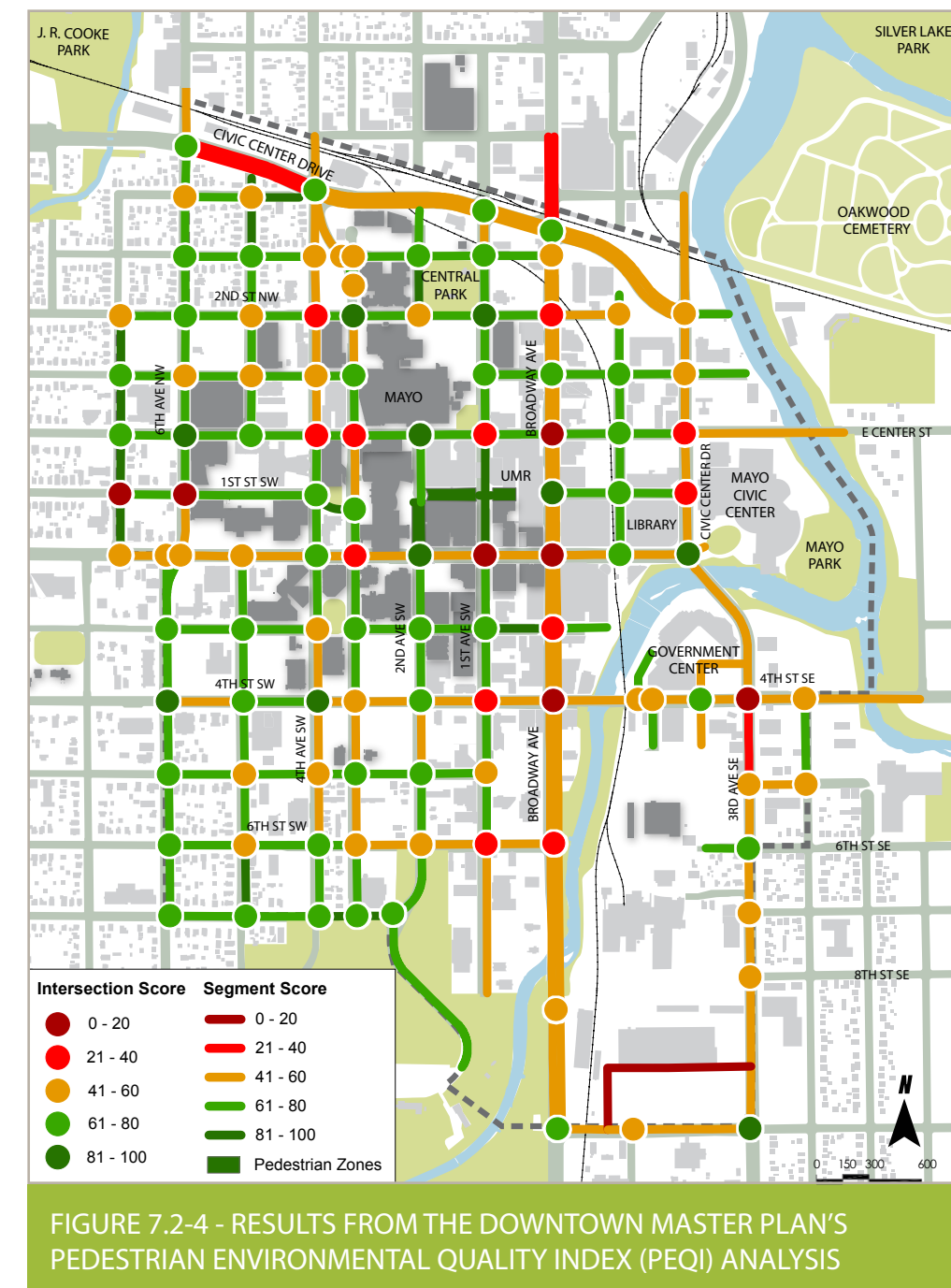
7.2.2.2 GETTING AROUND DOWNTOWN ROCHESTER

Due to the concentration of land uses and destinations in a relatively compact area, employees and visitors walk a considerable amount in the DMC Development District. Internal district circulation is driven by the Integrated Care model employed by Mayo Clinic and, thus, many people circulate between the main Mayo Clinic facilities in the Heart of the City and Saint Marys Hospital. These two anchors accommodate over 3,000 daily employee shuttle trips alone. Some people walk the ¾-mile distance between the two anchors during fair-weather months. The subway and skyway systems act as critical pedestrian arteries, connecting employees, patients, and other visitors between downtown destinations. As the Development District increases in density and the sub-districts begin to attract more trips of all types during all times of the day, there will be an expanded need for fast, weather-protected circulation.

DOWNTOWN GRID CONNECTIONS

Downtown Rochester is built on a grid of streets typical of many American downtowns. The number of intersections and their spacing offers numerous route choices and relatively direct routing. While parking facilities, driveway entrances, and blank institutional walls are prevalent, street connectivity is generally high compared to similar downtowns with major institutional land uses. A pedestrian analysis conducted during the Rochester Downtown Master Plan process found that downtown Rochester streets and intersections are generally safe and comfortable to walk along. Figure 7.2-4 summarizes the results of the pedestrian analysis. The base of walkable, well-connected streets in downtown Rochester allows the DMC Transportation Plan to focus on investments that both enhance the pedestrian environment into even more welcoming and inviting places and to improve the economic appeal of investing in downtown.

The extensive reach of both the downtown skyway network and Mayo Clinic's subway system between Mayo facilities draws many foot trips away from streets but are critical for downtown circulation during winter months.



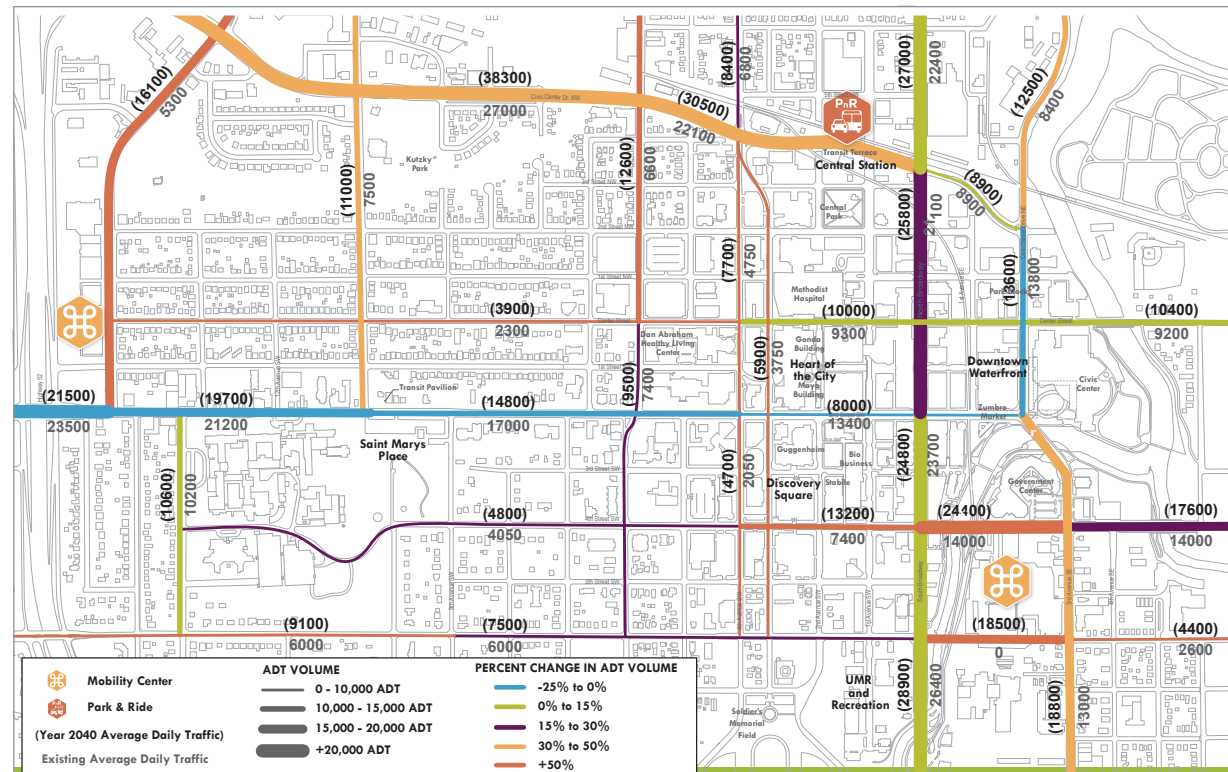


FIGURE 7.2-5 - EXISTING AND FUTURE (2040) AVERAGE DAILY TRAFFIC VOLUMES

7.2.3 CURRENT SYSTEMS AND OPPORTUNITIES

The following section summarizes the framing facts, data, and challenges related to mobility and access in the DMC Development District.

PRIMARY TRAFFIC STREETS AND DOWNTOWN PORTALS

The street network in the DMC Development District serves a range of users. The role of streets is far more diverse than simply moving people in cars and freight. Within the DMC District, streets provide access to destinations within the District, mobility through the District, avenues for deliveries, economic and social exchange, patient and visitor repose and exploration, and recreation. For auto parking, bus layovers, and utilities, streets function as storage facilities and sites for stormwater infiltration.

Broadway, 2nd Street SW, 3rd and 4th Avenue SW/NW, 6th Avenue SW, and Civic Center Drive serve as the primary conduits for moving vehicles in and out of downtown as well as the Development District's traditional portals. Broadway (CSAH 63), Civic Center Drive (west of Broadway), and 2nd Street are all principal arterial roadways. Forth Avenue West, 3rd Avenue West, Silver Lake Drive/Civic Center Drive/3rd Avenue East, and 6th Street SW (east of 4th Avenue SW) are all minor arterial roadways. The remaining corridors are either collectors or local roadways. Figure 7.2-5 confirms that these streets carry the greatest daily traffic load, which will only grow as DMC growth is realized. Appendix 9 provides more information on how key intersections perform today as well as in the future based on the DMC's future land use assumptions.

TRANSIT CONNECTIONS AND SERVICES

Transit is a vital element of access and mobility both to and within downtown Rochester. A variety of public and private transit services serve downtown Rochester, including the local fixed route transit system (Rochester Public Transit), regional commuter transit (Rochester City Lines), and Mayo Clinic's employee and patient shuttles.

Rochester Public Transit (RPT) offers 31 weekday routes offering extensive coverage for people seeking an alternative to driving to downtown. The hub-and-spoke fixed route transit system is centered on the Downtown Transit Center on 2nd Street SW. Transit passenger improvements to 2nd Street SW in 2010 drastically improved the transit experience in Rochester's core; however, anticipated increases in transit demand will require a new approach to connect people accessing downtown between transit and their final destination.

As displayed in Figure 7.2-6, weekday RPT ridership (6,670 average weekday riders) is highly concentrated on routes traveling in the north, northwest, and south directions, making up nearly three-quarters of total daily ridership. This is a result of above average population density, high park-and-ride utilization, commute demand, and transit dependent populations, all of which contribute to high transit ridership demand.

Regional commuters have the option to ride Rochester City Lines (RCL) or drive to one of the city's six park-and-ride lots and ride RPT's local transit into downtown. RCL operates a total of 102 daily one-way trips serving 40 surrounding communities. These regional services are critical options for downtown employees. Every weekday, roughly 4,200 passengers ride RCL and over 60% of park-and-ride spaces are utilized on weekdays. The reach and productivity of various RCL corridors is displayed in Figure 7.2-7.

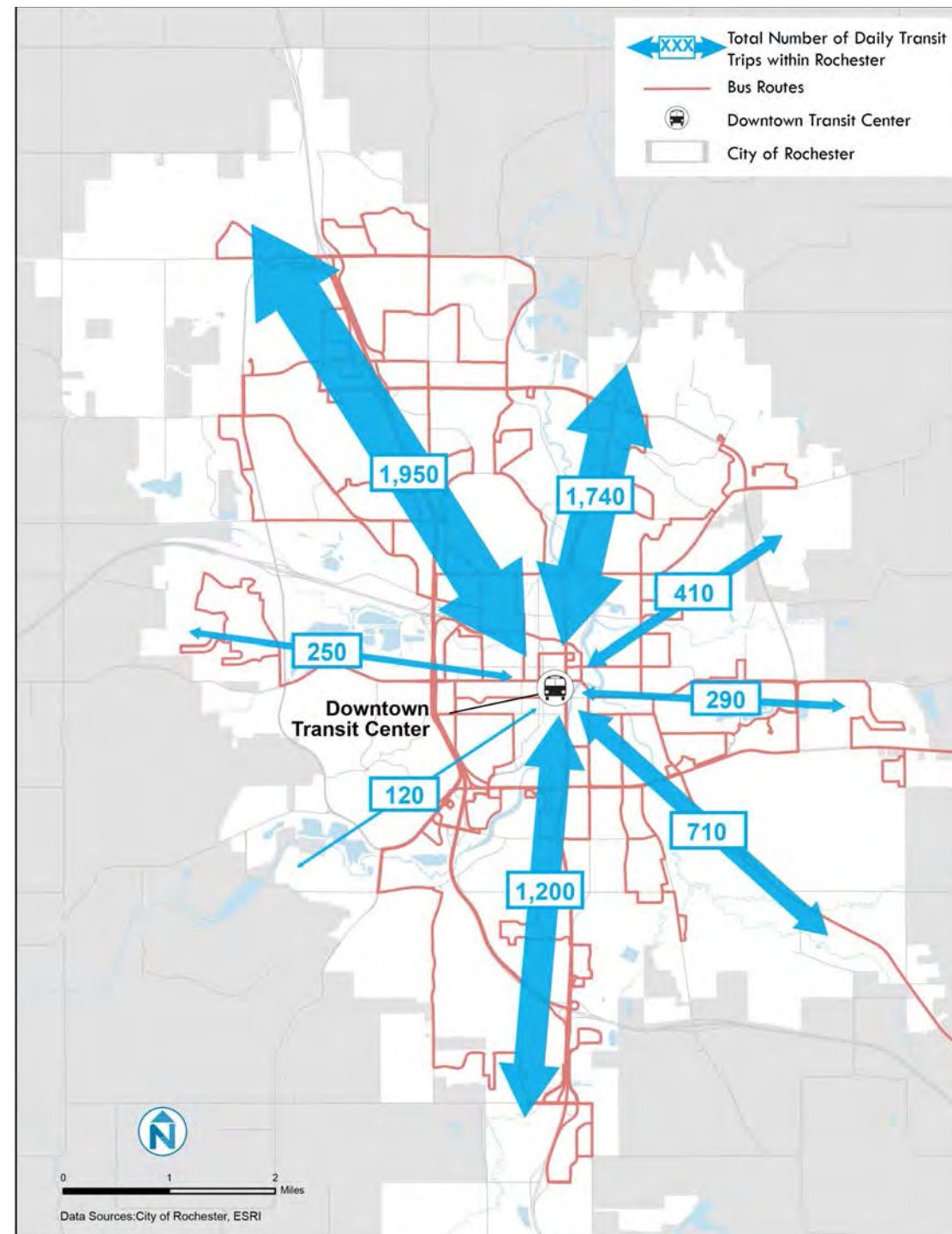


FIGURE 7.2-6 - EXISTING RPT RIDERSHIP BY SERVICE CORRIDOR

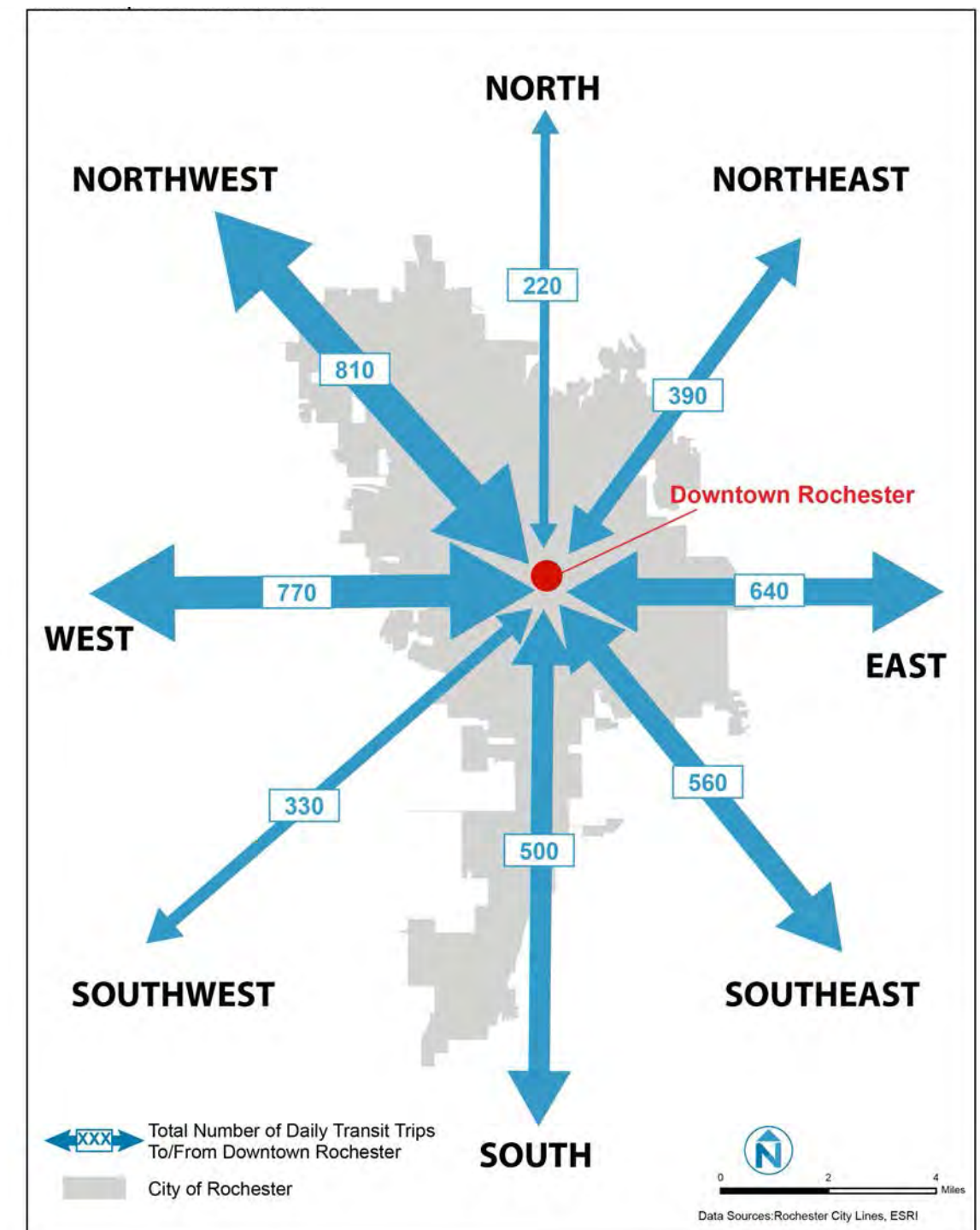


FIGURE 7.2-7 - EXISTING RCL RIDERSHIP BY SERVICE CORRIDOR



Parking for Mayo Clinic employees is limited but employees have access to a suite of commuter programs, such as subsidized transit passes and shuttle circulators.

Images from Nelson\Nygaard

PARKING DEMAND AND FOOTPRINT

Driving alone is the primary commute access mode to the Development District. Forty-six public and Mayo Clinic off-street parking facilities are provided to accommodate parking demand, amounting to over 16,000 parking stalls in downtown alone. The City also manages nearly 1,300 metered spaces within the downtown area.

Although vital to the continued success of the DMC Development District, downtown Rochester's parking footprint has created a development constraint that detracts from downtown's potential urban vitality. Parking supply cannot match growing demand for auto access. Ninety percent peak hour utilization and a nearly 10-year waiting list for Mayo Clinic parking signals the need for better parking policy, demand management, and high quality transit access and circulation.

The Mayo Clinic Transportation Demand Management (TDM) program is the only formal TDM program in the city and represents the institution's continued support of providing commute options for its employees and patients. Mayo Clinic recognizes that transit, carpooling, bicycling, and walking to work benefit drivers as well, since less commuters are driving during times that the roadway system is most utilized. The success of the Mayo Clinic's TDM programs is nationally recognized, receiving awards in 2009-2014 from the National Center for Transit Research as one of the nation's "Best Workplaces for Commuters." The Mayo Clinic TDM program includes the following features:

- Subsidized transit passes for RPT and RCL
- Park -and-ride lot sponsorship
- Shuttle circulators
- Rideshare and ride-matching services
- Bicycle and pedestrian commute amenities such as bike parking, "fix-it" maintenance stations, racks on shuttle buses, and showers and locker rooms at the Dan Abraham Healthy Living Center

PEDESTRIAN AND BICYCLE ENVIRONMENT

World-class destination cities are pedestrian-oriented at their core. Illustrated in Figure 7.2-8, downtown Rochester offers a three-tiered pedestrian network including surface-level sidewalks and pathways, skyways, and subways. Connections between these systems can be challenging for newcomers, but the off-street connections offer comfortable, weather protected pathways for people walking and rolling between key destinations. The PEQI analysis shown in Figure 7.2-4 above affirms that while sidewalks are well-designed in many areas of downtown (e.g., 1st Avenue SW), pedestrians can be met with uncomfortable or inconvenient connections and crossings in other areas of downtown. This is most challenging for mobility-impaired visitors and residents that need accessible paths to Mayo Clinic facilities.

Downtown Rochester offers a variety of pedestrian-oriented streetscapes that encourage people to promenade and patron local retail options, including 1st Avenue SW and portions of 2nd Street SW and 2nd Avenue SW. However, the majority of streets do not evoke the image of great, pedestrian-oriented spaces. Figure 7.2-9 shows the street segments that offer frontage that are activated, partially activated, or not at all activated (characterized by surface parking or blank walls). Most block faces outside of the Heart of the City sub-district do not offer pedestrian environments that capture interest, create lasting impression, and support active retail environments.

While the 2012 ROCOG Bicycle Master Plan sets a vision for a well-connected and comfortable bicycle network, downtown offers limited on-street bicycle facilities to support comfortable, low stress connections between destinations, or to the city's extensive trail network. Figure 7.2-10 displays the existing and planned downtown bikeway network. Sixth Street SW is the only street in downtown marked as an on-street dedicated bikeway. Limited bike parking and end-of-trip facilities are available to support longer distance commuting from outlying communities. A more comprehensive approach to downtown bicycle access is needed.



Images from Nelson\Nygaard

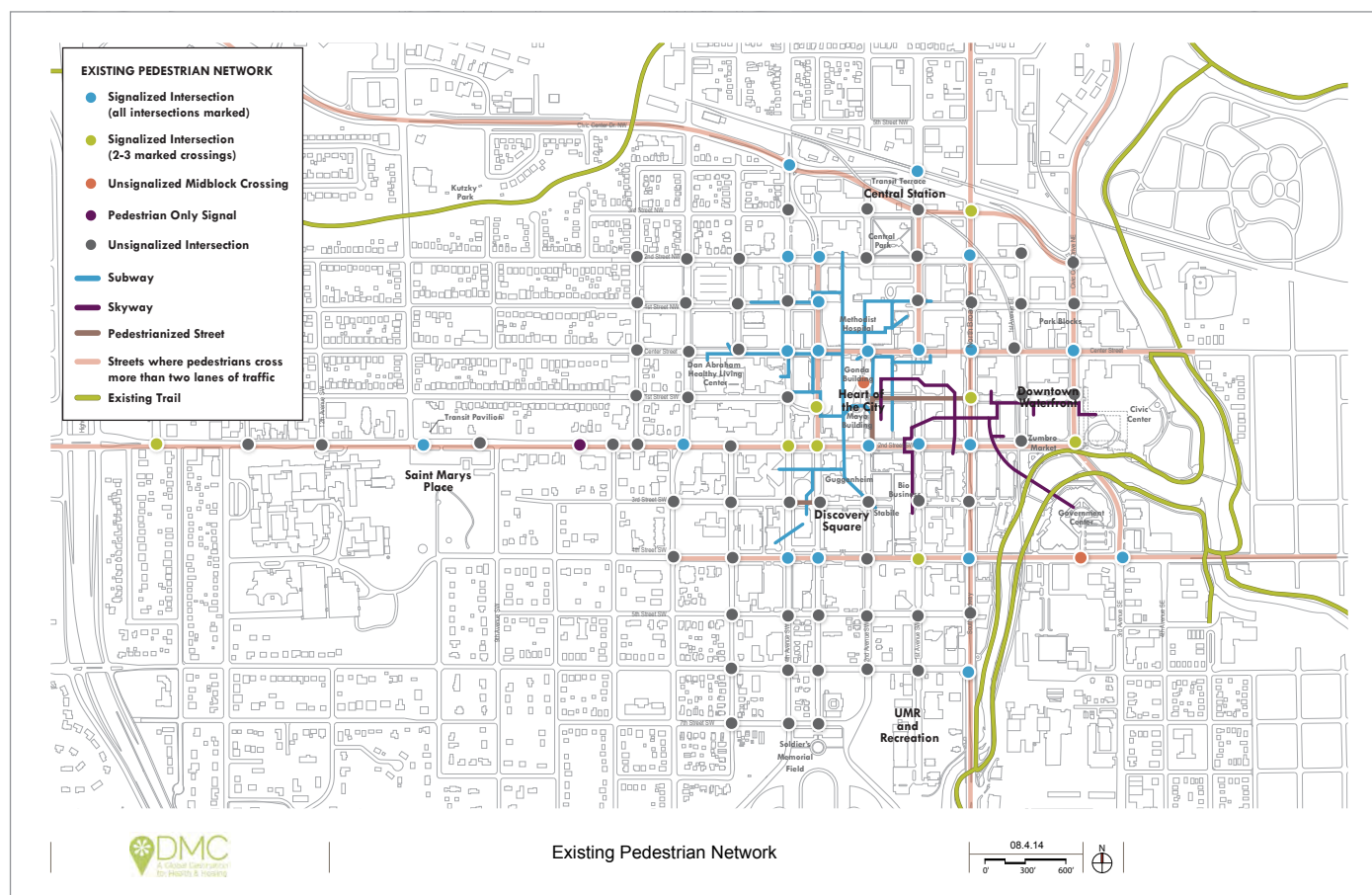


FIGURE 7.2-8 - EXISTING PEDESTRIAN NETWORK IN THE DMC DEVELOPMENT DISTRICT

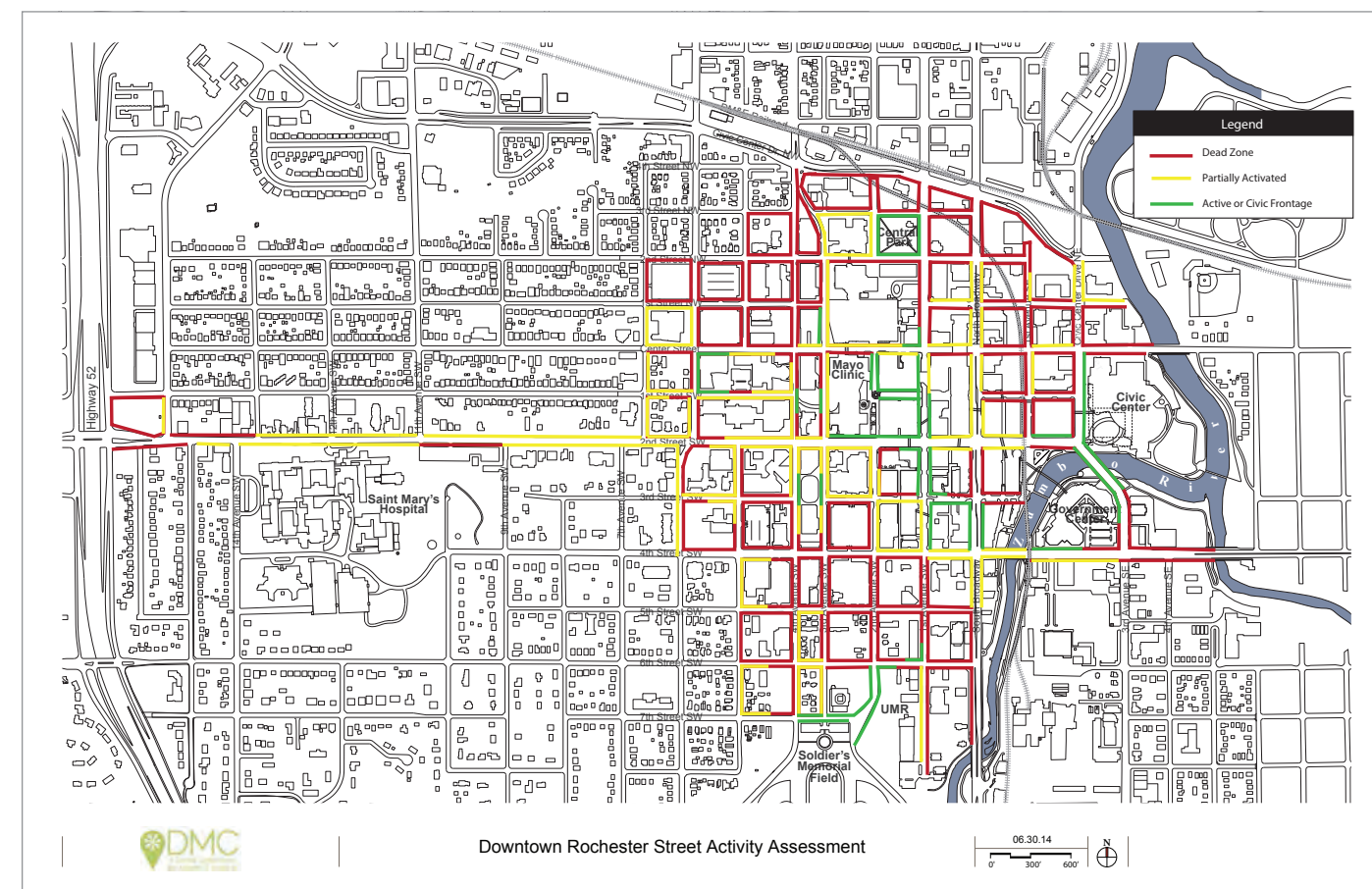
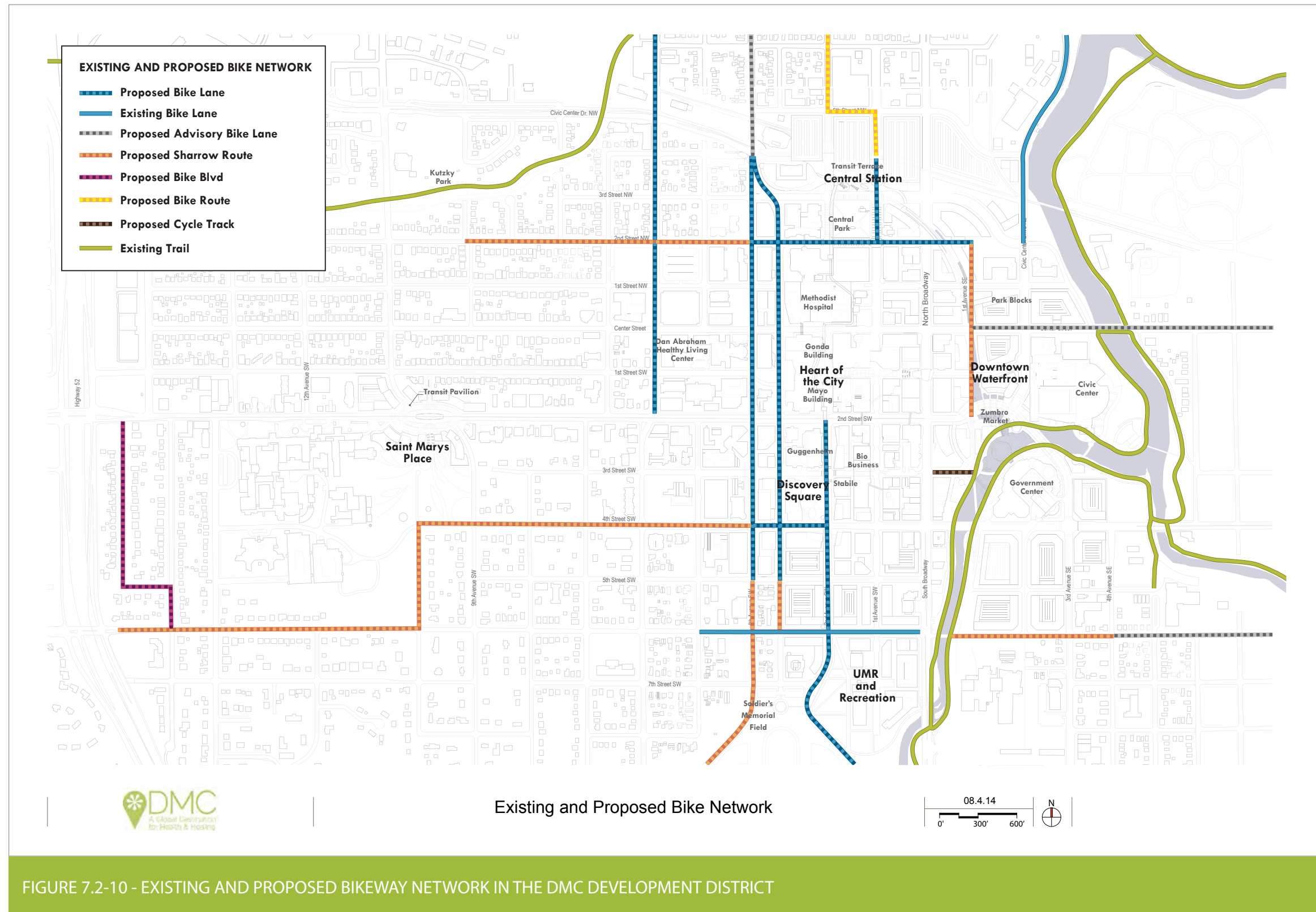


FIGURE 7.2-9 - LEVEL OF STREET FRONTAGE IN THE DMC DEVELOPMENT DISTRICT



WHAT IS IN A STREET?: ROCHESTER'S STREETS AS PLACES



A critical element of the DMC Development Plan process is not just to identify transportation projects and programming that support the growth of Downtown Rochester, but to help the DMC, the City of Rochester, and its residents meet their broader economic, health, and placemaking goals. Making up 25% to 30% of Downtown Rochester's land area, streets are the greatest public amenity. Streets are not just conduits for moving people and goods, but also support the land uses along them, including space for café seating, social exchange, recreation, and public plazas. Successful streets provide enjoyment to residents and visitors and fuel economic success for businesses along them.

Sometimes thinking small is thinking big. Great streets are defined by their design details and programming. While the DMC will deliver exciting new investments, it must also focus on building streets and places incrementally with a focus on getting the details right.

The picture above is 2nd Street SW re-envisioned as a place, a travelway, and a destination.

Source: Perkins Eastman

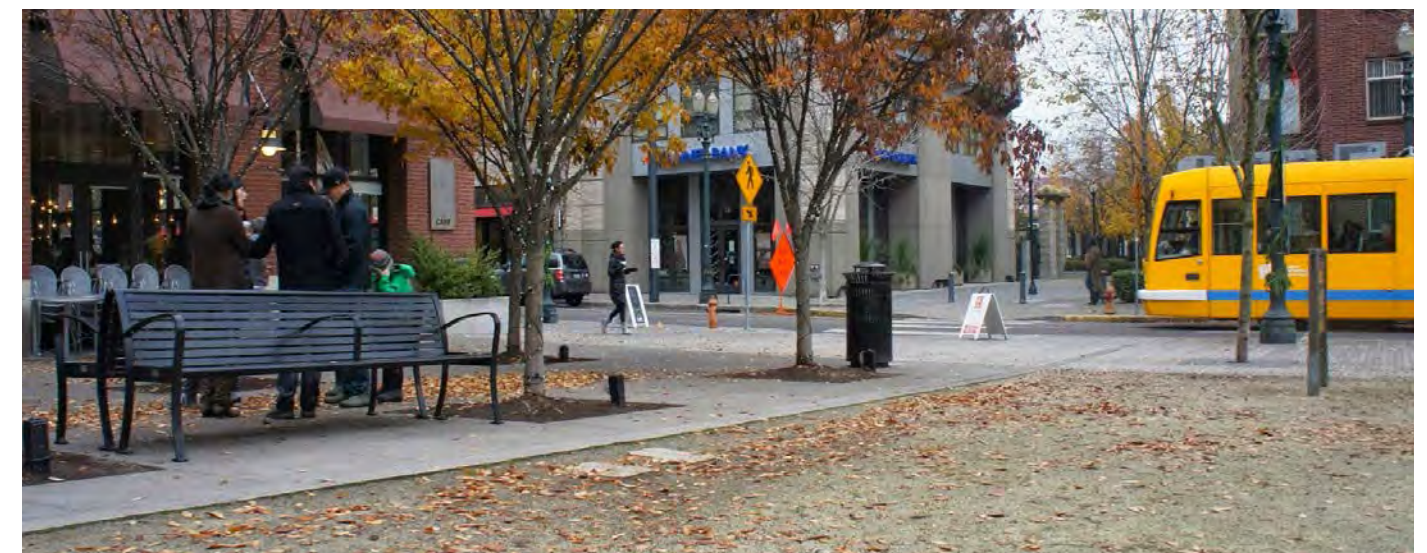
7.3 TRANSPORTATION CASE STUDIES

The Destination Medical Center (DMC) Development Plan identifies transportation investments that support the creation of a great destination city. The DMC Transportation Plan is informed by the successes of other cities, including recent and long-standing best practices from great destination cities. The following sections serve as an "idea book" describing cities and projects from which planners have drawn inspiration for great streets, transit, and public right-of-way investments. The case studies showcased on the following pages represent "signature" features in each respective community and signify models for building an interesting, dynamic, and economically vibrant Rochester. The case studies identified in this chapter provide direction and inspiration toward implementation of ideas, projects, and strategies central to the DMC Development Plan.

The case studies help to answer questions, such as:

- How can visitor-oriented transportation investments create great places while promoting quality of life enhancements and active living?
- How can functional transportation investments serve as attractions themselves?
- How have growing cities addressed growing access or circulation needs?
- What transportation investments seed economic development, attract new industries, and draw professionals and visitors?

Case studies were selected based on their ability to address key challenges facing downtown Rochester as it grows. Each case study is supportive of the DMC Transportation Plan projects presented in Section 7.5 (District and Regional Transportation Improvements).



Case studies presented on the following pages cover transportation technologies and economic development-oriented projects established throughout the United States and beyond. Many of the case studies exhibit similar base conditions as Rochester, including employment and visitor profiles, climate, and geography.

Images from Nelson\Nygaard

CASE STUDY

7.3.1 PORTLAND STREETCAR PORTLAND, OR

DEVELOPMENT-ORIENTED TRANSIT

More than a transportation tool, the Portland Streetcar is development-oriented transit. The streetcar serves as a development tool in once-neglected neighborhoods, helps reduce motor vehicle traffic circulating in downtown, and continues to draw manufacturing jobs to Oregon. The Portland Streetcar is a 7.2-mile streetcar system that shares lanes with motor vehicles, uses smaller electric powered vehicles, and includes platforms and pedestrian access improvements throughout the system. Other streetcar systems use corridors where streetcars operate along transit priority lanes that are shareable with rubber-tired services. This is also the case with South Lake Union streetcar line in Seattle, WA.

Portland Streetcar is owned by the City of Portland, managed by a non-profit, and operated by the regional transit provider, TriMet. The complete capital cost of the system was \$251 million.

CATALYZING VITAL URBAN NEIGHBORHOODS

By the 1990s, a lack of market certainty, limited transit connections between major redevelopment areas, and a surplus of unused and underutilized land hampered downtown Portland's economic vitality and attractiveness. Portland's population was projected to grow by 54% by the year 2030. Portland Streetcar was employed as a tool to attract new residents and employers to downtown neighborhoods, including the Pearl and South Waterfront Districts—identified by the City and community as major redevelopment opportunities.

THE RESULTS

Portland Streetcar was an important tool in the creation of one of America's great urban neighborhoods—the Pearl District—a leading model of sustainable neighborhood development. On the other end of the line, the South Waterfront developed at higher densities than the Pearl District and effectively integrated medical, commercial, and residential uses. Other key results include:

- More than \$3.4 billion in investment within two-blocks of the streetcar including more than 10,000 new housing units. This amounts to a return on investment of over \$13 for every dollar spent on capital.
- The impact spread beyond the immediate alignment: development value within 1,500 feet of the streetcar is valued 11% higher than nearby property values.
- Ridership is three times higher than projected, with nearly 16,000 trips per day. Ridership is up 35% year-to-date in 2014.
- The success of the Pearl District led to the expansion of the streetcar across the Willamette River to create a streetcar loop passing other underdeveloped and vacant properties.

The Portland Streetcar brought diverse, new industries to Oregon, including major employers and start up ventures like United Streetcar that manufactures streetcars for cities across the United States.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Streetcars function as urban circulators and as development engines, both pressing needs in Rochester. Streetcars also act as development catalysts. Supporting commercial and residential growth in Saint Marys Place, the Heart of the City, Discovery Square, Downtown Waterfront, and Barcelona Corner will accomplish local and regional goals to create vibrant neighborhoods with attractive business opportunities, and safe, comfortable, and convenient transportation options. This type of investment is applicable in Rochester along streets that connect major existing destinations as well as future development sites. Corridors that are recommended to accommodate a circulator include 2nd Street SW, 6th Ave SW, and 3rd and 1st Avenues. A mixture of transit priority and mixed operations will be employed in Rochester to accommodate demand for transit circulation and local/regional transit service. Providing transit priority treatments largely depends on right-of-way availability and other traffic related factors. 2nd Street SW and portions of 1st Avenue NW/SW and the 3rd/4th Avenue couplet will be redesigned to feature transit priority treatments. Section 7.5.2 details the circulator concept and alignment.

Images from Nelson\Nygaard and David Wilson, flickr



INSIGHTS AND IMPLICATIONS FOR THE DMC

The DMC Transportation Plan recommends a similar, linear public space for implementation throughout downtown Rochester called the City Loop. The City Loop will run along a number of streets that encircle downtown, as well as connector streets like 4th Avenue SW and portions of 2nd Street SW. This facility will establish a truly world class pedestrian and bicycle facility rivaling bikeways seen in North America's top bicycling cities. The City Loop will better connect downtown's amenities, destinations, and primary nodes, catalyze development between Saint Marys Place and the Heart of the City, offering visitors an attractive recreational and mobility option. It will also link commuters and visitors to one of the nation's best off-street trail systems, extending to all quadrants of the city. The City Loop can be used for snow shoeing and cross country skiing during winter months. An urban trail could support a unified approach to downtown placemaking and is the single investment that links all the DMC districts. Section 7.5.4 discusses the City Loop in greater detail, including alignment, destination connections, and design guidelines that will inform the implementation and design process.

Image from Nelson\Nygaard and Walk Indianapolis

CASE STUDY

7.3.2 INDIANAPOLIS CULTURAL TRAIL INDIANAPOLIS, IN

A VISIONARY URBAN TRAIL NETWORK

Built in 2013, the Indianapolis Cultural Trail is an 8-mile, physically separated pedestrian and bicycle path and linear park connecting downtown Indianapolis' six cultural districts. This \$62.5 million interconnected trail network provides access to every major art, cultural, sporting, and entertainment destination in downtown, offering unprecedented access throughout the central city for those traveling on foot or by bicycle. The Cultural Trail includes five acres of linear landscaping and serves as the backbone of the recently launched Pacers Bikeshare system. The bikeshare system furnishes downtown with 25 stations and 250 bicycles available for 24 hour mobility.

The Cultural Trail offers a unified and organized approach to downtown placemaking, including seven large public art installations (a \$2 million investment), and opportunities for well-used public spaces that can support retail and residential development. Amenities such as benches, bike racks, pedestrian-scale lighting, signage, and bike share along the way help establish an environment that attracts use and encourages people to actively engage in downtown city living. The project was funded through a variety of private (\$27.5 million) and federal transportation funding (\$35.5 million). No local tax funds were used for capital funding.

INJECTING LIFE INTO LIFELESS STREETS

In the 1990's, portions of downtown Indianapolis were characterized as devoid of life. Urban disinvestment and underutilized surface parking were the norm rather than exception. The city also lacked a clear identity. The Cultural Trail has become a defining amenity that reinforces and attracts visitors and residents to existing cultural and social spaces and destinations. The City, community organizations, and the private sector sought to revitalize downtown by attracting more people to the area and increasing the length of time that people spend in the central city.

Indianapolis is also facing competition from many other mid-sized cities attempting to position themselves as attractive places to live and do business. The Cultural Trail not only sets Indianapolis apart for future employers and development, it helps attract and retain highly educated, creative, and talented workforce, including the annual pool of college graduates who might otherwise leave the city. By integrating bike share into the trail network, Indianapolis provides the infrastructure to enable walking and bicycling for transportation and recreation and also offers a vehicle to facilitate these activities.

THE RESULTS

In just one year, more than 25 new businesses opened within five blocks of the trail. The investment has been linked to 11,372 new jobs created and \$864.5 million in estimated economic impact. Several mixed use development projects have been completed along the trail, signaling a best practice in bicycle-oriented development. In 2013, the Project for Public Spaces recognized the Cultural Trail as the most transformative placemaking project in all of North America. The project garnered national and international recognition as one of the boldest urban trail projects.

The success of the trail is mirrored in the success of bike share. With 74,162 rides in its first six months of operation, Pacers Bikeshare has outpaced the ridership of systems twice its size, including Denver B-Cycle and Nice Ride Minnesota. This signals that if people are offered beautiful streets to walk and bicycle along and bicycles are made available, they will be used in droves.

CASE STUDY

7.3.3 NICE RIDE MINNESOTA BIKE SHARE MINNEAPOLIS AND ST. PAUL, MN

NEW URBAN MOBILITY

Bike share is a flexible public transportation service that provides on-demand access to a network of publicly rentable bicycles. Station-based bike share systems distribute bicycles across a defined service area at fixed docking station locations. Users can gain access to the system at payment kiosks, using either 24-hour subscriptions (credit card-based payment) or annual subscriptions, which use fobs to unlock bicycles.

Nice Ride Minnesota (MN) is a Minneapolis-based non-profit bike share operator with a mission to spread the benefits of bike share and bicycling across the state. Originally launched in 2010, Nice Ride MN began modestly with a network of 700 bicycles and 65 stations focused in downtown Minneapolis. Today, the Nice Ride system has expanded throughout Minneapolis and St. Paul with 1,550 bicycles and 170 stations.

The system is self-sustaining and has met operating costs through a combination of subscription revenue and private sponsorship. Capital investments were obtained through public and private sources including major sponsorship from Blue Cross Blue Shield of Minnesota.

MAKING SHORT TRIPS EASY, FUN, AND HEALTHY

Bike share addresses a variety of mobility issues, while simultaneously achieving broader economic, health, and environmental goals. Depending on the station's location, Nice Ride MN provides 1) a duplicative transit service where transit is not frequent enough or available, 2) a last mile connectivity tool that connects people from transit to destinations, and 3) urban circulation between major destinations. With 40% of casual subscriptions purchased by out-of-town visitors, Nice Ride MN also offers visitors a fun, relatively cheap mobility option or recreational opportunity.

THE RESULTS

The overwhelming benefits of Nice Ride in the Twin Cities include:

- Ridership has grown steadily from 100,817 in 2010 to 305,000 in 2013. About 40% of casual subscriptions are purchased by out-of-town visitors; many of their trips originate near downtown hotels.
- Bike share enables residents and visitors to efficiently access dense, urban neighborhoods, especially where parking is limited or expensive and other modes are inconvenient.
- Nice Ride MN users frequent retail, restaurants, and entertainment. On average, users spend between \$7-\$14 per trip. Recent surveys estimate \$1.52 million in commercial expenditures associated with Nice Ride MN, which is believed to be a redistribution of expenditures to businesses located closer to bike share stations.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Nice Ride MN identified Rochester as one of the first “opportunity cities” to implement their Greater Minnesota Strategy. The Greater Minnesota Strategy is an effort to extend the benefits of bike sharing to communities beyond the Twin Cities and explore new bike share technologies and operating structures necessary to meet a variety of user markets. The DMC Transportation Plan recommends bike share implemented in concert with the City Loop multi-use path system, offering bike share stations along the entire urban path system and at major destinations off the City Loop. In Rochester, bike share should take the form of a hybrid of traditional station-based system and bicycle concierge-style system, something Nice Ride MN has rolled out in Bemidji, Minnesota. Section 7.5.4 provides a detailed bike share strategy including a conceptual station siting plan.

Image from Nice Ride Minnesota, flickr user Chris, and Nelson\Nygaard



INSIGHTS AND IMPLICATIONS FOR THE DMC

A number of downtown corridors are considered for streetscape improvements and/or major transit investments. Street investment projects include 2nd Street SW, Broadway, 1st Avenue NW/SW, Civic Center NE/SE, 1st Street SW, 2nd Avenue SW, and the 3rd/4th Avenue couplet, among others. These projects will improve downtown walkability, attract private development, and beautify the streetscape. Bus Rapid Transit or other high-end, frequent transit service will be established along existing key transit corridors like 2nd Street SW and even extend out to existing or future park-and-ride facilities. The marriage of great transit – a streetcar circulator – and signature streetscape and urban placemaking projects on 2nd Street SW will make it one the nation's best urban streets. Section 7.5.3 summarizes the streets investment framework, including all streets recommended for streetscape improvements.

Images from Nelson\Nygaard

CASE STUDY

7.3.4 EUCLID AVENUE STREETScape AND TRANSIT ENHANCEMENTS CLEVELAND, OHIO

PLACEMAKING WITH MOBILITY BENEFITS

The HealthLine is a 7.1-mile bus rapid transit (BRT) line that was built as part the Euclid Avenue corridor enhancement and placemaking project in Cleveland, Ohio. The project has shortened commute times, linked two downtown hospitals, and leveraged billions of dollars of development in the corridor. The HealthLine BRT corridor ties the central business district to cultural institutions such as The Botanical Gardens, Museum of Art, and Museum of Natural History; major employment and activity centers including The Cleveland Clinic and University Hospitals; institutions of higher education such as Case Western Reserve University and the Cleveland Institute of Art; and lodging. It also represents a significant investment in placemaking, creating regular open space amenities and transforming the corridor into a linear park. A naming rights agreement with the Cleveland Clinic and University Hospitals led to the corridor's name in exchange for maintenance and landscaping costs.

CREATING PLACE THROUGH TRANSIT

While the HealthLine was instrumental in connecting downtown's commercial and cultural amenities with peripheral institutional anchors, the innovative transit project is only one element of the project's success. The project rebuilt segments of Euclid Avenue, from building face to building face, providing great attention to public spaces, integrated artwork, and landscaping.

After years of neglect, Euclid Avenue featured dilapidated buildings, high crime, and limited investment. Bus ridership was down, pedestrian and bicyclist safety was poor, and the environment along Euclid Avenue was uninviting to businesses and passersby. Euclid's redesign and introduction of the HealthLine has addressed these problems head on, and led to transformative economic, social, and placemaking outcomes for downtown Cleveland and institutions and businesses along the corridor.

THE RESULTS

The \$200 million investment has spurred a great makeover of Euclid Avenue, including:

- The corridor's previously struggling Theater District has turned into to a thriving mixed used district.
- Approximately 12,000 people now live in downtown Cleveland, up 100% from 2000, and rental occupancy is at 95%.
- Over \$3 billion in new construction and \$2.4 billion in building rehabilitation (a return of more than \$114 for each dollar invested).
- Over 13,000 new jobs, 7.9 million square feet in commercial development, and 4,000 new residential units along the route.
- 1,500 trees planted.
- 47% higher ridership and 34% faster average speeds compared to former bus line along route.

CASE STUDY

7.3.5 HAMMARBY SJÖSTAD STOCKHOLM, SWEDEN

CAR-LIGHT, PERIPHERAL TRANSIT COMMUNITY

A leading international example of sustainable city development, Hammarby Sjöstad is a brownfield redevelopment site in Stockholm, Sweden transformed into a livable neighborhood. Previously an industrial waterfront and army barrack, the 250-acre development includes 9,000 housing units and more than 2 million square feet of commercial space. Planned with a goal that 80% of trips be made by non-auto modes, Hammarby Sjöstad has a vibrant urban character due to its compact built form, mix of uses, and parking management strategies that encourage transit. Transit forms the backbone of how people live and work in Hammarby Sjöstad. This dense, urban, pedestrian-oriented node is connected to the old center—Stockholm—by the regional Tvärbanan light rail line, which serves the neighborhood every 7 minutes.

Hammarby Sjöstad links to the city through two new transit lines, three light rail stops, a car sharing scheme, a free ferry service, bike lanes, bike and pedestrian bridges, and pedestrian-friendly streets. Parking strategies promote access to transit for suburban commuters while discouraging automobile parking at residential areas.

A key transportation policy includes prioritization of park-and-ride access over residential parking spaces, which enables transit access to central Stockholm. Parking policies such as limiting parking supply support the low car, non-auto mode share goals of the neighborhood.

BALANCED AND LIVABLE CITY

Hammarby Sjöstad solves issues surrounding the need to accommodate growth close to Stockholm's city center, rather than sprawling toward the periphery. This enabled residents to use non-auto modes, if they chose, and reduced parking demand in center city. Hammarby Sjöstad was built in a way that gives residents an option to live close to urban amenities with a low-car lifestyle.

THE RESULTS

- By 2002, when Hammarby Sjöstad was only half complete, 52% of trips to, from, and within the area were made by transit (compared to 30% for Stockholm as a whole), and 27% by walking and cycling. This nearly equals the goal of achieving an 80% non-auto mode split.
- There are 210 cars and 820 bicycles per 1,000 residents. (The car ownership rate among Hammarby Sjöstad households was 62% in 2007, 4% lower than in 2005 and comparable to dense inner Stockholm).



WHERE IN ROCHESTER DOES THIS APPLY?

Hammarby Sjöstad's integrated transportation and development model is well suited to the access and development demands that Rochester is anticipated to experience. Downtown Rochester's urban form is punctuated by surface parking lots, offering opportunities to locate pedestrian, bicycle, and transit rich communities near major employment and activity centers. Multiple blocks will be assembled into large, urban development parcels in the Saint Marys Place, Central Station, and Downtown Waterfront development areas. Additional infill locations are available at under-utilized parcels near the Zumbro River such as the Mayo Shuttle Lot on 3rd Avenue SE and large surface parking lots located between Soldiers Field and 3rd Street SW. The Downtown Waterfront sub-district will become a model for mixed use, walkable residential development supported by frequent transit (via the circulator). Building walkable, mixed-use urban neighborhoods can reduce car use by as much as 40% over traditional development where people live in suburban neighborhoods and commute to a job-oriented downtown.

Images from Hans Klyber, flickr; Nelson\Nygaard; La Citta Vitta, flickr



INSIGHTS AND IMPLICATIONS FOR THE DMC

Downtown Rochester is in need of a high quality, intuitive system of wayfinding that quickly and effectively communicates how to move about the local sidewalk, skyway, and subway systems. The DMC Transportation Plan recommends a graphic, information-rich approach that will ensure visitors, residents, and employees can navigate downtown and trail connections with ease, explore the city's amenities, lesser known destinations, or regularly scheduled events like Thursdays on First. This type of program will replace existing duplicative signs and better promote the downtown destination brand. Wayfinding map panels and sign kiosks will be located throughout downtown at street, subway, and skyway levels. Section 7.5.5 lays out a wayfinding strategy for the DMC Development District, including design principles, branding and identity concepts, and proposed wayfinding elements.

Images from Martin Deutsch, Flickr; Philip Vile/Applied Information Group

CASE STUDY

7.3.6 LEGIBLE LONDON LONDON, UK

DYNAMIC, VISITOR-FOCUSED WAYFINDING

Transport for London's Legible London is a map-based pedestrian information system that helps people navigate the city on foot. It includes continuously updated, scaled, digital base maps and signs, which replaced formerly inconsistent and redundant signs. The mission of Legible London is to develop a user-focused system of pedestrian wayfinding information, seamlessly integrated into both neighborhood destination and transit customer information (including underground, rail, buses, and other modes). The program aims to present a consistent suite of on-street sign types across London.

Legible London includes a continuously updated digital base map made available for many uses to present large amounts of spatial information. The program had five primary objectives: (1) increase the number of people walking in the city; (2) build confidence among pedestrians; (3) reduce the amount of clutter in the pedestrian environment; (4) improve the perception of walking in the city; (5) and reduce journey times.

SIMPLIFYING A COMPLEX WALKING ENVIRONMENT

Much like in Rochester, visitors and residents walking in London are presented with a multi-tiered pedestrian system that can be confusing or misunderstood by users. This is a continual issue as London is constantly accommodating visitors and new residents that are unfamiliar with its pedestrian and transit networks. People walking were also presented with wayfinding systems that often presented conflicting or outdated information. Research showed that Londoners and visitors had come to rely on the map of the London Tube as their source for wayfinding. However, the London Tube map is a diagram of the system, not a properly scaled map, and because of that many people were taking trips by rail that would have been much faster by foot. Transport for London found that information-rich wayfinding was the most cost-effective means of introducing extra capacity into the public transportation system.

THE RESULTS

The Legible London program reduced walking journey times by 16%, the number of times pedestrians were lost on their journey dropped by 65%, and each Legible London sign replaced an average of two redundant signs. Walking increased by 5% in the pilot areas where the program was rolled out. The program's success is supported by the fact that nine out of ten people report wanting the system to be introduced across the city.

CASE STUDY

7.3.7 EAST 4TH STREET RESTAURANT ROW CLEVELAND, OHIO

FROM SIDE STREET TO NEIGHBORHOOD HUB

An urban redevelopment, entertainment district, and historic preservation site, East 4th Street is the “jewel of Cleveland’s entertainment district.” Just 450-feet long and 42-feet wide, the pedestrian-oriented street has sparked redevelopment and growth in the immediate vicinity of downtown Cleveland. Closed to automobile traffic, adjacent business owners provide patio seating along the street. This rededication of roadway, coupled with high-capacity transit service, a free circulator, and a string of walkable urban neighborhoods are supporting Cleveland’s downtown revitalization.

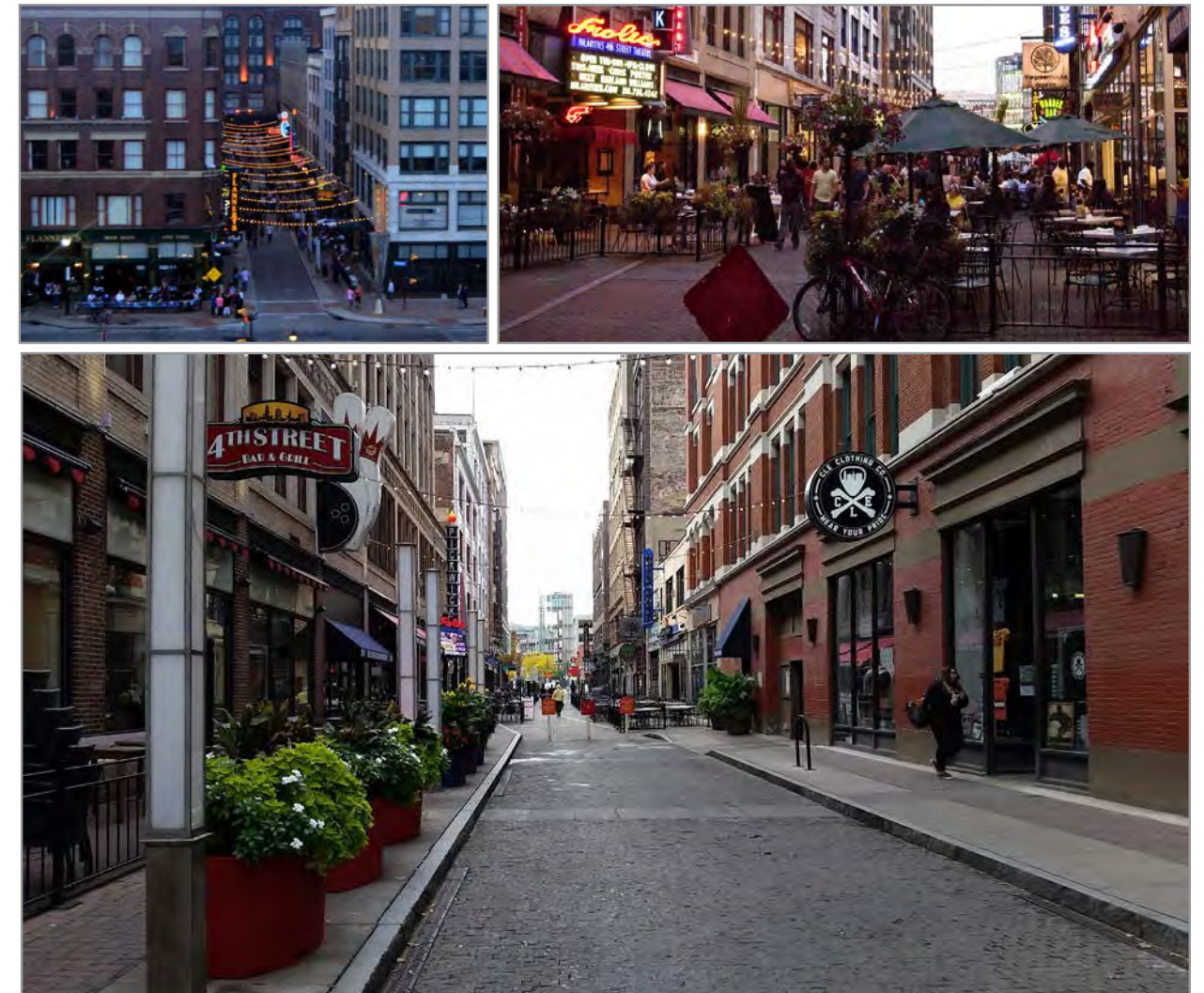
East 4th Street’s revitalization began with the 600,000-square-foot, \$110-million mixed-use historic redevelopment that included a variety of historic renovations for storefronts, clubs, and housing. Using a public-private financing plan selling federal and state historic tax credits to investors, the initial development attracted investment to the area that resulted in organic, varied development that is unique and engaging for visitors and residents.

BUILDING STREET LIFE

Urban decay and suburbanization throughout the 1990s hollowed out Cleveland’s core. Lack of investment and urban amenities drove many downtown workers to live, shop, and seek entertainment in the suburbs. Downtown is rapidly redeveloping through more than \$3.5 billion in investments including stadiums, an aquarium, parks and greenspace, high-capacity transit, and streetscape improvements. Many credit the vitality and density of activities on East 4th Street as a catalyst to attracting more people to live and stay downtown.

THE RESULTS

- A focus on affordable rental properties rather than condominiums infused the area with younger professionals. Over 320 new rental apartments have been built with more under construction.
- Entertainment and food focused establishments draw visitors and residents including 14 restaurants, eight bars, a theater, coffee shop, night club, and a concert venue.
- The return of urban life in downtown Cleveland has been met with accolades including Top 15 Emerging Downtowns in the U.S. (Forbes Magazine, 2013) and one of the Top Cities for Millennials to Live (Atlantic Cities, 2013).
- Growth continues on East 4th Street and the immediate vicinity: three new restaurants opened in 2013 and more are planned to open in 2014, the Rosetta Center unveiled \$17 million in lofts finished in 2013, the May Company headquarters built less than a block away for \$128 million, and development continues at the 5th Street Arcades.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Cleveland’s East 4th Street illustrates the impact of a small, lively project. Multiple opportunities for a similarly successful effort to incorporate commercial establishments with residential development in downtown Rochester are available. First Street SW east of Broadway will be activated through shared street design principles and provide a direct connection to the Mayo Civic Center. This street will serve as a critical pedestrian linkage between the Heart of the City and the Downtown Waterfront. Second Avenue SW between 2nd Street SW and 4th Street SW will also be designed as a shared street offering a comfortable pedestrian connection between Discovery Square and the Heart of the City, while maintaining low speed auto access for parking and deliveries. Other shared streets are proposed along 1st Avenue NW/SW and new street connections in the Central Station and Downtown Waterfront development areas. More detail on these projects can be found in Section 7.5.3.

Images from Erik Drost, flickr; Edsel Little, flickr; and Nelson\Nygaard



INSIGHTS AND IMPLICATIONS FOR THE DMC

Rochester's 3rd and 4th Avenues are a primary gateway to downtown and the Mayo Clinic. The DMC Transportation Plan recommends that this pair of streets take on a more important role in moving transit vehicles and be substantially improved as places for people. While the scale of this case study is larger than transit priority streets in Rochester, the Portland Transit Mall illustrates how a pair of one-way streets can create a powerful transportation facility that moves more people with transit given priority, along with vehicles. It also shows how well-designed streets and transit facilities can create vibrancy, new investment, and a favorite place within the city, all while increasing the mobility function of a street. This is the goal for 3rd and 4th Avenues in Rochester. The transit priority street improvements recommended in Section 7.5.2 convey how bus and streetcar priority will be used along the various designated transit priority streets.

Images from Nelson\Nygaard

CASE STUDY

7.3.8 PORTLAND TRANSIT MALL PORTLAND, OR

TRANSIT AS DISTRICT CONNECTOR

The Portland Transit Mall is a couplet of one-way streets that serves as a transit priority corridor through and gateway into downtown Portland. Three lanes in each direction, the Transit Mall is 22-blocks long, carries MAX light rail, TriMet and C-TRAN transit buses, bicycles, and automobiles. Automobiles and bicycles are restricted to one lane in each direction. Widened sidewalks provide an enjoyable pedestrian environment with street furniture and public art. The Transit Mall connects Portland's Union Station with Amtrak service to the north, downtown destinations, Pioneer Courthouse Square, and Portland State University to the south.

The Transit Mall was designed for rail and bus to operate within the same right-of-way by employing an innovative "weave" track design. This allows rail vehicles to move around dwelling bus vehicles.

EXPANDING STREET LIFE, KNITTING DISTRICTS

The Transit Mall was built in response to three problems: 1) transit delay through downtown, 2) a dearth of activity after 5pm, and 3) a lack of development in the heart of downtown. As development and residents moved to the suburbs between the 1950s and 1970s, automobile use and congestion increased while commercial vitality decreased. Planning efforts dedicated to placemaking, economic development, and improving transit operations led to a redesigned couplet in the 1990s. The redesign included automobiles and bicycles while increasing the Transit Mall from two to three lanes. The overhaul included new streetscape elements including modern shelters with electronic information boards with real time transit information, public art, and bike racks. The Transit Mall helped revive a decaying downtown core with 9-to-5 activity levels into a vibrant 18-hour district. This attractive, functional streetscape now serves as a central access corridor into downtown.

THE RESULTS

- Transit flow along the Transit Mall improved, accommodating more than 2,300 buses per day in dedicated lanes. According to TriMet, their leapfrog operation allows the Transit Mall to accommodate more buses per hour than any other downtown transit street in the country.
- The Transit Mall guided downtown redevelopment: ten years after completion, the Transit Mall leveraged \$30-\$50 of public and private redevelopment investment for every dollar of capital cost.
- The Transit Mall supports public life and activity, making connections to cultural institutions such as Portland State University, Pioneer Courthouse Square, and Director Park.
- Pedestrian and bicycle facilities are incorporated throughout the Transit Mall including public art, seating, comfortable waiting areas, bicycle parking, and street trees.
- Investment continues: new developments including a flagship Apple Store and a 16-story student-housing complex are recently unveiled additions to the Transit Mall.

CASE STUDY

7.3.9 PEARL STREET MALL BOULDER, COLORADO

PEDESTRIAN PARADISE

The Pearl Street Mall is a four-block pedestrian corridor in the heart of downtown Boulder. With access limited to pedestrians since 1977, the Mall is one of America's oldest pedestrian-only streets.

A popular destination for tourists, students, and residents, the Pearl Street Mall is home to a variety of retail, entertainment, and commercial establishments. Home to public art including landscaping, fountains, and statues, Pearl Street creates the image of downtown Boulder. It forms the geographic center of the city and acts as meeting place, drawing residents, tourists, and regional visitors.

RETURNING ECONOMY TO THE CORE

The initial convenience of large shopping centers built at the edge of the city in the 1960s brought a slow decline to the stores located along Pearl Street. A downtown core revitalization plan in the 1970s came at a time when pedestrian malls gained popularity throughout the US. Boulder took additional steps to create a strong business improvement district to pay for upkeep and maintenance and a business alliance dedicated to “programming” the mall. The plan to convert Pearl Street into an activated pedestrian mall allowed the City to reposition the street as the cultural center of Boulder. Today, businesses and residents are relocating closer to Pearl Street to access the vibrant activity along the corridor.

THE RESULTS

- **Pearl Street is the economic driver of downtown:** 2.5 million square feet of development with 30% retail, 52% office, and 18% other uses. Stores shifted from small personal services and storefront offices to retail with a core demographic of young mothers and families.
- **Pearl Street is used by residents and visitors alike:** Boulder residents make up 51% of customers; 35% come from Denver and immediate suburbs, and the remaining are visitors.
- **Pearl Street supports and is supported by local businesses:** The City created a special tax district, the Downtown Boulder Business Improvement District, to fund the more than \$2 million in annual operating costs. Fulltime City staff upkeep and maintain the Mall.
- **Programming and activating the mall is a success:** Pearl Street hosts a variety of events throughout the year including University of Colorado Stampede parades, the Pearl Arts Fest, holiday events, farmers markets, and more.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Lessons from Pearl Street are applicable to Rochester: if high-quality, engaging pedestrian environments are built and activated with special events, people will be drawn to the area. Activating 1st Avenue NW/SW and 1st Avenue SW as shared street environments with “Main Street” placemaking and a vibrant café culture will attract downtown employees, residents, visitors, and UMR students. Even more emblematic of Pearl Street, parts or all of 2nd Avenue SW between 2nd Street SW and 4th Street SW will be closed to automobile traffic to better connect people walking between the Heart of the City and Discovery Square. More information on these projects can be found in Section 7.5.3.

Images from beautifulcataya, flickr; beautifulcataya, flickr; George Kelly, flickr



INSIGHTS AND IMPLICATIONS FOR THE DMC

Private commuter coach buses will continue to allow Mayo Clinic and other downtown employer facilities to reduce parking pressures, provide an amenity to their workers, and reduce congestion on and near the facilities. As development pressures in downtown Rochester extend the premium on parking, shuttle services from park-and-rides throughout the region will offer a commute benefit attractive to employees by investing in higher end amenities like WiFi, in-seat LCD screens, and plush chairs. Designated stops located close to main entrances will help make the shuttle service more convenient and less stressful than driving. These services could be extended to shuttle Minneapolis International Airport and Rochester International Airport arrivals to and from downtown Rochester. The regional transit improvements found in Section 7.5.6 offer more insight on how these premium commuter bus services may work.

Images from Nelson\Nygaard and Evan Blaser, flickr

CASE STUDY

7.3.10 HIGH END COMMUTER BUS SAN FRANCISCO TO MOUNTAIN VIEW, CA

CORPORATE BUS SERVICE WITH ENHANCED AMENITIES

Private coach buses contracted by tech companies like Google shuttle workers between San Francisco and the Silicon Valley each workday. These luxury buses feature WiFi, comfortable seats, and plenty of legroom. Offered at no cost to the employees, “tech buses” are an employee benefit that allow urban living with less time and financial cost required to access the outlying tech campuses.

TAILORING TRANSPORTATION FOR A TECH GENERATION

Major technology firms like Apple, Facebook, and Google are located to the south of San Francisco, along the peninsula toward San Jose. These large campuses, and the suburban cities that surround them, lack the urban vitality and amenities desired by tech workers looking for housing. Additionally, commuting to the Silicon Valley from San Francisco by car is time-consuming, unproductive, stressful, and expensive while public transit options are time-consuming. Luxury private coaches allow tech workers to access the amenities and urban living of the city, begin their workdays as soon as they sit down, and enjoy a more relaxing commute to the office. Google is expanding their fleet to include a pilot water shuttle through the Bay, an option encouraged by the Port of San Francisco.

THE RESULTS

- About 5,000 Google employees ride the free shuttle from San Francisco to Mountain View every day. The shuttle service provides more than 1.8 million rides per year, over 71 million miles. Many of these miles would be in private automobiles without the shuttles, thus easing congestion, reducing air pollution, and enabling Google to build less parking.
- Google calculates that their shuttles have a net annual CO2 savings of more than 200,000 metric tons. The shuttle fleet features the cleanest diesel engines available.
- The buses operate as an employee benefit and many employees note that they would not work in the Silicon Valley if they had to commute by car or public transportation.

CASE STUDY

7.3.11 DEPOT SQUARE AT BOULDER JUNCTION BOULDER, COLORADO

REGIONAL TRANSIT HUB BUILDS A NEIGHBORHOOD

Depot Square at Boulder Junction is a transit-oriented development (TOD) currently under construction in Boulder, Colorado featuring mixed-uses, moderate densities, and connections to regional transit service integrated into the site design. Located at the periphery of downtown on a 160-acre site, the project is a public-private partnership that will include a park-and-ride transit anchor, a Denver Regional Transit District (RTD) bus depot that may serve future bus rapid transit routes, a hotel, more than 300 apartments with 70 permanently affordable units, restaurants, and commercial space. The integration of transit is coupled with an aggressive transportation demand management plan that includes transit connections, pedestrian access, and bicycle connections.

MAKING ANYWHERE USA SPECIAL

Projects that were recently developed near Boulder Junction featured auto-oriented big-box stores, resulting in uncomfortable places for people to walk and bike. These places lacked character and appeal for many. The Depot Square at Boulder Junction offered an alternative focused on multimodal living, walkable amenities, and transit connections to downtown and the greater Boulder County region.

THE RESULTS

Currently under construction, goals for the development include:

- Utilizing shared parking strategies, such as a park-and-ride for transit users, and a public garage for residential and commercial use. This will help alleviate parking demand and improve employment access to downtown Boulder.
- Supporting a diverse and sustainable economy through the mix of uses: retail, hotel, apartments, and transit service.
- Environmental stewardship through LEED certification and automobile trip reductions via a transportation demand management plan. Pedestrian access prioritized throughout the development, supported by connections to bicycle and transit networks.
- Social living amenities, including community green spaces, a 300-space bike parking garage, and a mix of market-rate and below-market-rate apartments to promote social diversity.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Transit anchors are an opportunity to leverage public-private partnerships to create sustainable, vital places that combine character, placemaking, and transportation options. Many development opportunities are found along the peripheries of downtowns: old rail yards, industrial areas, and waterfronts. In Rochester, development opportunities in the Central Station sub-district, parcels near the Barcelona Corner, and locations that are currently surface parking lots such as the remote Mayo Clinic parking lot on 3rd Avenue SE or other underutilized parcels. These locations are recommended for redevelopment. These sites will incorporate transit facility, parking, and new mixed-use building design, coupled with other defining characteristics like parks and public plazas. The Transit Terrace transit facility recommended for development in the Central Station sub-district will serve as a major transit anchor and mobility hub. See Section 7.5.2 for more information.

Images from Nelson\Nygaard and the City of Boulder



INSIGHTS AND IMPLICATIONS FOR THE DMC

Various low traffic streets throughout downtown Rochester are ideal candidates for shared streets. Second Avenue SW is used for deliveries to the Mayo Clinic, access to parking, and entertainment. Other streets like 1st Avenue SW/NW, 1st Street SW, and a new street along the Downtown Waterfront will be designed as shared spaces to further reinforce that street as a place for economic and social exchange. A continuous shared environment along these streets would allow all users to access their needs more comfortably and create a more interesting streetscape. Applying some of the all-weather treatments such as overhead and in pavement heating systems and resilient paver materials used in Indianapolis could extend the utility of shared space environments into the winter months. Section 7.5.3 outlines where shared streets are recommended in the DMC as well as design details related to each corridor.

Images from Payton Chung, flickr; NACTO, Nelson\Nygaard;

CASE STUDY

7.3.12 SHARED STREETS

INDIANAPOLIS, INDIANA, EUGENE, OREGON AND VANCOUVER, BC

SHARED USE OF SLOW STREETS

Shared streets remove some of the barriers between people in cars and people on foot or bike. These shared spaces often remove curbs, street markings, and traffic controls in favor of continuous environments that communicate a space shared by all users. These streets allow short street segments into slow speed, shared environments that are ideal for commercial main streets, delivery streets, and residential areas.

Indianapolis transformed Georgia Street in downtown into a shared street environment and median public space as part of a package of 2012 Super Bowl improvements. As a signature all-season urban public space, this is considered one of the key investments leading to the revitalization of downtown Indianapolis. All weather techniques include heated paving, overhead gas heaters, and retractable shade screens for the summer. Vancouver, BC applied these treatments on residential pedestrian-oriented streets and urban parking access streets, intended for walking, biking, and freight delivery. The streets serve as hard surface parks for children to play and all to use. Ken Kesey Square is a streetscape project in Eugene, Oregon that continues a pedestrian-focused brick plaza across the adjacent intersection. With no curbs and limited pavement markings, the treatment communicates to drivers that they are entering a shared space.

DESIGNING STREETS FOR ACCESS

In residential and commercial areas, common road elements such as pavement markings, curbs, and traffic controls provide drivers with a sense of control and familiarity. This results in unsafe spaces for pedestrians as the street becomes the de facto exclusive domain of the automobile. These spaces lack vitality, limit the creative use of the streets, and are uncomfortable for people outside of cars. Shared streets force drivers to be socially responsible, change their perception of order, and shift all users' sense of "right-of-way."

THE RESULTS

Shared streets in Indianapolis, Vancouver, and Eugene that have rethought slow streets as placemaking opportunities have experienced a variety of intended results, including:

- In many cases, where retail uses line the shared street, consumer spending increased roughly 25% after the completion of shared street projects.
- Traffic moves at safer, more manageable speeds appropriate for the function of street—including retail access, deliveries, and parking access.
- Collisions decline as motorists become more cognizant of the pedestrian nature of the shared street design.
- Delivery operations were viewed as much easier by up to 75% of delivery workers.

CASE STUDY

7.3.13 INTEGRATED PARKING DESIGNS BOSTON, SANTA MONICA, AND MIAMI

COMBINING DESIGN AND STORAGE

No longer mundane concrete shells, the aesthetics and functionality of parking garages are changing in many cities. Garage designs are emerging that integrate with the surrounding land uses including underground parking with public parks above, parking wrapped by ground floor retail and residential uses, and parking decks designed as architecturally significant or artistically acclaimed structures.

PARK BELOW, PARK ABOVE

In Boston, Norman B. Leventhal Park offers a bucolic reprieve in the bustling downtown on the site of what was once a 950-spot three-deck concrete and steel parking structure. The park sits on top of the 1,400-spot Post Office Square underground parking garage that features EV charging stations, professional car care, a shoeshine stand, a café, and other features.

VIBRANT GROUND FLOOR USES

Parking structures in Santa Monica California combine artistically designed parking structures with ground floor retail and services. Downtown parking structures allow property owners and tenants to share underutilized parking spaces. Parking Structure 8 includes the bustling Santa Monica Bike Center and a mix of other uses. The Civic Center Parking Structure is a LEED Platinum mixed-use design that includes ground floor retail, parking, and photovoltaic solar panels.

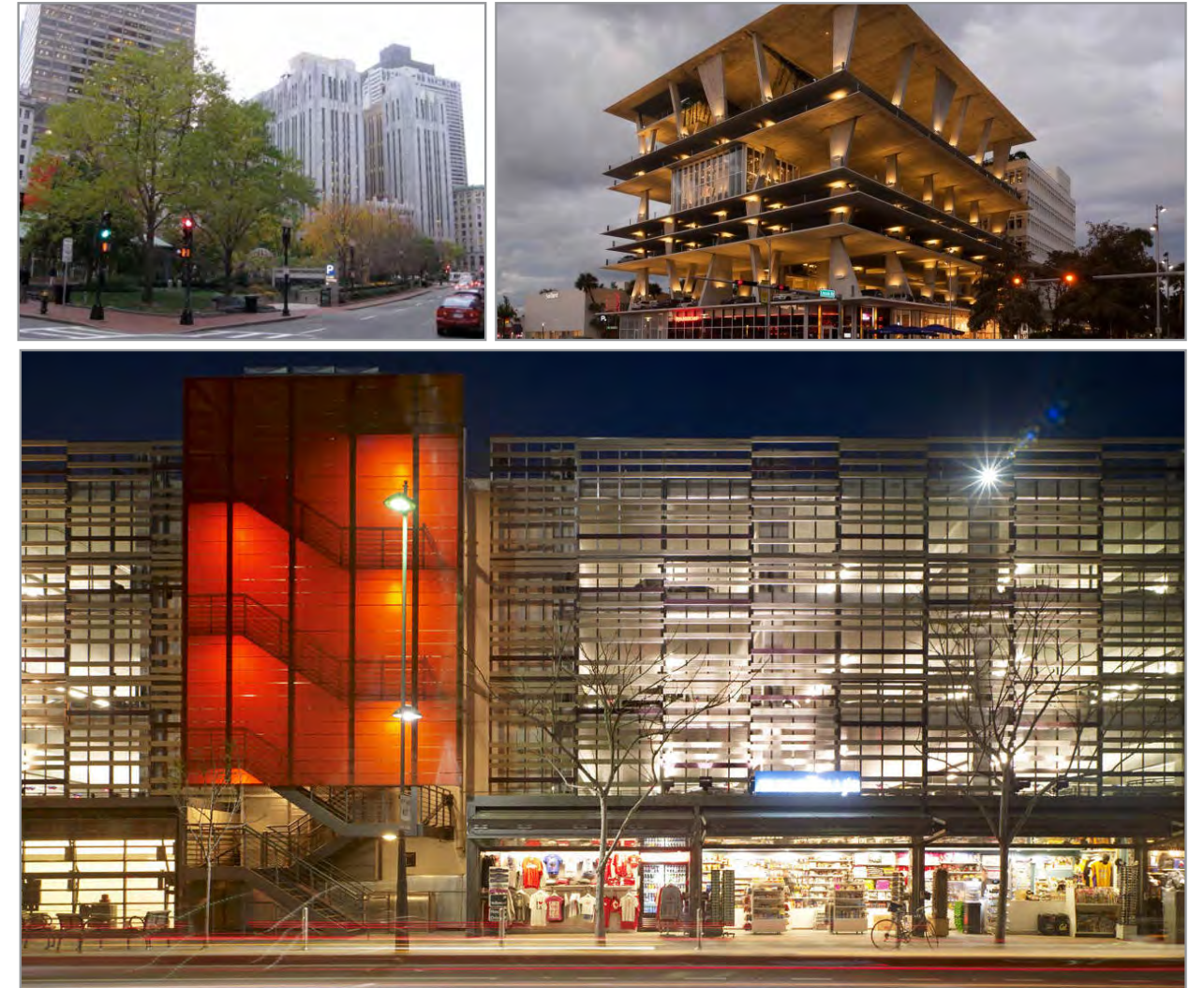
ARTISTIC DESIGNS AND FACELIFTS

Miami Beach is dedicated to iconic design – even for their parking garages. Since the mid 1990s, the City has focused on integrating all built structures into the urban fabric, including parking. Garages, such as the 1111 Lincoln Road garage include “starchitect” design and a mix of uses. Existing garages are being retrofitted to include new facades that replicate surrounding buildings or feature artistic design elements and lighting.

THE RESULTS

Cities are beginning to reap the rewards of thinking of parking garages as public spaces befitting quality design treatments:

- The Post Office Square parking garage leveraged Boston’s parking freeze to charge higher rates, supporting the public park.
- With shared parking, Santa Monica reduces oversupply and opened up parcels for development.
- Vibrant ground-floor uses increase pedestrian activity, commanding higher rents in the structure and surrounding areas.



INSIGHTS AND IMPLICATIONS FOR THE DMC

Underground parking structures with parks and other public uses above ground will support the programming and parking needs recommended at Saint Marys Place. “Wrapped” parking with vibrant ground-floor uses should be the standard when combined with residential uses and in residential districts like the Downtown Waterfront. Artistically designed garages, garage retrofits, and other design elements should be incorporated in the design of all new parking structures and during redevelopment. Parking locations and design recommendations are provided in more detail in Section 7.5.1.

Images from nsub1, Flickr; Jaqueline Poggi, Flickr; John Edward Linden, archdaily.com



With the influx of new jobs, residents, and visitors, the demand for limited road space will increase considerably in the Development District

Image from Nelson\Nygaard

7.4 REGIONAL AND DISTRICT DEMAND ANALYSIS

Destination Medical Center will transform downtown Rochester, bringing new land uses, different types of businesses and development opportunities, new residential development, and many more employees and visitors. In addition to the transformation of the built environment, changes in the quality of the transportation network and the quantity of transit service will change how employees, residents, and visitors travel to and through the district.

This chapter analyzes the need for access to and mobility within the DMC Development District. The following regional and district transportation demand analyses are based on a thorough understanding of the existing transportation and land use conditions detailed in Section 7.2. The demand analysis includes analyses of street capacity, parking demand, traffic demand, and transit demand. Mode share targets are established to guide investments in streets, transit, and active transportation. The DMC planning team has worked closely with City/County staff to develop and vet these projections. They are based on City data and growth projections provided by the City, County, Mayo Clinic, and the DMC market analysis.

7.4.1 AN INTEGRATED APPROACH TO DEVELOPMENT AND TRANSPORTATION INVESTMENT PLANNING

The DMC initiative is the single largest economic development initiative in Minnesota history. The comprehensive economic development strategy will grow and sustain Rochester and southeast Minnesota as a global medical destination now and in the future. The initiative will bring tens of thousands of new jobs and residents, new tax revenues, and sustained economic development.

The DMC Transportation Plan takes a calculated approach to manage increased demand on city and regional transportation systems. The regional and district demand analyses in the sections that follow utilize an integrated approach to development and transportation master planning to enumerate and balance these factors.

This chapter addresses the following questions:

- What transportation demands are created by the buildout of the DMC Development Program?
- How can these travel and growth pressures be accommodated while ensuring key plan objectives are realized?
- What is the required share of downtown access accommodated by transit and other modes?

The DMC Transportation Plan identifies strategies to bring people to Rochester to work, live, play, learn, and heal. The demand analysis described in this chapter is a baseline for investment recommendations; however, other factors also drive investment decisions, including cost effectiveness, ability to contribute to destination placemaking, and the ability to catalyze economic development.

7.4.2 TRANSPORTATION DEMAND ASSESSMENT

A foundation of any successful city is a transportation system that provides affordable, convenient, and diverse access to the places people need to go. The DMC Development Plan envisions an economically strong downtown that is a destination, houses a diverse business community, supports many cultural and recreational activities, and draws residents and visitors of all walks of life. All these people, be they part of the workforce, patients, or visitors, need access to downtown and the ability to travel to multiple destinations once they arrive. The DMC Development Program serves as the basis for the transportation demand analysis. More detail on the DMC Development Program can be found in Section 1.0 of this report. The DMC Development Plan is developed for a 20-year planning horizon (2035) and includes four phases: 1-5-year, 6-10-year, 11-15-year, and 16-20-year phasing.

The demand for access to the DMC Development District at the build-out of the DMC Development Program is estimated using the following steps:

- The DMC Development Program was modeled using the ROCOG travel demand model. This estimates the number of new auto trips projected to travel into and out of the DMC Development District in 2035.
- An analysis was conducted to determine how much additional street capacity would be at key entry points to the DMC Development District (functional capacity).
- It was then determined how much of the unconstrained 2035 auto demand could be accommodated on the street system (using the functional capacity as a constraint point).
- Demand not accommodated was allocated to transit and other modes based on travel markets (trip distance, time of travel, etc.).

The demand analysis influenced the level of future investment required for the DMC Development District, local, and regional transportation system.

7.4.2.1 TRAVEL DEMAND ANALYSIS

A travel demand analysis was conducted for DMC buildout using the Rochester-Olmstead Council of Governments (ROCOG) travel demand model. This model is a planning tool used by ROCOG to determine the effects of development and transportation system changes on transportation investment needs. The standard ROCOG model includes the following inputs:

- Known, current land use quantities or activities, clustered by geographic zones (Transportation Analysis Zones, or TAZs)
- Current speeds, capacities, and characteristics of key roadways in the region

The travel model considers:

- Trips generated by the various land uses and activities
- Distribution and attraction of trips between the various areas/TAZs



The limited carrying capacity of the roads restricts access to parking in downtown Rochester.

Image from Nelson\Nygaard

LAND USE	UNITS	BASE ROCOG MODEL	DMC DEVELOPMENT PLAN MODIFICATIONS
Urban Single Family	Dwelling Units	186	186
Urban Multi Family	Dwelling Units	3,282	4,170
Townhome	Dwelling Units	1	1
General Retail	Square Feet(1000's)	692	692
Industrial	Square Feet(1000's)	679	679
Office	Square Feet(1000's)	1,546	1,777
Church & Health Clubs	Square Feet(1000's)	23	23
Public Facilities	Seats	10,170	10,170
Secondary Schools	Students	4,500	4,500
Elem & Middle Schools/Day Care	Students/Child	356	356
Hotels	Lodging Units	3,706	4,301
Hi Intensity Retail	Square Feet(1000's)	26	26
Drive Through Bank	Square Feet(1000's)	114	114
Active Recreation Parkland	Acres	143	143
Shopping Center	Square Feet(1000's)	225	444
Nurse Home/Senior Apts/FMC	Residents	1,092	1,092
Mayo Medical Center	Square Feet(1000's)	10,265	11,943
Hospitals	Square Feet(1000's)	4,628	4,804
Bio Tech	Square Feet(1000's)	-	1,020

FIGURE 7.4-1 - DMC DEVELOPMENT DISTRICT LAND USE ASSUMPTIONS (2040)

- The travel routes used by the trips between each origin and destination

The ROCOG model is not currently sensitive to changes in transit service; all trips are factored and considered as automobile vehicle trips. The model is validated against average daily traffic volumes for the roadway system as counted by the Minnesota Department of Transportation and its county and local partners. Forecasts for future years (2040¹ in the case of the DMC Development Plan) include incorporating growth assumptions and transportation system changes as revised inputs.

Several changes were necessary in the ROCOG travel demand model to address specific concerns of the DMC Development Plan:

- Trip origin-destination movements were factored to incorporate policy-based assumptions regarding transit use. The assumptions are described in the following section.
- Mode shift to transit, carpool, and bicycle were calculated off-model and integrated into the forecast.
- Alternative, fringe, parking locations were incorporated into the model to test the effect of moving some employee parking from the core of the downtown area and restricting parking supply.

ASSUMPTIONS

Land Development/Growth Assumptions

The current ROCOG travel demand model includes a set of development assumptions that differ from the current DMC assumptions for development. Land use assumptions will be updated in a forthcoming comprehensive plan update in the Rochester area based on the approved DMC plan.

Figure 7.4-1 shows the 2040 land development assumptions for the DMC Development District as defined by the travel demand model TAZs for both the current base model and the DMC land uses as interpreted for travel demand model-defined land uses. The differences are highlighted in Figure 7.4-1, with notable increases resulting from the DMC Development Plan in the multi-family residential, hotel, retail, office, and medical-related land use categories.

¹ The ROCOG model uses a 2040 out-year; the out-year for the DMC Development Plan is 2035.

Roadway System

The ROCOG model 2040 roadway network was modified to reflect the changes in roadway locations, restrictions, and capacities in the DMC Development District. The general street pattern is shown in Figure 7.4-2. Modifications to the assumptions, including turning restrictions and lane configurations, are reflected in the modeling and traffic analysis.

Mode and Vehicle Trip Assumptions

The ROCOG travel demand model does not include a transit “mode split” component. Consequently, assumptions regarding transit service levels and shifts in travel from auto to transit are not directly reflected. However, the model can be modified to reflect policy assumptions regarding transit ridership. Transit and non-auto mode share targets are built from analysis of the level of investment required to keep the road system functioning. Work trip transit assumptions are shown in Figure 7.4-2, non-work assumptions are described in the Rochester Downtown Master Plan.

Figure 7.4-3 shows the resulting adjustments made to work and non-work trips destined to the DMC Development District. The ROCOG model implicitly (through its validation process) assumes the current (approximately 2008) transit mode shares.

In addition to the assumptions listed in Figure 7.4-3, it was also assumed that 95% of the trips within downtown would use an alternate means of transportation (walking, bicycling, or transit). All methodology and land use assumption changes from the ROCOG travel demand model and Rochester Downtown Master Plan have been reviewed and accepted by City staff. Adjustments to their models were based on approved assumptions and strategies recommended in the DMC Development Plan.

Downtown Mobility Hubs, Peripheral Parking

The traffic model was modified to reflect two policy/planning assumptions. The first assumption was that half of the net new driving workforce in the DMC Development District would use remote park-and-rides or one of three fringe parking areas identified (near Central Station, in the Waterfront area, and west of Saint Marys Hospital). The remaining half of the workforce is assumed to park within the Development District. Non-commuters are assumed to park within the Development District in proximity to its destination.

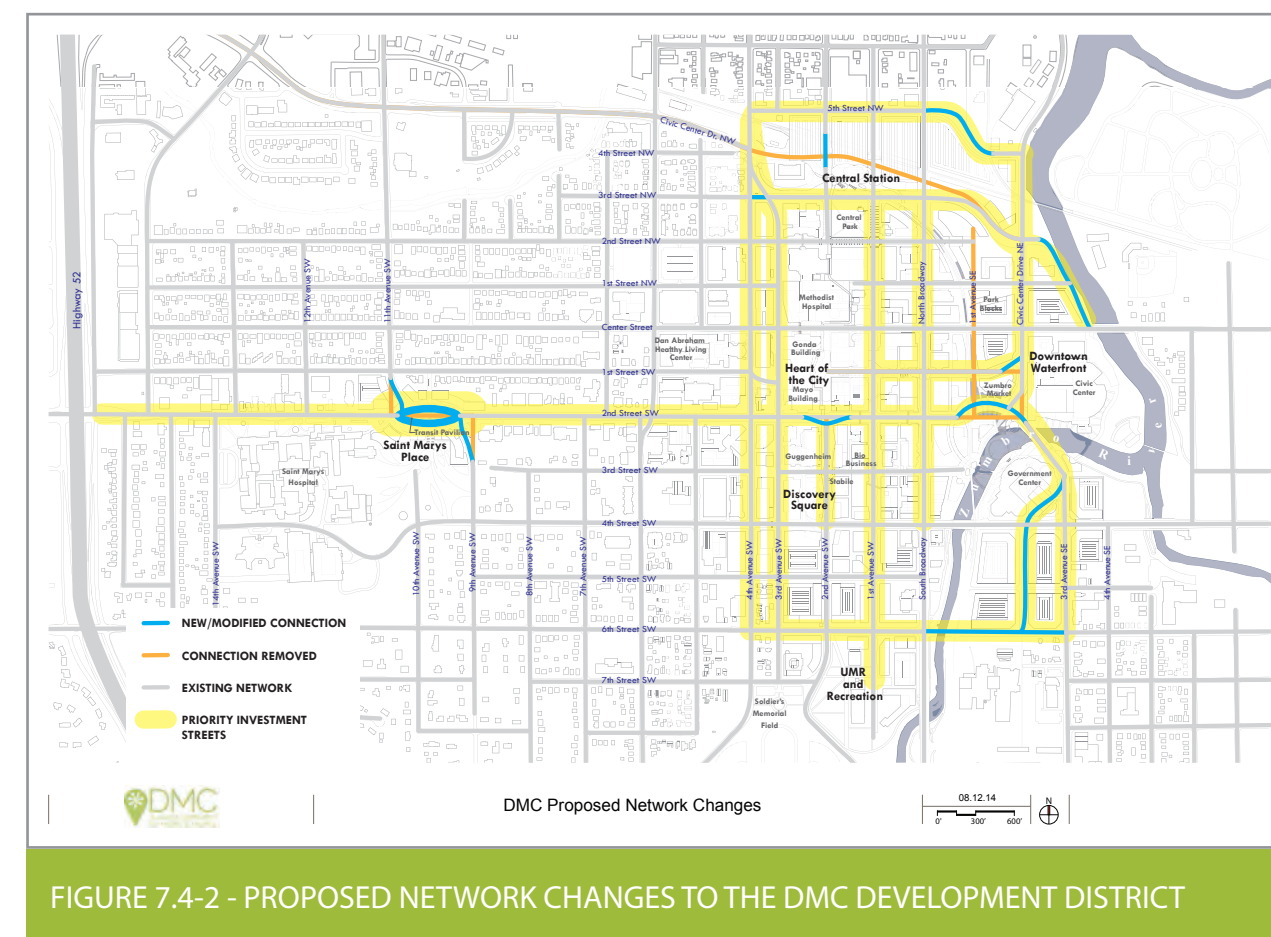


FIGURE 7.4-2 - PROPOSED NETWORK CHANGES TO THE DMC DEVELOPMENT DISTRICT

EXISTING	2030
Commute Mode Share	Commute Mode Share
71% Drive Alone	50% Drive Alone
6% Carpool Vehicle*	7% Carpool Vehicle*
77% Total by vehicle	57% Total by vehicle
Non-Commute Trips	Non-Commute Trips
90% Vehicle Trips	70% Vehicle Trips
*50% of carpool commuters	

FIGURE 7.4-3 - DMC DEVELOPMENT DISTRICT MODE AND VEHICLE TRIP ASSUMPTIONS (2040)

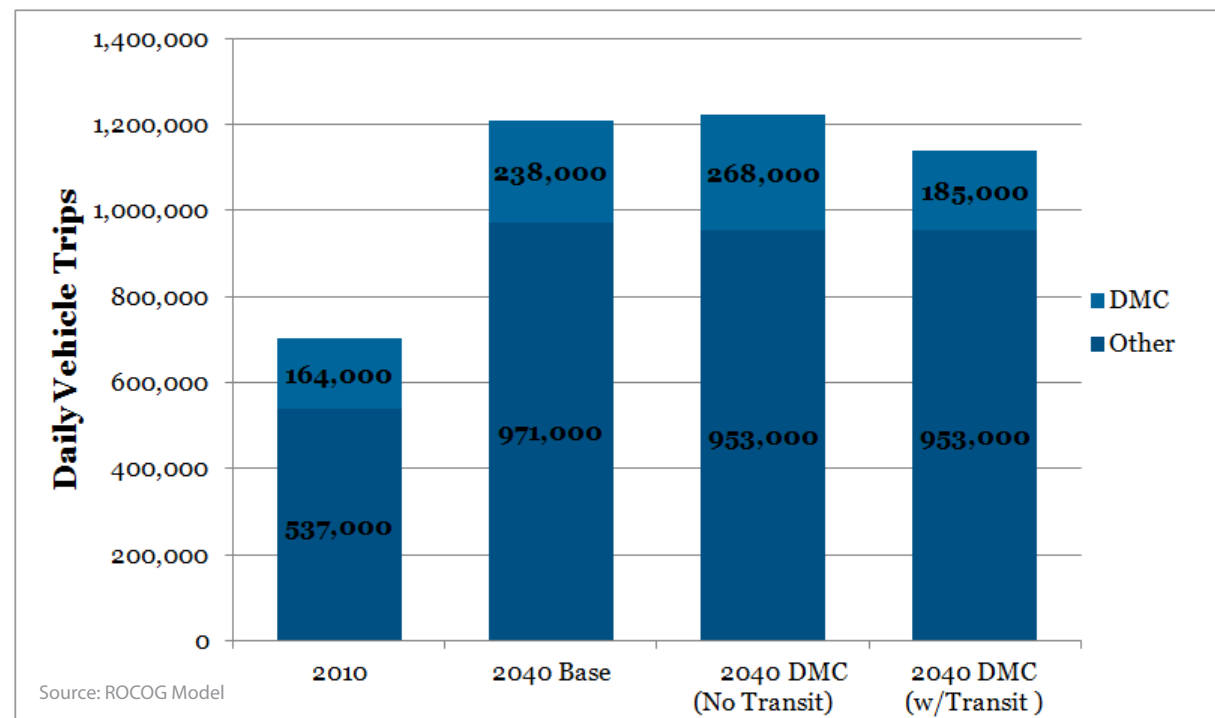


FIGURE 7.4-4 - ROCOG MODEL VEHICLE TRIP GENERATION

RESULTS

Trip Generation

Forecasted development in the Rochester area will result in a significant amount of new traffic on the region's roadway system. Regionally, trip-making is expected to increase by approximately 500,000 trips by the year 2040, a 72% increase. Trips generated by the DMC Development District – an estimated 164,000 per day in 2010 – are expected to grow by 76,000 trips per day to a total of 238,000 (a 45% increase).

The increased intensity of development resulting from the DMC Development Plan would increase the amount of traffic above that what is currently projected in the citywide Comprehensive Plan's base 2040 ROCOG model. Daily trips generated by the DMC Development Program would increase by 104,000 per day over current levels by 2040 (a 64% increase). This increase would be regionally offset by some change in trip distribution patterns – attracting certain activities to the DMC Development District instead of elsewhere; total trips in the region would only be expected to grow by 12,000 trips per day.

The DMC Development Plan includes a significant investment in transit services and facilities. As a result, and assuming the increases in transit used described above, the net increase in automobile trips generated by the DMC Development District is expected to only increase by 21,000 daily trips to 185,000 daily trips (a 13% increase over current levels) (see Figure 7.4-4).

Trip Distribution

The trip distribution component of travel demand estimates the relationship of activities that “produce” travel, usually households, and those that “attract” travel, usually considered as offices, shops, medical facilities, etc.

It is notable that the trip distribution method used in the travel demand modeling first distributes the trips among origins and destinations. Following the distribution, reductions in vehicle trips are made to account for transit. Consequently, the distribution patterns for trips outside of the DMC Development District are relatively unaffected. Trips to parking facilities on the periphery of downtown are accounted for as trips to the DMC Development District. Also notable is that for attractions to the DMC core, non-work trips outnumber work trips by a factor of over 2-to-1.

Trip Assignment/Traffic Volumes

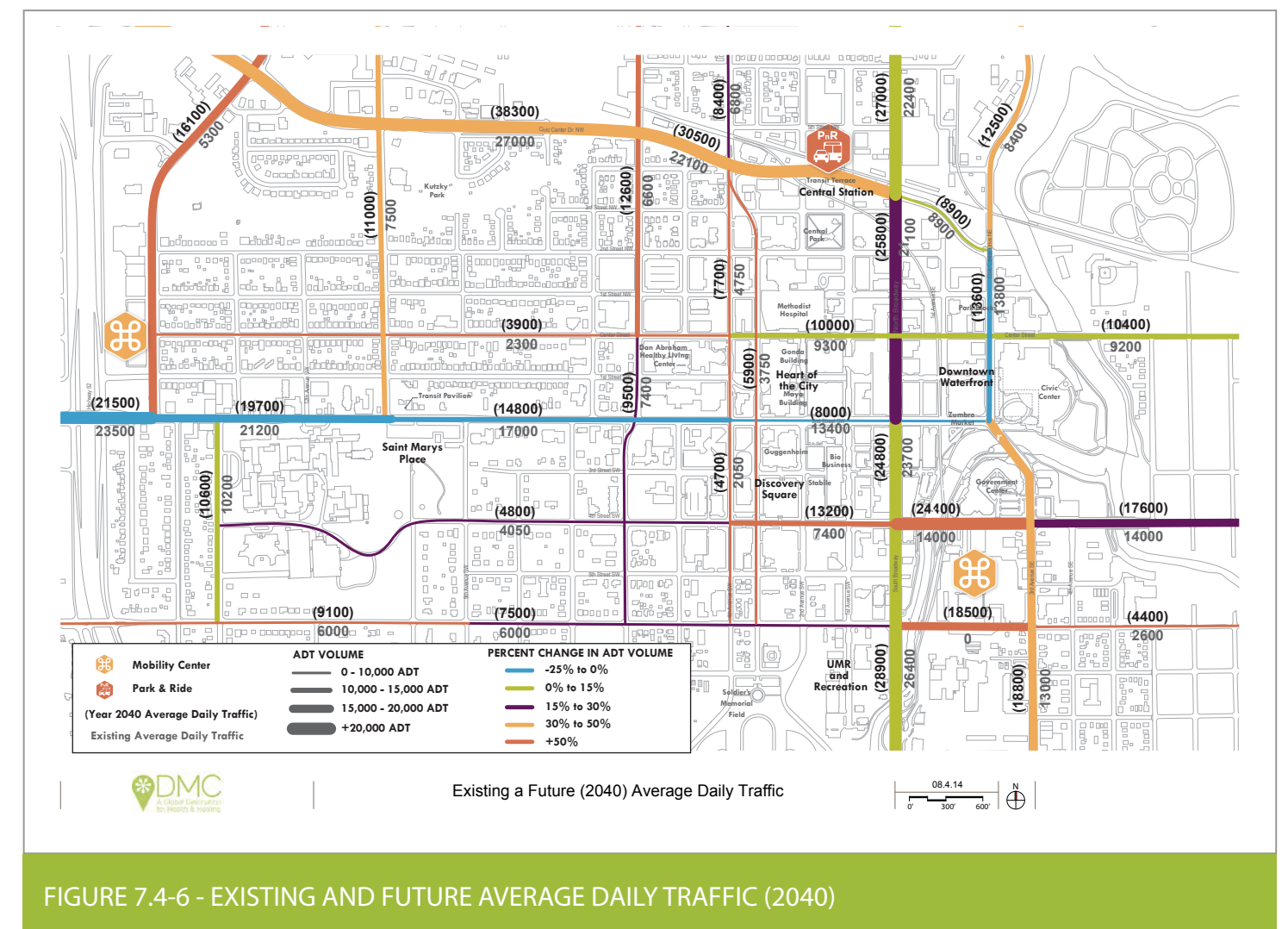
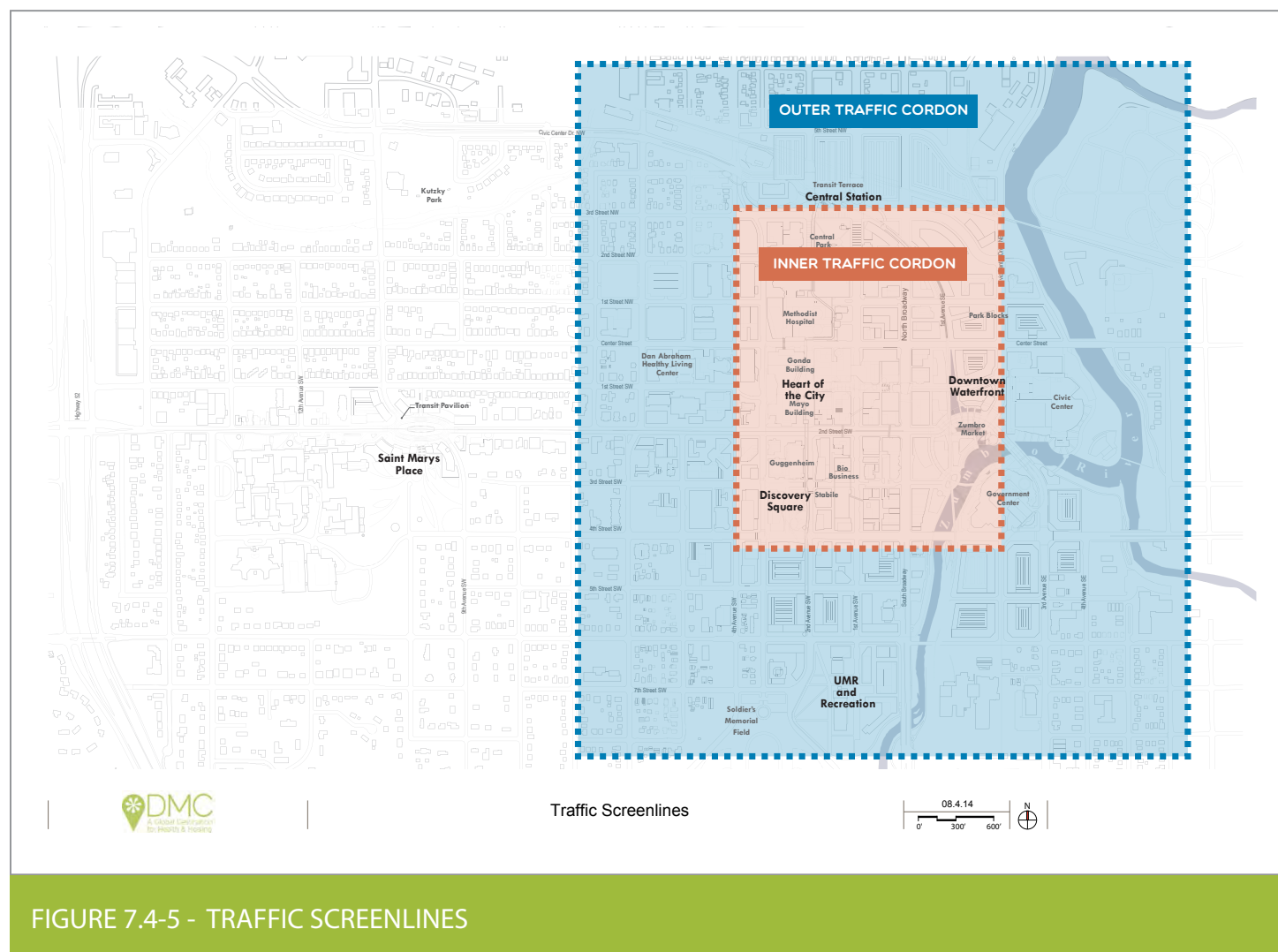
The final step in the travel demand modeling estimated the traffic routing on the roadways in the Rochester area. The routing process considers the effect of congestion and available capacity to determine which roads travelers use.

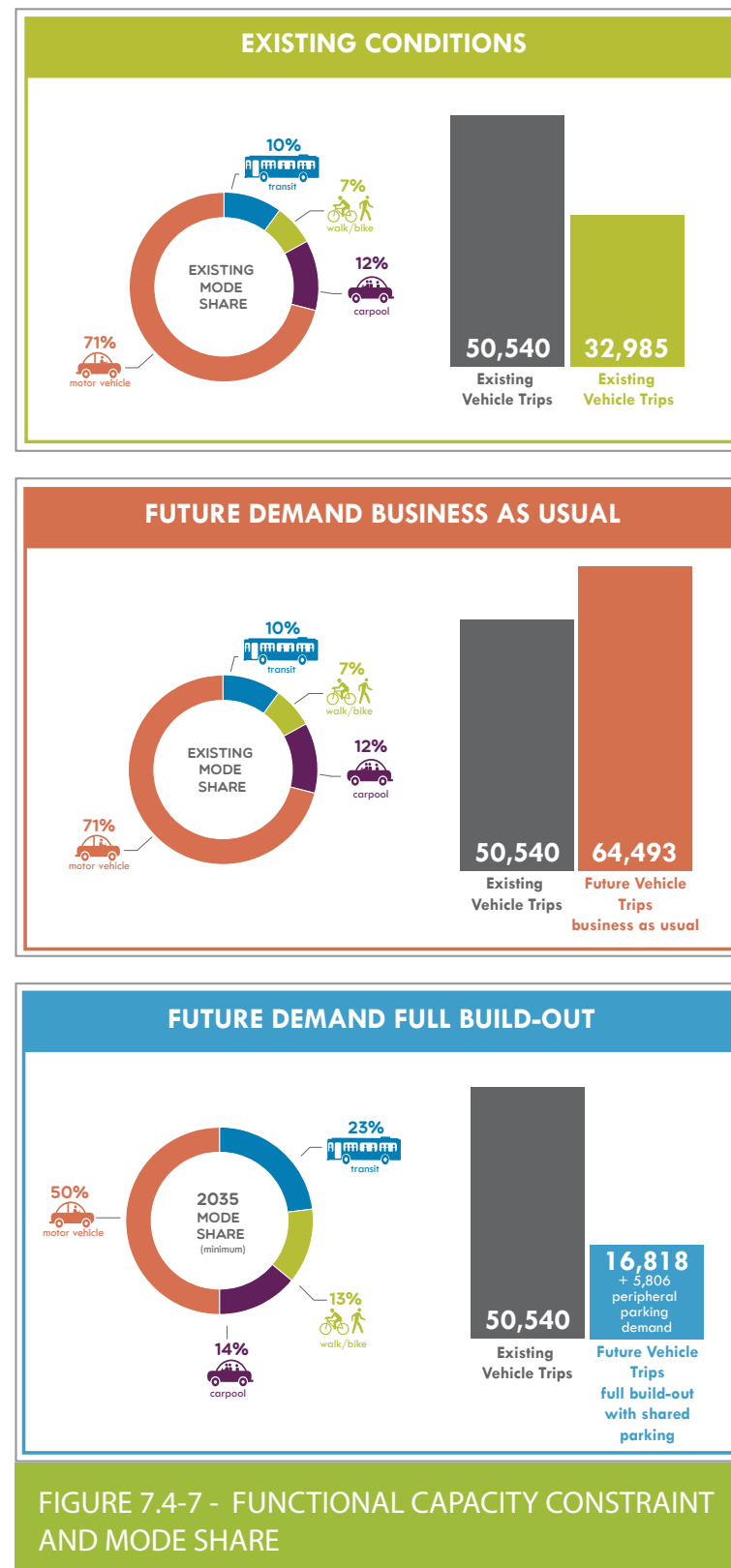
Figure 7.4-5 depicts two travel “cordons” around the core of the downtown area. The outer core segments travel by trips within the general downtown area and the inner cordon represents those roadways in the core of the downtown. Travel is measured both in terms of vehicles crossing the cordon and the amount of travel measured in vehicle miles on the roadways inside the cordons.

The number of trips crossing the cordons increases from the existing condition to the 2040 as development occurs in the downtown core. However, again confirming results shown in the trip generation and distribution, the growth in traffic would be significantly lower with a DMC scenario that assumes significant transit investment.

Figure 7.4-6 shows the existing and future average daily traffic for the existing and 2040 DMC scenarios. Key results to note are that the assumed reduction in vehicular capacity on 2nd Street results in a decrease

in traffic relative to current volumes. However, the growth that would have occurred on that roadway is diverted to alternate approaches, in particular, Civic Center Drive, which is expected to grow by 8,400 to 11,300 vehicles per day. The de-emphasis of Civic Center Drive north of the downtown core, coupled with a shift in fringe and reserve parking to the south side of the DMC area, will result in an increase in use of 3rd/4th Avenue as a means of circulating around the perimeter of the downtown area.





7.4.2.2 DMC STUDY AREA ACCESS PRIORITY AND FUNCTIONAL CAPACITY ACCESS PRIORITIES

The realization of the DMC Development Plan will represent almost a doubling of the number of people that travel to and from downtown Rochester on a daily basis. Were those people to travel using the same share of drive alone, transit, carpooling, walking, and biking trips that people use today, the results would be gridlock on major arterials and blocks of new parking structures would be needed to accommodate all the vehicles. Like any urban city, choices need to be made about how to prioritize vehicular access.

The DMC Development Plan builds on the Rochester Downtown Master Plan access framework and policies. In short, the following policy priorities are adhered to:

- Short-term visitors, retail patrons, and patients are provided priority parking accommodation.
- Employees constitute the greatest number of trips to and from downtown and stay the longest once they arrive. Employee parking consumes a tremendous amount of space and provides the least contribution to downtown retail, entertainment, and service spending. Employee trips are also the most consistent and easy to serve effectively with public transportation. As such, the vast majority of employees should be encouraged to use transit and other transportation options. Long-term employee parking should not be incentivized and take the lowest priority relative to other types of parking. For employees and long-term visitors, peripheral lots, high-quality shuttles and circulators, and transit will accommodate those that arrive by motor vehicle, while transit, bicycle, and pedestrian infrastructure may support direct and multimodal access to downtown destinations.
- It is assumed that downtown residents and hotel parking needs will be accommodated by private development on a 1:1 ratio of parking to number of units/rooms. Developers should be encouraged to share that parking and use strategies such as unbundled parking to reduce demand and prevent overbuilding.

FUNCTIONAL CAPACITY CONSTRAINT

The functional capacity of the DMC Development District's street system refers to the number of motor vehicles a street can carry before traffic conditions deteriorate to a level of systemic congestion. As part of the demand analysis, a cordon line was drawn around the DMC Development District to calculate its theoretical functional capacity. Functional capacity was calculated using traffic counts and the volume to capacity ratio (V/C) of the streets crossing into the District. Under existing conditions, there is ample capacity to accommodate demand. However, the DMC Development Program projects a significant increase in demand on the system. Under a "business as usual" scenario, meaning that mode share would remain as it is today, demand would far exceed capacity and have detrimental impacts to the livability and vibrancy of downtown. By adjusting the mode share targets and incorporating a shared parking strategy, future demand can be accommodated (see Figure 7.4-7).

As a major regional employment center, there is simply not enough space in downtown Rochester to provide parking for everyone that might like to drive. Rochester does not plan to expand the auto capacity of major roadway entries to downtown. Since parking attracts vehicles, a fundamental principle is that new parking will not exceed the capacity of the road system.

The DMC Development Plan limits total future parking supply based on carrying capacity of the roadways entering downtown. The transit, active transportation, and transportation demand management elements of the plan ensure that those who don't drive find high-quality transportation options.

Functional capacity is calculated based on lane space at the roadways entering downtown. Data inputs for the functional capacity analysis are based on 2010 Average Annual Daily Traffic (AADT) traffic counts. The analysis focuses on peak morning and evening periods when roadways are most heavily utilized. The functional capacity (and the number of additional vehicles the network can support accessing downtown) is the total hourly vehicle capacity of the most constrained intersections minus the current peak hour vehicle volume. A 10% capacity reserve is designated for vehicles traveling through, but not looking to park downtown. Figure 7.4-8 documents the existing functional capacity of the roadway system; Figure 7.4-9 illustrates where this capacity is located in downtown.

An analysis of functional capacity constraint at the 1-5 year, 6-10 year, 11-15 year, and 16-20 year DMC Development District phases models the changing road capacity based on land development in the DMC sub-districts. Figure 7.4-11 and Figure 7.4-12 illustrate that by 2035 most of the major streets that provide access to downtown will be at their functional capacity at peak times.

FACILITY	ANNUAL AVERAGE DAILY TRAFFIC VOLUMES	CALCULATED TOTAL PEAK HOUR CAPACITY VEHICLES/LANE/PEAK HOUR	AVAILABLE ROAD CAPACITY AT PEAK HOUR
6th St SW	8,200	1,080	260
2nd St SW	23,500	2,880	530
11th Ave NW	7,500	1,440	690
6th Ave NW	6,600	1,305	645
4th Ave NW	4,750	2,700	2,225
Broadway SB	21,100	3,150	1,040
Broadway NB	12,500	3,150	1,900
4th St. SE WB	14,000	2,430	1,030
3rd Ave SE	2,600	2,430	2,170
E Center	9,200	1,305	385
4th Ave SW	3,450	1,305	960
14th Ave SW	1,850	540	355
W Silver Lake Driver	8,400	2,430	1,590
Broadway NB, 50%	12,500	3,150	1,900
Center Street @ 6th Ave	3,950	855	460
2nd Street SW @ 6th Ave NW	14,200	2,835	1,415
Totals		32,985	17,555

FIGURE 7.4-8 - EXISTING FUNCTIONAL CAPACITY BY FACILITY

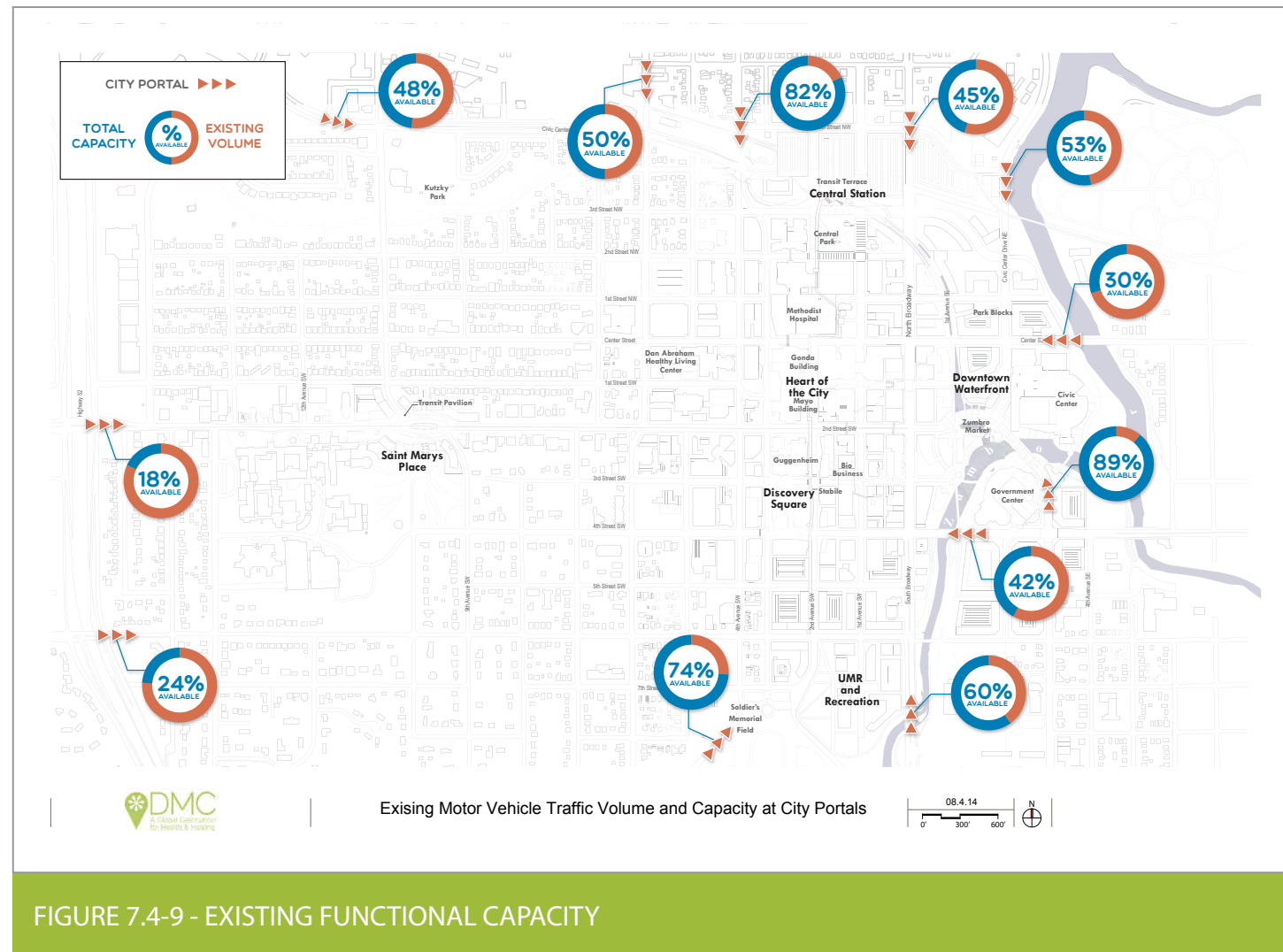


FIGURE 7.4-9 - EXISTING FUNCTIONAL CAPACITY

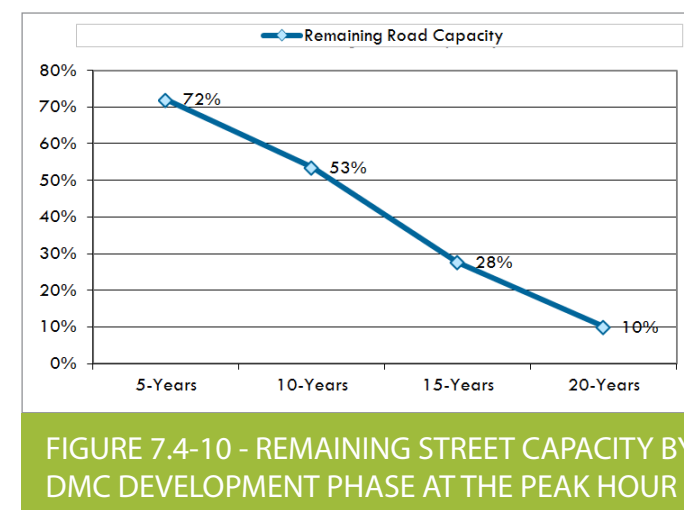


FIGURE 7.4-10 - REMAINING STREET CAPACITY BY DMC DEVELOPMENT PHASE AT THE PEAK HOUR

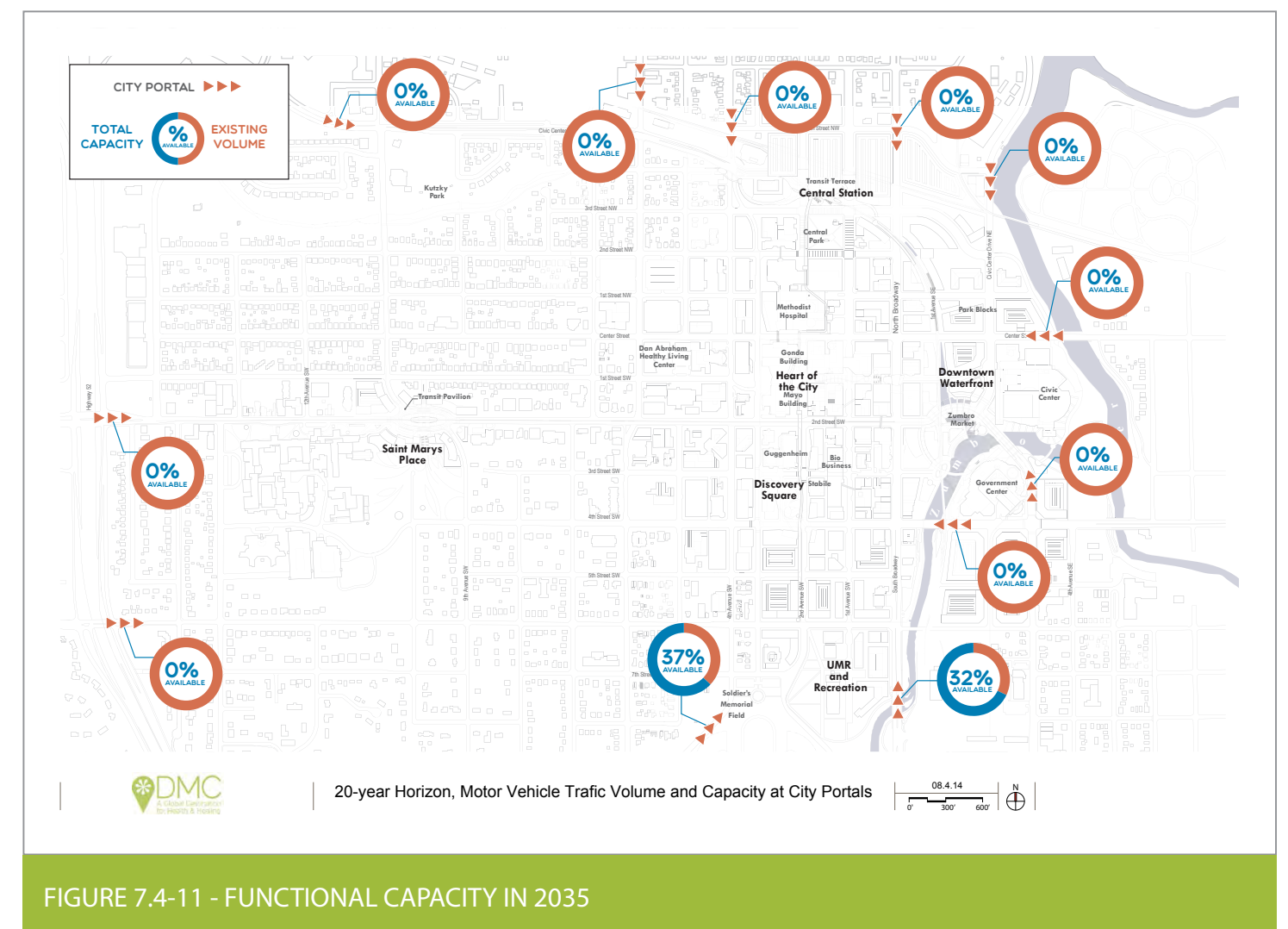


FIGURE 7.4-11 - FUNCTIONAL CAPACITY IN 2035

7.4.2.3 MODE SHARE TARGETS

The analysis of auto capacity at key entries to downtown (see previous Section 7.4.2.2) illustrates Rochester's mode shift imperative. To keep pace with increasing workforce and visitation using a constrained street network, there is a need for more people to access the DMC Development District via high-occupancy vehicles, transit, walking, and cycling. While the requirement for people to change travel behaviors may sound challenging or unrealistic, the following help frame that challenge:

- Rochester and the Mayo Clinic already have a history and strong set of services and programs in place that encourage people to commute on transit, to carpool, park-and-ride, and use other active transportation modes.
- Mode shift happens naturally as a city becomes denser. Research shows that density alone is the greatest predictor of non-auto travel. In short, as urban conditions intensify, a number of factors change that naturally drive more people to use transit, to walk, and to cycle. These include: more residential living in close proximity to jobs, more congestion encouraging people not to drive, better transit driven by improved market economics for high-frequency service, higher parking charges, and other factors.
- Much of the "shift" will come from new employees who do not have to "change" their travel habits, as the plan anticipates integration of the improvements and the adoption of policies over time to address new demand to the area or the workforce. This includes a large portion of the workforce over the next 20 years that will come from the Millennial generation (or younger), a group that has already exhibited a preference for transit and active transportation. Figure 7.4-12 illustrates the shift in travel trends from 2001 to 2009.

SETTING TARGETS

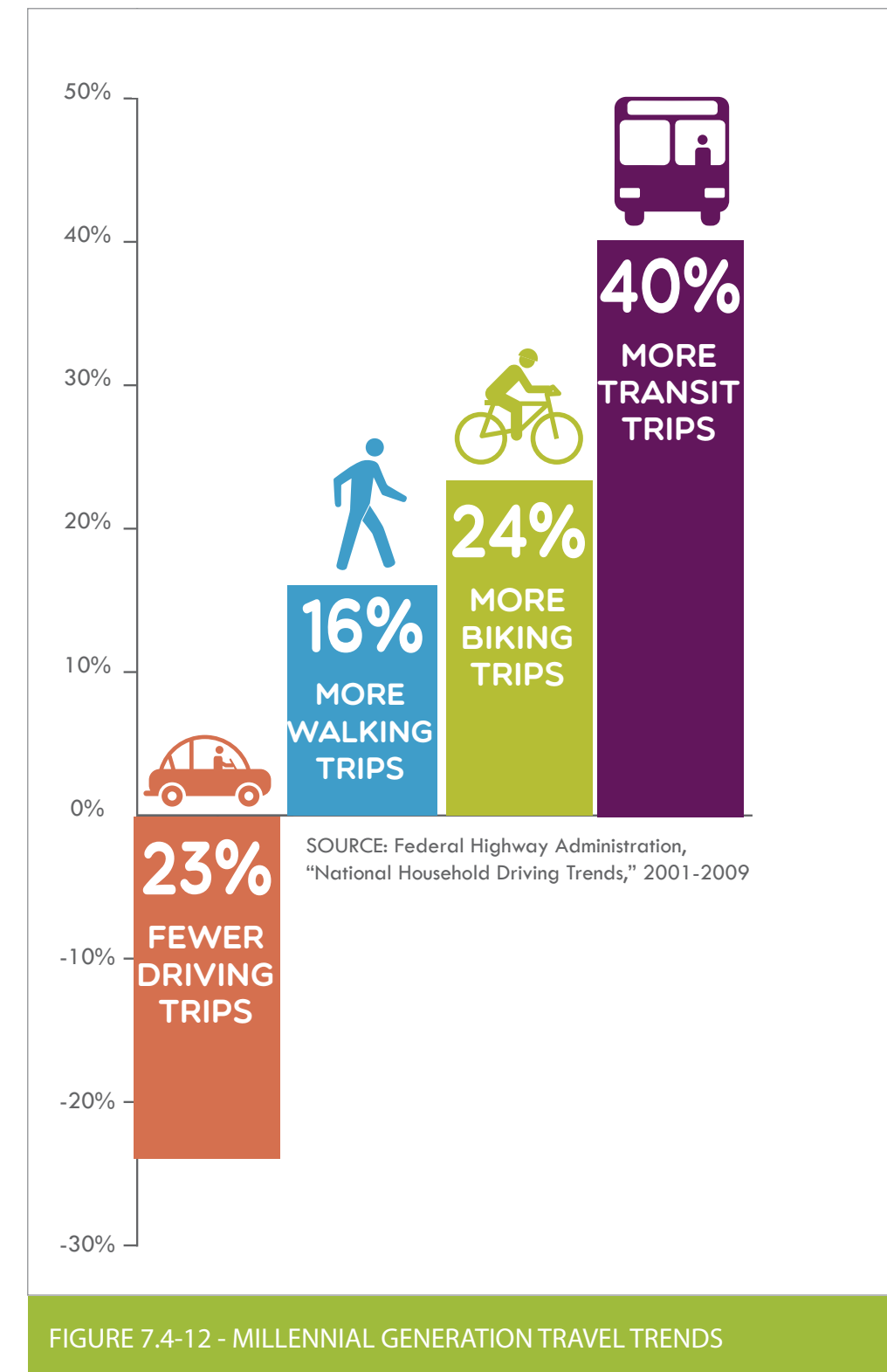
Mode share targets are measured for home-to-work trips that take place during the peak commute travel period. A mode share target of 50% of trips taken by non-drive alone modes does not mean that visitor, patient, and other midday trips would meet this target. Midday, non-commute trip types are harder to influence and are more likely to occur outside the time the roadway system is most congested.

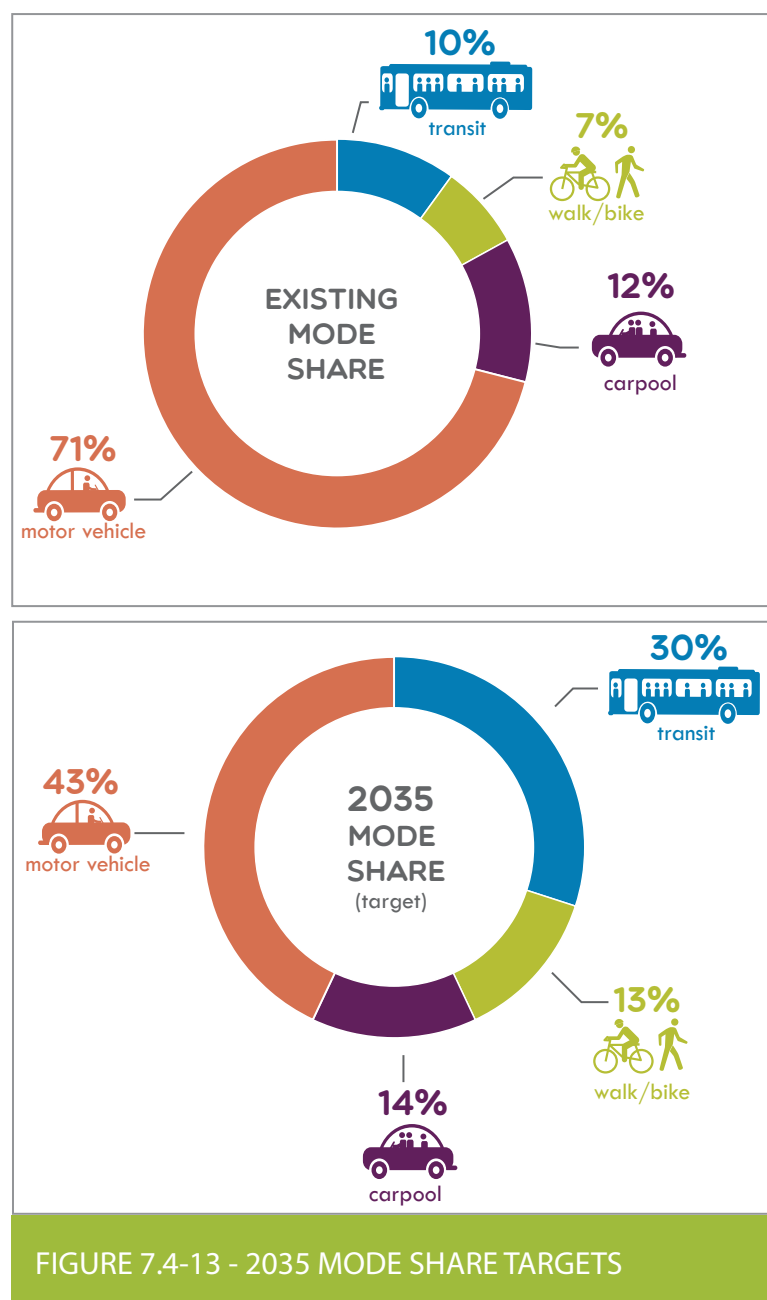
For the DMC Development Plan, mode share targets represent the level of non-auto commute trips necessary for the roadway system to continue to function during peak commute periods. The share of non-auto travel is set based on historic travel activities and an assessment of realistic future travel. For example, given weather conditions and the long-average commute distance for workers in downtown Rochester, it is expected that transit will comprise a large portion of non-auto travel than biking and walking.

Figure 7.4-13 shows moderate DMC targets for commute mode share in 2025 and 2035.

NON-COMMUTE TRIPS

In the DMC Development District, new land uses, including increased residential and retail uses, will generate more of all types of trips. Non-work travel, including shopping, school drop-offs, recreation, and general errands are likely to include automobiles because they are difficult to serve by transit. In the DMC Development District, mixed-use developments will provide basic amenities in close proximity to dense housing or on walkable and bikeable streets.





No targets are set for non-commute trips because it is very difficult to accurately measure mode share for these trip types. It is likely that well over 90% of all non-work trips starting outside downtown Rochester are made by private vehicle. Based on experience in other communities, it is estimated that the implementation of the DMC Development Plan, which includes significant mixed-use development, could reduce downtown-generated non-work auto trips to 70% of total daily trips. Providing options for people to move within the DMC Development District on foot, transit, or bike frees roadway capacity to allow access for the people and goods most critical to the economy.

7.4.2.4 TRANSIT DEMAND ASSESSMENT

The 2035 mode share target for transit travel in downtown Rochester is expected to range between 23% and 30%¹, more than doubling the existing 10% transit mode share. Limiting vehicle access into downtown, managing parking supply, and implementing aggressive transportation demand management programs will all assist in achieving the transit mode share target. Anticipated local, regional, and district growth will necessitate high-quality transit service and facility enhancements in the downtown Rochester area to ensure convenient and effective access to transit.

Transit demand projections serve as a basis for transit service and capital investment recommendations in Section 7.5.2.

PROJECTED LOCAL TRANSIT DEMAND

Demand for local RPT transit service is expected to substantially increase as a result of long-term growth within the city, DMC-supported development within downtown, aggressive parking management strategies, and other programs within downtown Rochester that will encourage transit use. The market for local transit will continue to be driven by sub-markets that make up existing demand: commute trips within the city and to downtown Rochester, transit dependant trips, and all-day travel to a variety of destinations throughout the city. Projected local transit demand was estimated using the following two-step process:

- Using city of Rochester population projections,² the population change between 2010 and 2040 along each RPT route was calculated and applied to existing route-level ridership to account for projected land use growth.
- Growth factors based on required mode share targets were applied to land use adjusted ridership levels to approximate a low and high ridership range.

LOCAL TRANSIT SERVICE DEMAND

Total demand for future RPT local service is expected to increase between 194% and 283% (total weekday ridership is estimated to be between 19,600 and 25,550 trips; net new ridership is estimated to be between 12,930 and 18,880). Figure 7.4-14 illustrates the total projected local transit demand along each corridor; Figure 7.4-15 illustrates the net new local transit demand along each corridor. Figure 7.4-16 details the projected percent change in ridership by corridor.

¹ The Rochester Downtown Master Plan (2010) set the transit mode share target at 23% for 2030 conditions; the DMC has set a policy transit mode share target of 30% for 2035.

² Rochester-Olmstead Council of Governments Planning and Analysis Division. Employment and Population Projections: Looking Ahead through 2040. May 2014.

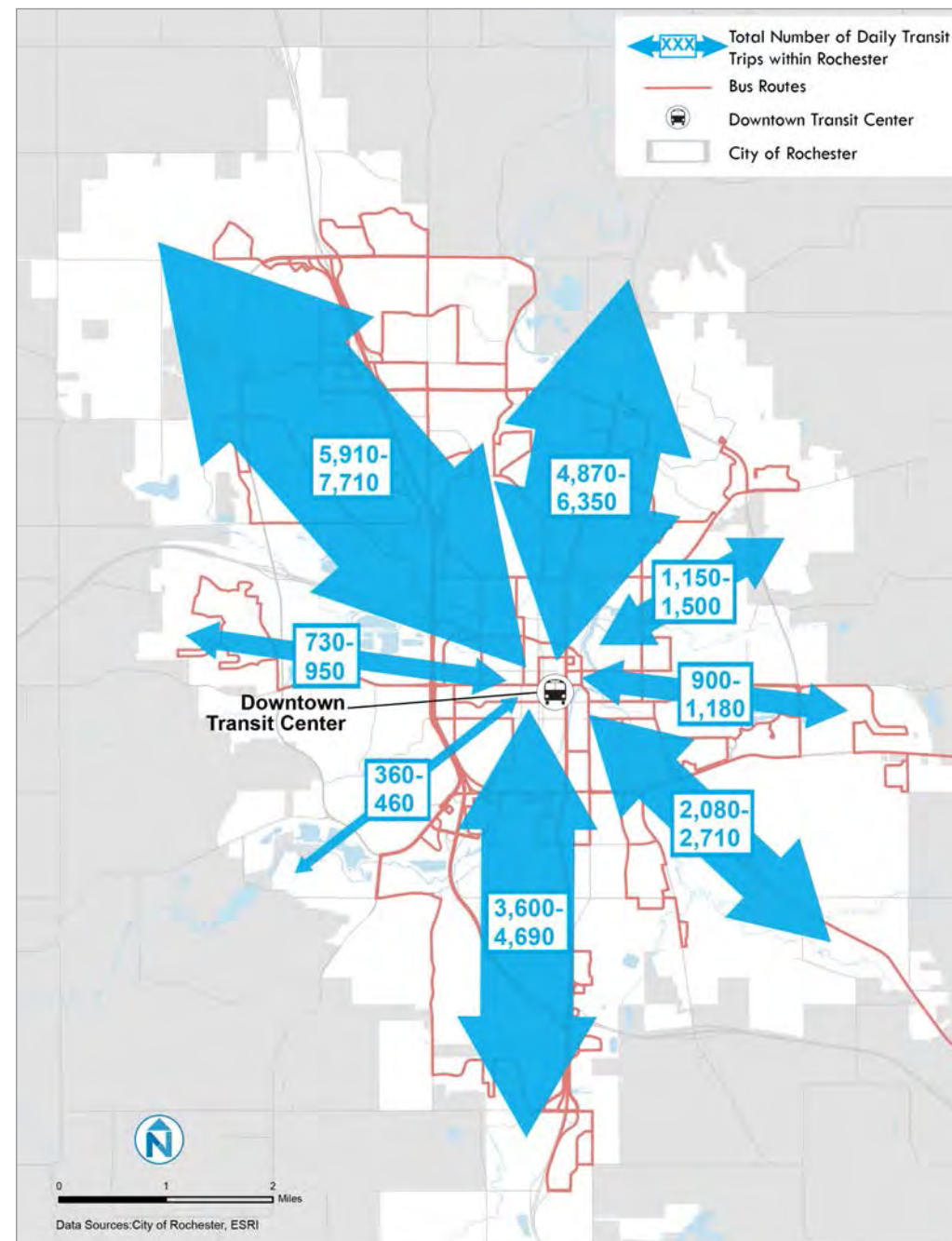


FIGURE 7.4-14 - TOTAL LOCAL TRANSIT TRAVEL DEMAND (2035)

Source: Rochester Public Transit, 2014; Olmsted County MPO; RDMP, 2012

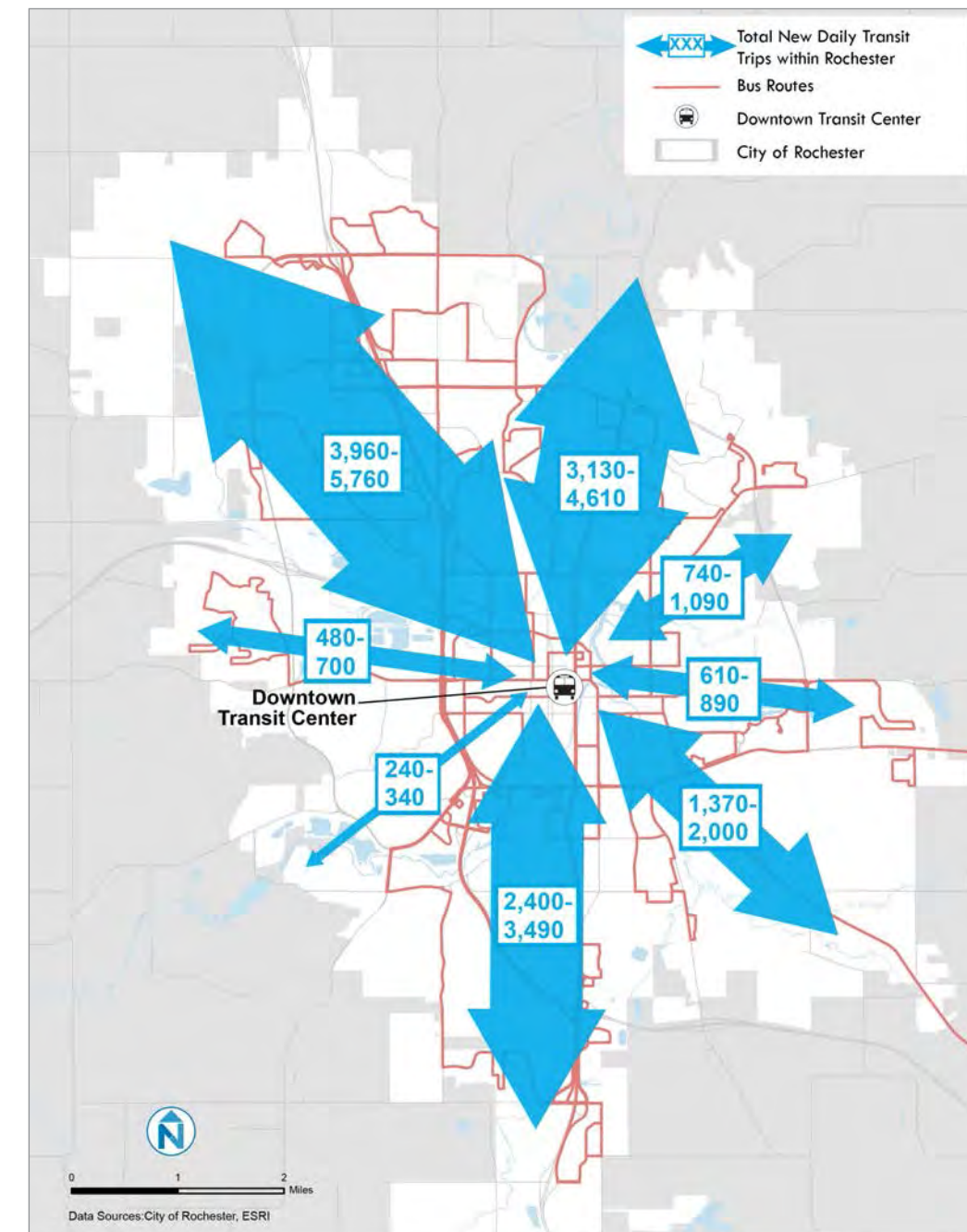


FIGURE 7.4-15 - TOTAL NEW LOCAL TRANSIT TRAVEL DEMAND (2012-2035)

Source: Rochester Public Transit, 2014; Olmsted County MPO; RDMP, 2012

CORRIDOR	RIDERSHIP CHANGE	
	ASSUMING 23% TRANSIT MODE SHARE TARGET	ASSUMING 30% TRANSIT MODE SHARE TARGET
North	180%	265%
Northeast	180%	266%
Northwest	203%	295%
South	200%	291%
Southeast	193%	282%
Southwest	200%	283%
East	210%	307%
West	192%	280%

FIGURE 7.4-16 - PROJECTED CHANGE IN LOCAL RIDERSHIP BY CORRIDOR (2012-2035)

LOCAL PARK-AND-RIDE DEMAND

Facilitating the DMC ‘park once’ parking strategy to limit the number of vehicles traveling into and out of downtown Rochester (see Section 7.5.1.2), a new demand for park-and-ride-based transit service is expected. Building upon the success of existing RPT park-and-ride based transit services, new out-of-district lots will be constructed for commuters to avoid driving into downtown Rochester. The new lots will create additional demand for direct connections to the downtown core using a parking strategy similar to today, where free, out-of-district parking is offered with connections to downtown Rochester via high-frequency and direct transit service. The potential for additional downtown travel demand over time can be pushed to these out-of-district lots if need be. The new park-and-ride lots are expected to generate between 7,700 and 8,500 boardings per average weekday onto new, frequent bus service directly into downtown.¹ This new transit demand is included in the local transit demand projections above.

PROJECTED REGIONAL TRANSIT DEMAND

Regional transit demand is also expected to substantially increase over the next 20 years. Increased regional demand for transit will be due to a combination of growth in areas outside Rochester, concentrated employment within the DMC District that will pull from regional markets, demand management strategies within downtown that will limit the supply of parking, and new markets for longer-distance intercity travel to the Twin Cities. The market for regional transit will continue to be driven by the commute market traveling to and from downtown Rochester primarily for employment purposes. This increased demand will require fast, convenient, comfortable, and affordable transit service. Projected regional transit demand was estimated using the following two-step process:

- Using regional population projections,² the population change between 2010 and 2035 at each RCL city/town served by an RCL route was calculated and applied to existing route-level ridership to account for projected land use growth at each of the cities/towns where a regional express route originates.
- Growth factors based on required mode share targets were applied to land use adjusted ridership levels to approximate a low and high ridership range.

Total demand for future regional express service is expected to increase between 154% and 231% (total weekday ridership is estimated to be between 10,710 and 13,970 trips; net new ridership is estimated to be between 6,490 and 9,750 trips). Figure 7.4-17 below illustrates the projected regional transit demand along each corridor, while Figure 7.4-18 illustrates the net new local transit demand along each corridor. Figure 7.4-19 details the projected percent change by corridor.

¹ Ridership is estimated assuming a 70% lot utilization rate and a 1 to 1.1 vehicle occupancy rate of total parking spaces, all of which will board transit to and from their destinations.

² Minnesota State Demographic Center. Minnesota Population Projections. 2014. <http://mn.gov/admin/demography/data-by-topic/population-data/our-projections/>

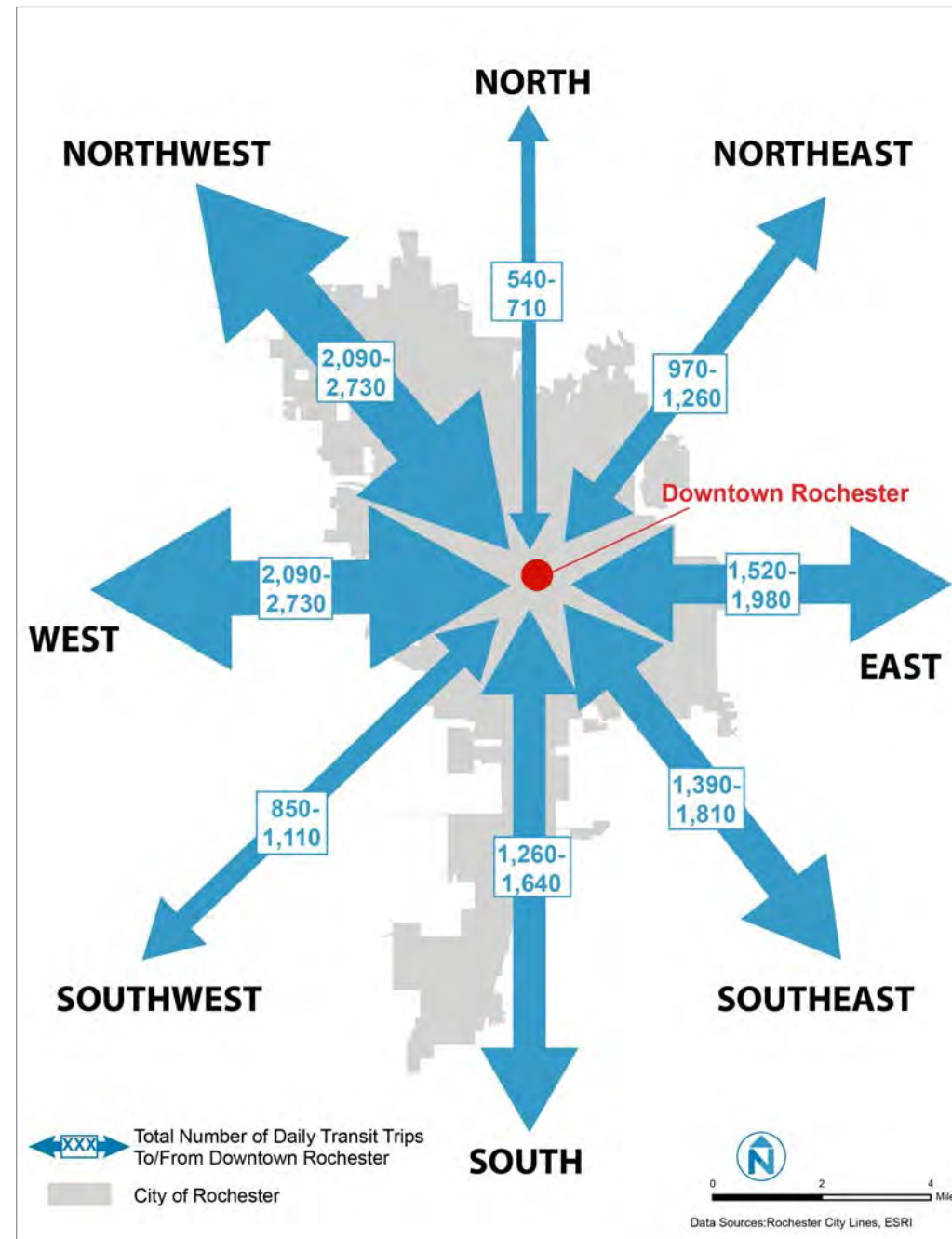


FIGURE 7.4-17 - TOTAL PROJECTED REGIONAL TRANSIT TRAVEL DEMAND (2035)

Source: Rochester Public Transit, 2014; Olmsted County MPO; RDMP, 2012

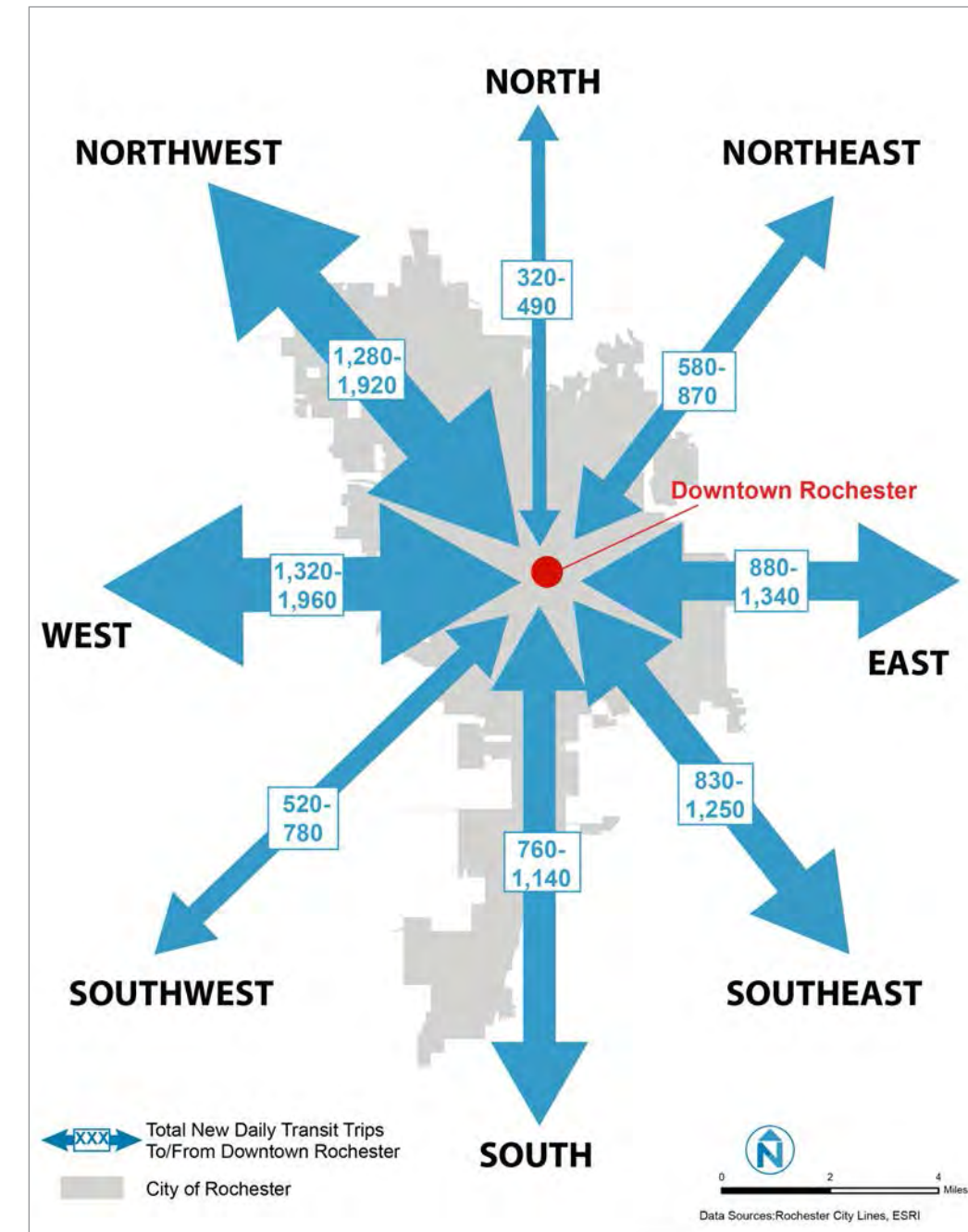


FIGURE 7.4-18 - TOTAL NEW REGIONAL TRANSIT TRAVEL DEMAND (2014 - 2035)

Source: Rochester Public Transit, 2014; Olmsted County MPO; RDMP, 2012

CORRIDOR	RIDERSHIP CHANGE	
	LOW	HIGH
North	145%	223%
Northeast	149%	223%
Northwest	158%	237%
South	152%	228%
Southeast	148%	223%
Southwest	158%	236%
East	138%	209%
West	171%	255%

FIGURE 7.4-19 - PROJECTED CHANGE IN REGIONAL RIDERSHIP BY CORRIDOR (2014-2035)



The DMC Development Plan recommends a modern streetcar for downtown circulation that will be developed in two phases: East-West Segment: Streetcar along 2nd Street SW from Highway 14 to the Government Center; North-South Segment: Government Center to Central Station via the 1st/3rd Avenue couplet. See Section 7.5.2 and Appendix 8 for more information.

Image from Nelson\Nygaard

DEMAND FOR TRANSIT CIRCULATION IN THE DMC DEVELOPMENT DISTRICT

The Development Plan prioritizes compact medical, commercial, and residential development in downtown Rochester. This concentrated growth will substantially increase the demand for short trips within the Development District including recreation, shopping, visitor, patient, and intra-district commute trips. The market for transit circulation in the DMC District is driven by four distinct sub-markets:

- **Patient, staff, and visitor movements between the Mayo Clinic downtown and Saint Marys campuses.** This is a market served by privately operated Mayo shuttles today. It is assumed that with a high quality circulator, staff and able visitors would use the circulator.
- **People with mobility challenges.** While some will continue to need private, door-to-door shuttle services, a rail circulator will provide level boarding, a stable ride, high-frequency service on an easily-understood route, and high quality station facilities. These factors will make transit a more viable circulation option for people with mobility challenges, including those in wheelchairs or using mobility devices.
- **Short-trips between downtown destinations.** As the Waterfront District, the Barcelona Corners/Government Center area, Central Station, and Discovery Square grow into dense urban districts, demand for trips between 0.5 and 1.5 miles will increase significantly. Increase in the number of people arriving in the downtown without a car will also increase demand for non-auto circulation. The downtown circulator is designed to make these trips that are slightly longer than a comfortable walk more viable.
- **Park-once and ride.** Large increases in commute and visitor travel from outside the district mean some commuters and visitors will park at the periphery of downtown. The circulator connects these planned parking reservoirs allowing people to park more conveniently (and likely at reduced rates) and get downtown. Long-span, high-frequency service provided by the downtown circulator means they can get back to their car at most times of day.

TRANSIT CIRCULATION WITHIN THE DMC DISTRICT

High levels of existing transit and shuttle use along the 2nd Street corridor within downtown Rochester and future development projections present an opportunity to enhance transit along this east-west corridor. Phase 1 and 2 of the DMC Development Program include development along the 2nd St SW corridor, which coincides with Phase 1 of the downtown circulator. Direct connections to Saint Mary's Hospital, the Mayo Facility, the Government Center, and future development sites in the Heart of the City and Discovery Square will create the need for high-quality, frequent, reliable, and transparent all-day circulation with safe and convenient pedestrian access. In addition, north-south circulation will accommodate longer term growth within the Development District to accommodate future development projected in the DMC Development Program. Future development at University of Minnesota at Rochester, Discovery Square, the Heart of the City, and Central Station will all create the need for high-quality north-south circulation within downtown. North-south circulation will also provide convenient access to additional peripheral parking and facilitate connections to future long-distance modes of transit.

Ridership along both phases of the future downtown circulator within the Development District has been estimated based on three factors:

- **Peer-based ridership model** uses ridership per mile on similar downtown circulators¹ and adjusts based on relative difference of a future Rochester circulator, including density, service levels/frequency, speed, and ridership generators. A circulator in downtown Rochester is expected to generate between 4,580 and 7,780 boardings per weekday without any inclusion of park-and-ride or Mayo shuttle boardings. The peer analysis supports DMC Circulator ridership estimates and helps to confirm that the circulator has the potential to be a competitive project for federal grant funding.
- **Peripheral parking supply** included the DMC 'park once' parking strategy is expected to limit the number of automobiles from entering downtown Rochester. The parking supply will be accommodated with new parking lots on the periphery and outside of the Development District. The peripheral lots will be designed to feed directly into each phase of the downtown circulator with direct connections to downtown destinations. As shown in Figure 7.4-20, three planned lots will generate between 3,000 and 3,280 boardings per weekday on both phases of the downtown circulator.
- **The 2nd Street SW Mayo Clinic shuttle** currently generates approximately 3,500 employee boarding per weekday, all of which are expected to utilize a new 2nd Street corridor circulator assumed to replace the shuttle for connections between Saint Mary's and the Mayo Clinic.

The downtown circulator is expected to generate between 11,080 and 14,550 boardings per average weekday. Figure 7.4-21 below details total projected ridership for both phases of the downtown circulator. Figure 7.4-22 illustrates the downtown circulator alignment.

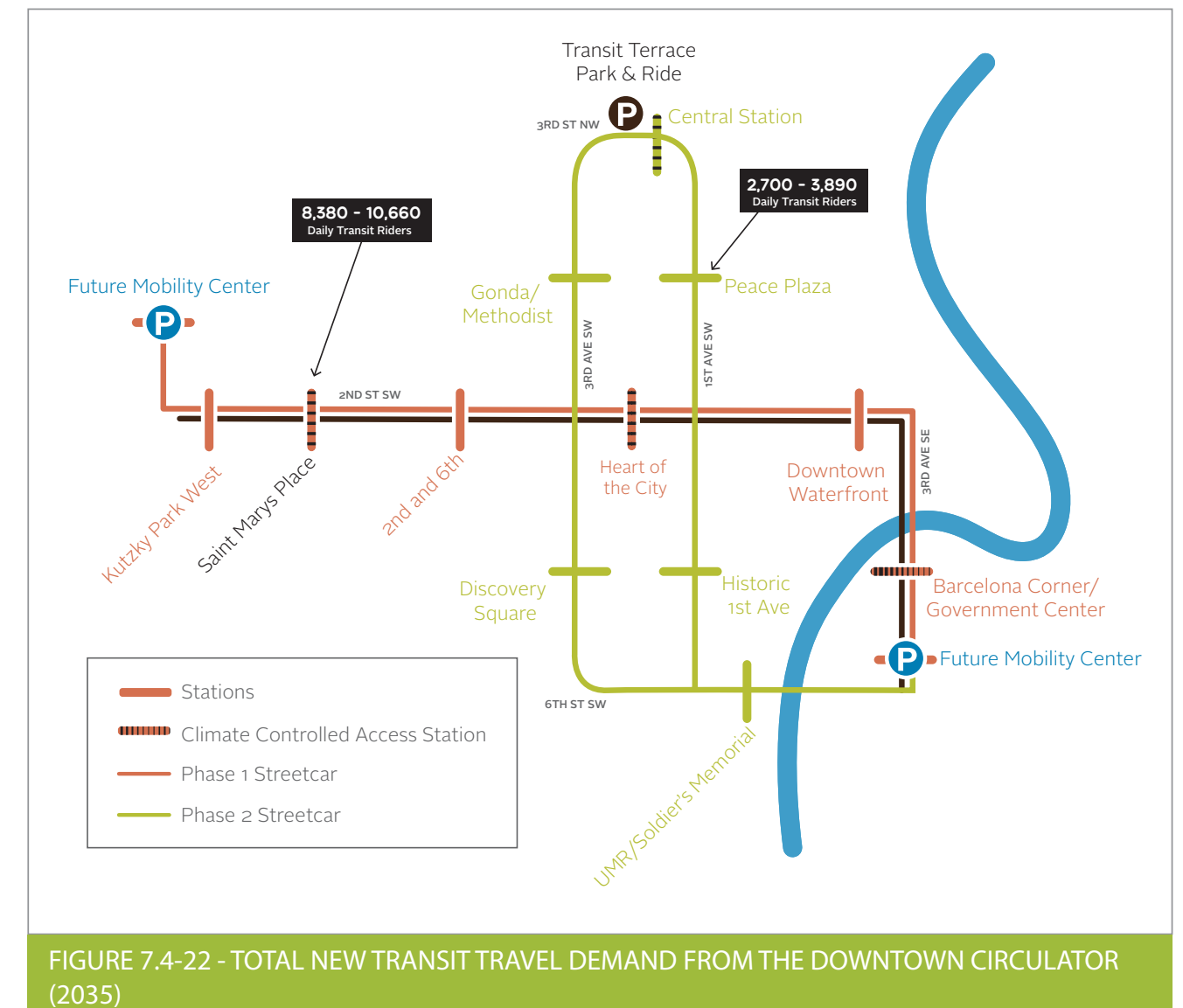
STREETCAR SEGMENT	TOTAL PARKING SUPPLY	ESTIMATED WEEKDAY TRANSIT BOARDINGS*
East-West	3,081	2,030 – 2,220
North-South	2,725	970 – 1,060
Total	5,806	3,000 – 3,280

FIGURE 7.4-20 - PERIPHERAL PARK & RIDE TRANSIT DEMAND

* Ridership is estimated by using a 1.1 to 1.2 vehicle occupancy rate at each park and ride lot, assuming a 75% lot utilization. Forty percent (40%) of the west and southeast lot are assumed to board transit, while 20% of the north lot is assumed to board transit.

STREETCAR SEGMENT	ESTIMATED WEEKDAY TRANSIT BOARDINGS
East-West	8,380 – 10,660
North-South	2,700 – 3,890
Total	11,080 – 14,550

FIGURE 7.4-21 - TOTAL PROJECTED WEEKDAY CIRCULATOR RIDERSHIP (2035)



¹ Ridership figures were taken from the Portland Streetcar, Seattle South Lake Union Streetcar, Tacoma Link, and the Memphis MATA Trolley.

7.4.2.5 PARKING DEMAND ANALYSIS

Today, structured and surface parking consumes more land area in downtown Rochester than any other single use. A goal of the DMC Development Plan is to right size parking to provide for access needs critical to the economy while limiting the negative effects of parking on the vitality and beauty of the downtown. Building parking spaces that serve just one vehicle for six hours during five weekdays is a waste of financial and spatial resources. The DMC Development Plan encourages policies and practices to share parking resources where viable and recommends a level of parking construction guided by this approach.

Parking demand projections serve as a basis for DMC parking investment recommendations described in Section 7.5.

PARKING DEMAND METHODOLOGY

An adapted shared parking model calculated the parking demand and the potential application of shared parking. This model used inputs from the Urban Land Institute's (ULI) Shared Parking Manual (2nd Edition, 2005) and the Institute of Transportation Engineer's (ITE) Parking Generation (4th Edition, 2010). In each phase, parking demand was adjusted to account for transportation demand management, captive market effects (persons completing multiple tasks without moving their vehicle), and the influence of transit on parking demand (see Figure 7.4-23). Demands were also adjusted based on the viability of parking spaces being shared over a 24-hour period. Workforce parking demands were crosschecked against Mayo Clinic's parking policy, which adds roughly one space for every two new employees. The peak period street capacity analysis described earlier in this chapter was used to determine the maximum parking allocation for the DMC Development District and specific sub-districts.

Allocate Demand

Parking utilization is the number of vehicles being stored; the total supply provided should never be greater than the available roadway capacity. As such, the peak period street capacity analysis described earlier in this chapter was used to determine the maximum parking allocation for the DMC Development District; that capacity was later subdivided to the specific sub-districts based on the roadway capacity and volume of travelers from each direction.

Figure 7.4-9 above represents the existing motor vehicle capacity at key city portals. Figure 7.4-11 above represents the functional capacity of the primary streets servicing the Development District. In each phase of the analysis, the carrying capacity of the streets represents the potential capacity for new parking. Parking allocation is first distributed to residential demand followed by retail and employment demand.

Frontload Parking

The primary role of parking is to store vehicles. A secondary role is to encourage new development by offering vehicle access. The need for this secondary role is inversely related to the development of the multimodal transportation system. As more walking, biking, and transit options become available, less parking is needed. The parking demand analysis frontloads the building of parking during the first 15 years of development.

		PHASE 1 YEARS 0-5	PHASE 2 YEARS 6-10	PHASE 3 YEARS 11-15	PHASE 4 YEARS 16-20
Captive market effect...	for commercial land uses	15%	15%	25%	32%
	for residential land uses	0%	0%	0%	0%
TDM Program...	impact on employees	15%	15%	19%	24%
	impacts on residents	15%	22%	22%	15%
Transit		13%	13%	16%	23%

FIGURE 7.4-23 - TDM AND TRANSIT ASSUMPTIONS INCLUDED IN THE MODEL

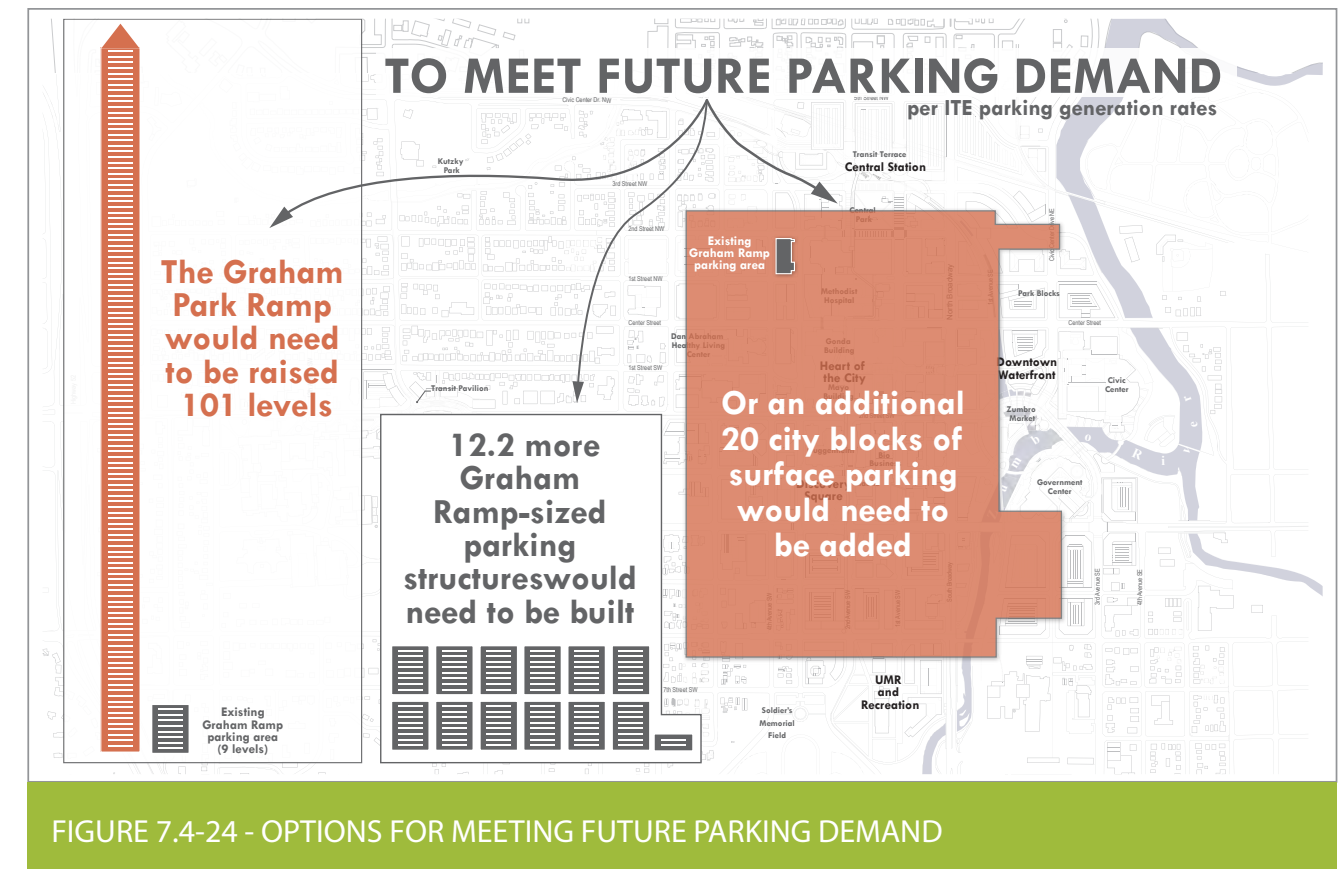
PARKING DEMAND ANALYSIS

At a cost of \$25,000 to \$80,000 per structured space, the unconstrained parking demands created by the DMC Development Program would cost nearly \$1 billion. This would require using land that would have greater value for the medical, business, retail, and recreational uses in the DMC Plan. The amount of parking needed to meet the constrained demand would equal 20 additional city blocks of surface parking, 12 new parking ramps the size of Graham Ramp, or increasing the Graham Ramp to 101 levels.

Much of the parking in downtown Rochester is managed for single use (i.e., employee parking) and is built to meet peak demand during daytime shift hours. The city-managed supply does employ shared parking principles, although it represents just 20% of the overall off-street parking supply in the downtown area. In the evenings and on many weekend days, parking occupancy is low in downtown. Overbuilding parking impacts community character and vitality and has negative effects on the natural environment such as increasing urban heat island effects and increasing polluted runoff.

The DMC Plan assumes a shared parking approach. Shared parking is the simple concept of utilizing parking facilities jointly among different buildings or businesses in an area to take advantage of different peak parking characteristics. Proximate businesses that exhibit different peak parking demands also present an opportunity for shared parking arrangements. For example, many business and office parking lots experience their peak during the daytime hours while restaurants and movie theaters experience their peak during the evening.

The shared parking analysis includes visitor and resident parking calculations with different levels of sharing assumptions than employment uses. Residents tend to require dedicated parking spaces; residential spaces were not included as available for sharing in the analysis. There is a need to build more parking to accommodate the unshared parking spaces designated for residential use. Therefore, while a fully shared system (employee, visitor, and residential uses) could be accommodated with about 14,000 parking spaces, the projected total supply of 16,818 in the DMC Development District accounts for the residential spaces that are not assumed to share spaces.



	PHASE 1 YEARS 0-5	PHASE 2 YEARS 6-10	PHASE 3 YEARS 11-15	PHASE 4 YEARS 16-20	TOTAL
Sub-district					
St. Mary's Place	1,477	0	0	0	1,477
Central Station	0	0	2,373	0	2,373
Peace Plaza/Heart of the City/Discovery Square	8,143	0	2,390	0	10,533
UMR	0	293	0	0	293
Downtown Waterfront/The Gardens	1,222	0	920	0	2,142
Total sub-district	10,842	293	5,683	0	16,818
Park-and-rides					
North	0	0	1,440	1,073	2,513
West	0	2,107	0	0	2,107
Southeast	0	0	1,186	0	1,186
Total park-and-rides	0	2,107	2,626	1,073	5,806
Total	10,842	2,400	8,309	1,073	22,624

FIGURE 7.4-25 - PARKING DEMAND ANALYSIS RESULTS

MODE	BOULDER, CO	ANN ARBOR, MI	MADISON, WI	IOWA CITY, IA
Bicycle	10.5%	4.4%	5.6%	4.2%
Pedestrian	9.8%	15.4%	8.9%	15.6%
Combined bicycle/pedestrian mode share	20.3%	19.8%	14.5%	19.8%

FIGURE 7.4-26 - PEER MODE SHARE, MODE TO WORK

Source: 2010-2012 American Community Survey, AASHTO, CTPP 5-year Profiles; accessed online: http://download.ctpp.transportation.org/profiles_2014/transport_profiles.html

PARKING DEMAND RESULTS

The shared parking approach reduces parking demand in the DMC Development District by about 33% at plan build-out (over a non-shared approach). Parked at current standards, the DMC Development Program will generate demand for over 38,000 new parking stalls downtown. Encouraging land uses that have different demand to share parking can reduce that demand to 22,624 stalls between downtown and peripheral park-and-rides with 16,818 located in the Development District (see Figure 7.4-25). That equates to a reduction in downtown parking demand of nearly 6,000 to 11,500 stalls, \$143 million to \$288 million in parking construction costs avoided, and additional reductions in annual operating costs. The physical plan for siting and accommodating parking demand is presented in Section 8.6.

7.4.2.6 BICYCLE AND PEDESTRIAN DEMAND ANALYSIS

The DMC Development Program will result in over 35,000 new employees, nearly 3,000 new residential units, and more visitors by 2035. The increase in density in the District will result in more people being able to bike and walk to work, for recreation, and to nearby services. This section provides an overview of the expected internal trip capture that can be expected from the DMC Development Program, followed by a discussion of pedestrian and bicycle demand based on peer data.

INTERNAL TRIP CAPTURE

Internal trip capture is an analysis of the portion of trips that stay totally within the district due to the density and mix of uses and the captive market effect. These trips can often be made by active modes. Research finds that denser development, particularly when it mixes multiple uses, has an improved 'internal trip capture' rate: trips that might otherwise be made by car to several different destinations can all be accomplished on foot or by bicycle within a concentrated area.¹

The DMC Development Plan envisions a place where people are able to walk, bike, and take transit seamlessly throughout the district. The "park-once" strategy (Section 7.5.1.2) envisions a downtown where employees and visitors park once and make the majority of trips within the District without use of a personal car; the downtown circulator (Section 7.5.2.4) will provide mobility for short, frequent trip making within the District and will tie into the park once strategy; and a world-class City Loop trail facility supported by bike share will provide the facility and the a vehicle to move people to major destinations within the District (Section 7.5.4.2). The captive market effect for mixed use development is calculated to be between 35% and 40% based in the increased density of the DMC Development Program.²

PEER AND DMC DISTRICT BICYCLE AND PEDESTRIAN MODE SPLITS

With the buildout of the DMC Development District, the number of bicycling and walking trips will increase. Services, jobs, and residences will be in close proximity and more people will be accessing them. Peer communities comparable in size, built form, and the presence of large institutions have proven to have high bicycle and pedestrian commute rates. Boulder, CO, Anne Arbor, MI, Madison, WI, and Iowa City, IA all have combined bicycle and pedestrian commute rates between 14% and 20% (see Figure 7.4-26). Given the vision of the DMC District as a dense, mixed-use area, it is realistic to assume that the combined bicycle and pedestrian mode share target of 13% by 2035 will be achieved.

1. Soule, D (ed.). "The Laws of Sprawl and the Laws of Smart Growth" in Remaking American Communities: A Reference Guide to Urban Sprawl. University of Nebraska Press, Lincoln, NE, 2007.
2. Trip Generation Handbook, 2nd Edition. ITE pg. 129; Districtwide Trip Generation Study, Florida Department of Transportation, District IV, March 1995

7.5 REGIONAL AND DISTRICT TRANSPORTATION IMPROVEMENTS

7.5.1 ACCESS AND PARKING INVESTMENT STRATEGY

As downtown Rochester continues to grow and add to its mix of land uses, demand for access—and demand for parking—will increase. The DMC is proposing to add approximately 30,000 employees and substantial new annual visitation to downtown Rochester by 2035. For Rochester to accommodate all of these people under the current access paradigm, the entire area could be dedicated to roads and parking with little room left for the actual development people are traveling to experience. Of course, this is not feasible, nor is it desirable. The DMC District is located in a mature, urban environment where roads, right of ways, and property boundaries are largely established. Parking structures already dominant the landscape in downtown. Buses and vehicular traffic congest the existing street system, especially at peak periods. To manage growth, the DMC Development Plan must provide a framework for improved non-vehicular access to Rochester. The access and parking investment strategy is twofold:

- **Parking Management:** Managing parking is a key strategy to ensuring that the proposed vision for the DMC can be achieved and that additional parking facilities do not exhaust available land. Parking standards and management play an important role in determining the quality of a city's built environment. To date, much of the parking in Rochester is managed for a single use (i.e., employee parking) and the quantity is based on peak demand during daytime shift hours. In the evenings and on many weekend days, there are many extra spaces throughout downtown. This approach is taken at costs of community character and vitality and can have negative impacts to the natural environment. Strategies in this section suggest an opportunity to provide the least amount of parking needed to support the DMC Development District and get the most efficient use out of every parking space built.
- **Transportation Demand Management (TDM) Programs:** Providing supportive programs that effectively communicate all available transportation options is an important complement to a well-managed parking system. TDM programs provide information, resources, and incentives for people to make transportation and parking choices. Strategies in this section identify supportive programs to encourage use of transportation options such as biking, walking, taking transit, and sharing rides.

Developing and implementing a comprehensive downtown access and parking program is critical to achieving the DMC mission. Recognizing that DMC legislation directs funding to infrastructure improvements, not programmatic or operational activities, this strategy is critical to ensuring DMC capital investments are optimized.

7.5.1.1 FORM A DOWNTOWN ROCHESTER ACCESS MANAGEMENT AUTHORITY

Planned growth in the DMC Development District will dramatically increase demand for all types of trips to and within downtown. As traffic volumes increase and parking prices rise, the demand for transit, bicycling, and walking trips will increase. The Access Management Authority can ensure that transportation options are not only available, but that information is readily accessible and effectively communicated; most importantly, providers are meeting employee, employer, and customer needs for downtown access. The Access Management Authority can also work to balance parking demand and supply to ensure that customer parking is readily available, affordable, and well marked.¹



RCL bus service provides access from regional destinations into the Development District. Regional transit service is a key component of the Access and Parking Investment Strategy to ensure there is ample parking downtown for visitors.

Image from Nelson\Nygaard

The Access Management Authority would provide parking management and transportation options program support to reach Rochester's goal of reducing drive alone trips from 71% (2010) to 60% (2020) to below 50% (2035). The establishment of the Authority integrates the City parking program (and potentially elements of the Mayo parking system). The Authority would be structured like a traditional parking authority, but with a broadened mission to manage transportation options programs that encourage employees, residents, and visitors to bike, walk, take transit, and share rides.

The City of Rochester and the Mayo Clinic already coordinate parking, transit provision, and demand management programs. This level of coordination will need to be elevated as the downtown is developed, becomes a more prominent regional employment center, and grows as a visitor destination. This section recommends an Access Management Authority as a model for attaining better coordination between parking provision, parking management, and demand management programs. There are other organizational structures that could accomplish the same goals; the Access Authority model is appealing because it houses decision-making authority for parking development, parking management, and implementation of measures that reduce drive alone-commuting and parking management under one decision authority. This represents a significant change in business practice for the City and Mayo Clinic and, as such, would require more detailed study and financial analysis. Ultimately, the most critical outcome is a decision-making structure that has the purview and authority to consider access needs and management tools holistically. This body should be positioned to make informed decisions about when to build parking, when managing demand through transit and TDM is most appropriate and cost effective, how to manage and price parking to support economic outcomes, and how to manage O&M costs of downtown parking.

Key Access Management Authority responsibilities would include:

- **Coordinate public-private partnerships.** The Access Authority is a business driven organization that represents major downtown business interests. Access Authority activities are uniquely directed to address access and transportation issues from the perspective of the private sector (downtown property owners, employers, and employees) with strong coordination with public agencies and service providers.
- **Efficiently manage the parking system in the Development District.** The Access Authority would be responsible for management of the City's on-street and structured parking within the Development District (and potentially elements of the Mayo parking system). District-wide parking management strategies would include the implementation of shared parking (see Section 7.5.1.2 below), and by adopting parking management policies that help parking pay for itself as well as support other transportation options that reduce the need for parking (Section 7.5.1.3 and Section 7.5.1.4 below).
- **Provide customized programs for employees, business owners, and property owners to encourage use of transportation options.** The Access Authority would ensure that transportation options are not only available, but that information is readily accessible and effectively communicated to employees, business owners, and property owners to increase the use of transit, biking, ridesharing, and walking (Strategy 7.5.1.7 below).

Conceptual Access Management Authority Mission, Goals, and Desired Outcomes

Vision

To create a thriving environment for business and community by building partnerships, delivering targeted transportation programs, and fostering economic vitality. The Access Management Authority promotes the availability of transportation options to maximize person access to the DMC Development District while minimizing the use of the single occupancy vehicle.

Goals

- Goal 1. To create an organization that effectively supports and advocates the long-term economic vitality and livability of the downtown
- Goal 2. To construct and manage downtown parking to support economic development goals
- Goal 3. To increase the percentage of downtown employees commuting by transit from 10% (2008) to 23-30% by 2035
- Goal 4. To increase the number and percentage of commuter bike trips to downtown Rochester from an existing bike/walk mode split of 7% (2008) to 13% by 2035
- Goal 5. To increase the number and percentage of commuter walk trips to downtown Rochester from an existing bike/walk mode split of 7% (2008) to 13% by 2035
- Goal 6. To increase the percentage of downtown employees commuting by carpool/vanpools to downtown Rochester from 12% (2008) to 14% (2035)
- Goal 7. To increase employee awareness of the Rochester Access Management Authority and alternative mode transportation options
- Goal 8. To create partnerships to support parking and TDM efforts/mission

Desired Outcomes

- Efficient, convenient and accessible transportation systems that provides favorable cost structure commuters, employers and the public sector
- More marketable downtown properties
- More efficient and effective use of existing and future parking supplies
- Better efficiencies in the use of land and reduced parking development costs (for both private and public sectors)
- Greater transit ridership
- Reduced traffic congestion
- A strong partnership between the public sector, Mayo Clinic and the downtown business community
- Measurable success based on consensus targets for access and growth

Source: Adapted from the Rochester Transportation Management Association 2013-2018 Business Plan

1. The Access Management Authority builds off of previous work with the City of Rochester to develop a Rochester Transportation Management Association (TMA) Plan.

ACCESS MANAGEMENT AUTHORITY WORK PLAN

As mentioned above, it is not within the purview of the DMC Plan to determine whether an Access Management Authority would be developed. However, to provide a more in-depth description of what activities the Access Management Authority would undertake, a high level workplan is provided below.

ORGANIZATION

Goal 1: To create an organization that effectively supports and advocates the long-term economic vitality and livability of the downtown.

Key objectives and/or tasks:

- Determine the most appropriate organizational structure for the Access Management Authority (or other entity to be determined)
- Create a business plan that is supported by the City, Mayo Clinic, and downtown businesses/organizations
- Formalize funding partnerships
- Formalize initial Board of Directors/Resource Council

PARKING PROVISION AND PROGRAM MANAGEMENT

Goal 2: To construct and management downtown public parking to support economic development goals

Key objectives and/or tasks:

- Manage the City's parking system including the parking enterprise fund
- Maintain and operate public parking facilities
- Develop new funding approaches, which could include ideas such as an in-lieu of parking fee program (could be required or voluntary)
- Monitor and adjust pricing and management of downtown parking facilities
- Facilitate shared parking development between the City, Mayo Clinic and downtown developers
- Determine need for new parking development, considering a full pallet of access management tools
- Construct new public parking ramps as demand requires

TRANSIT

Goal 3: To increase the percentage of downtown employees commuting by transit from 10% (2008) to 23-30% by 2035.

Key objectives and/or tasks:

- Assess creation of a downtown annual pass that would be marketed and sold specifically to downtown businesses
- Conduct personal visits to businesses
- Target mailings of marketing materials to downtown businesses
- Host transit/transportation educational events
- Locate and establish a "retail" outlet" for downtown transit pass sales (e.g., street level office/"transportation store")

BIKE COMMUTING

Goal 4: To increase the number and percentage of commuter bike trips to downtown Rochester from an existing bike/walk mode split of 7% (2008) to 13% by 2035.

Key objectives and/or tasks:

- Develop programs and build usage on the City Loop and trails connecting Rochester's Downtown with surrounding neighborhoods and communities
- Develop bike incentive program to encourage bike commuting (e.g., bike repair incentives, cash, equipment, discounts at downtown businesses, etc.)
- Host bicycle-related commuting and educational events
- Create a downtown commuter bike parking map, information center, and link to the Access Management Authority webpage
- Require bike racks in new building construction and incent integration of more extensive facilities throughout the DMC in existing buildings, including researching potential supportive grants

WALK COMMUTING

Goal 5: To increase the number and percentage of commuter walk trips to downtown Rochester from an existing bike/walk mode split of 7% (2008) to 13% by 2035.

Key objectives and/or tasks:

- Work with City of Rochester to complete an assessment of all pedestrian crossings in downtown to develop capital improvement priorities for the district; these may include traffic calming measures, street scape improvements, heated sidewalks, and/or other supportive measures
- Host walk-related commuting and educational events
- Develop downtown walking maps and use these to organize walking events

RIDESHARING

Goal 6: To increase the percentage of downtown employees commuting by carpools/vanpools from 12% (2008) to 14% by 2035.

Key objectives and/or tasks:

- Partner with vanpool providers to communicate vanpool program options and incentives to downtown businesses
- Partner with City to identify carshare sites
- Explore feasibility of carpool/vanpool options/incentives with providers and district employers that could be offered through the Access Management Authority

OUTREACH

Goal 7: To increase employee awareness of the Rochester Access Management Authority and alternative mode transportation options.

Key objectives and/or tasks:

- Integrate Access Management Authority information and educate staff to facilitate information in downtown Visitor Center and at Transit Terrace
- Work with downtown buildings to locate informational “lobby kiosks” to disseminate brochures, route maps, and other related information to employees
- Increase employee participation in events and transportation fairs
- Increase participation by downtown businesses in transportation-related programs and activities
- Develop marketing brochure for transit, bike, walk, and rideshare use
- Develop general employee commute brochure for the downtown
- Develop and implement annual downtown employee commute survey

PARTNERSHIPS

Goal 8: To create partnerships that support parking and TDM efforts/mission.

Key objectives and/or tasks:

- Identify Top 25 Strategic Partners in the Access Management Authority service area
- Meet individually with partners to share Access Management Authority mission and goals
- Hold a partner invite event (i.e., banquet, open house luncheon, or other) to promote buy-in from identified partners

7.5.1.2 ESTABLISH A SHARED PARKING POLICY

Shared parking is the simple concept of utilizing parking facilities jointly among different buildings or businesses in an area to take advantage of different peak parking characteristics. Proximate businesses that exhibit different peak parking demands also present an opportunity for shared parking arrangements. For example, many business and office parking lots experience their peak during the daytime hours while restaurants and movie theaters experience their peak during the evening.

In general, effective shared parking arises from three kinds of opportunities that are largely unique to dense, urban districts:

- **Captive markets.** Residents and office workers that walk, cycle, or take transit to nearby shops and services.
- **Off-setting peaks.** To take advantage of parking demand that peaks at different times of the day, businesses that traditionally would restrict their facilities to on-site customers must make arrangements with other businesses – either directly or through a third-party “broker” — that are both willing to share their facilities and offer excess capacity at beneficial times.
- **Park-once districts.** Public policies and facilities that allow drivers to leave their cars in one place while they circulate amongst local destinations on foot (or bicycle or transit vehicles).

Some shared parking occurs in every downtown; those who have long-term parking secured at their primary destination walk to secondary destinations out of convenience or simple preference. The impact of this activity on parking demand, however, is generally limited to residents and employees – leaving visitors dependent upon accessory spaces at each location they visit.

To take advantage of parking demand at different times of the day, businesses that traditionally would restrict their facilities to on-site customers must make arrangements with other businesses – either directly or through a third-party “broker” – that are both willing to share their facilities and offer excess capacity at beneficial times. While it is well within the capacity of formal and even informal shared-parking arrangements to capture much of the benefits of off-setting peaks, their ad hoc nature limits their district-wide impact.

While shared parking is simple in concept, it is often challenging in application due to the many public and private development and funding interests required to plan, design, and fund expensive parking structures. A successful shared parking approach will require regulatory changes to establish a parking maximum and a new level of public-private cooperation in managing the system that would be managed by the Downtown Access Management Authority (Section 7.5.1.2 above). The implementation of an overall maximum supply of parking, to be tied to an overall development potential as defined in the DMC Development Program, will facilitate a faithful adherence to shared parking. The Downtown Access Management Authority would also be responsible for branding the park-once system, implementing parking wayfinding for drivers and pedestrians, and incorporating real-time parking information to increase efficiency and enhance the visitor experience.



Mayo parking structures can be included in the shared parking strategy to reduce the need to build parking.

Image from Nelson\Nygaard

Estimated Impact of a Shared Parking Approach

Taking a shared parking approach reduces parking demand in the DMC area by about 33% at plan buildout. Parked at nationwide standards, the DMC Development Program would generate demand for about 38,000 new parking stalls downtown. Encouraging land uses that have different demand to share parking can reduce that demand to 22,000 stalls. That equates to a reduction of 18,000 downtown parking stalls, \$400 M to \$500 M in parking construction costs avoided, and reductions in annual operating costs. See Section 7.4.2.5 for more details.

In Rochester, a large percentage of downtown off-street parking demand comes from employee uses. As the downtown diversifies and visitor and entertainment demands increase, the value of a shared parking approach will also grow.

The results of the shared parking analysis provide a framework for the physical allocation of parking in the DMC District Infrastructure Master Plan (see Chapter 8 Section 4).

7.5.1.3 INSTITUTE A PAYMENT IN LIEU OF PARKING FEE

In anticipation of the over 10 million square feet of development in the DMC Development District, requiring new development to provide separate parking facilities can degrade the pedestrian environment, limit density, and encourage downtown employees, residents, and visitors to drive from one site to the next rather than parking once and walking between nearby destinations. One solution to manage the parking supply is to allow developers to pay fees into a municipal parking or traffic mitigation fund in lieu of providing the required parking on site; the payment would be based on the percentage of the land use program constructed on the site compared to the total DMC land use program. The fees can then be used to provide centralized public parking. This strategy supports the shared parking strategy (Section 7.5.1.2 above) and shifts future parking supply away from on-site provision and into the public parking inventory. The fund would help the Access Management Authority to finance the long-term parking supply needed throughout the DMC Development District.

7.5.1.4 MANAGE PARKING TO BE SELF-SUSTAINING

Parking is part of a transportation system, and should be managed in that context. If there is sufficient demand for a parking space, demand should be translated into user fees that create a financially self-sustaining system, with no need for subsidy. The users of the system should pay for the system, including operation, maintenance, repair, and eventual additions to the system.

7.5.1.5 EXPLORE OPPORTUNITIES TO IMPLEMENT AUTOMATED PARKING

Automated parking facilities, also called “robotic” or “mechanical” garages, utilize computer-controlled, motorized vertical lifts and horizontal shuttles to transport vehicles from the arrival level to a remote

compartment for storage without human assistance. They are analogous to automated valet parking. Automated parking will be particularly useful to reduce the parking footprint in the downtown at key locations. These facilities are of particular interest for use in dense, urban environments where land is at a premium. Appendix 7 provides details on potential design, dimensions and cost estimates for automated parking facilities that minimize the amount of space needed for parking. Note that automated parking was not included in the Parking Infrastructure Plan cost or spatial models.

7.5.1.6 UNBUNDLE PARKING

Parking costs are generally hidden in the sale or rental price of housing and commercial space. Although the cost of parking is often hidden in this way, parking is never free. If parking is provided in the shared system, there is no need to include a dedicated space (or cost for that space in the sale/rental price). While residential spaces will not be part of the shared system, the unbundling of parking costs from space rental/purchase costs for residential uses can encourage developers to build only the number of parking spaces for which there is a market, lower housing costs for those that choose not to purchase or rent parking, and create a development environment attractive to those seeking to reduce their own automobile use.

7.5.1.7 SHIFT ACCESS DEMAND THROUGH TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a general term for strategies that optimize available services and infrastructure by encouraging travel by more space-efficient modes (bicycling, walking, and transit), shifting trips to non-peak hours of the day (flexible schedules), or avoiding vehicular trips altogether by mixing land uses and/or employing technology (telecommuting). TDM strategies are typically far more cost-effective than capital investments in increased roadway or parking capacity. This is particularly true in urban areas where parking facilities must compete with other land uses for limited, valuable real estate.

The Access Management Authority in partnership with the City, Mayo Clinic, other downtown businesses, and employees, will facilitate the adoption of more aggressive programming to reach mode share goals. While Mayo already provides a robust employee TDM program to reduce their parking demand, there is significant opportunity to expand TDM offerings in the Development District. All employees within the Development District, from the highest-paid scientist to the hourly-wage waiter, should have transportation options and incentives available to them. Figure 7.5-1 provides an overview of recommended best-practice TDM strategies, actions, and investments for the Access Management Authority, the City, Mayo, and other downtown businesses to employ. These strategies have proven highly effective in comparable locations – and in many cases are proving to be effective in the Development District today. More detailed descriptions and case studies of these strategies are provided in Appendix 7.

TDM STRATEGY	DESCRIPTION
Employee Cashout Program	A parking “cash out” program gives employees the choice of keeping their parking space at work or accepting a cash payment in lieu of the space.
Rideshare and Ridematching	Facilitated rideshare matching enables commuters who are interested in ridesharing to enter their travel preferences into a database and receive a list of potential rideshare partners.
“Live Near Your Work” Incentive Programs	“Live Near Your Work” incentive programs encourage people to purchase homes near their place of work through matching grants or loans from the city and/or participating employers.
Car Share	Car share provides shared cars for users throughout a district or city. Car share access reduces car ownership among residents by attracting households with one or no cars and by making it viable for others to reduce car ownership.
Subsidized Transit Passes	Transit subsidies can include direct cost-sharing between employers and employees or simply enrolling commuters in the federal program that allows transit fares to be purchased with pre-tax income.
Commuter Buses	Commuter buses can be an efficient and cost-effective way to get employees to work by departing from locations convenient for a large amount of employees at a regularly scheduled time.
Bike Buddy Program	A Bike Buddy program pairs beginning cyclists with experienced cyclists who already know safe routes to work and other important techniques for safe cycling.
Guaranteed Ride Home Program	A Guaranteed Ride Home (GRH) program is usually coupled with a carpool, walking/ biking, transit, or other TDM program. The program guarantees a ride, usually a taxi or other car-share, when program participants have a family emergency. The program is meant to offer assurance to employees weary of giving up their vehicle in case emergencies arise.
Promotional materials	Print and web resources provide tools to access transportation options information and understand transportation costs. Brochures, guides, and other basic handouts can provide commuters with information about transit routes and schedules, ridesharing services, bicycle routes and facilities, and other transportation options available to them.
Dedicated webpage	Creating a single webpage or website that serves as a comprehensive source of parking, transportation, and TDM information, has proven highly effective in raising awareness of drive-alone mobility and commute options.
Real-Time Information	Real-time travel information is increasingly incorporated into transit systems to provide users up-to-the-minute information on arrival times and/ or delays.

FIGURE 7.5-1 - TDM STRATEGIES

7.5.2 TRANSIT INVESTMENT STRATEGY

The DMC includes significant investment in transit infrastructure to create effective and attractive travel and commuter options to accommodate the anticipated growth within Rochester. The elements of the Transit Investment Strategy support DMC goals and objectives, meet mode share targets, and ensure local and regional transit services can continue to operate quickly and reliably through downtown as the city grows. The transit strategy supports the DMC plan by:

- **Facilitating the DMC Development Plan** by offering attractive forms of transit to accommodate demand, allowing valuable downtown land to be used for productive uses and placemaking.
- **Increasing capacity for and reducing the impacts from transit** by improving the transit operating environment in downtown, enhancing passenger amenities, and increasing capacity for future growth in transit service.
- **Accommodating connections between existing and proposed modes of transit** including regional intercity rail, express bus, local bus, and a high-quality downtown circulator.
- **Improving connectivity between downtown and outlying residential areas and between major downtown destinations** with a high quality downtown circulator connecting major destinations, future development, and district park-and-ride lots.
- **Improving efficiency of transit service** with simplified and coordinated transit services to provide better mobility options and facilitate better understanding of the service.
- **Building on the success of the commuter park-and-ride strategy** by providing new high-frequency, attractive transit service connections from new out-of-district park-and-rides to the downtown area.

The DMC Transit Investment Strategy includes four major components primarily focused on capital improvements within the DMC Development District (see Figure 7.1-1). Increased operating and maintenance funds will also be needed for the Transit Investment Strategy to be successful.

The capital investment program, at full build-out, will include:

- **Optimize local and regional transit service downtown** by rerouting transit service and improving the operating environment along the 3rd and 4th Avenue couplet to create additional capacity for long-term service growth.
- **Invest in transit priority streets** within downtown, including design treatments and enhanced passenger amenities to make transit faster, more reliable, more legible, more comfortable, and more easily accessible.
- **Develop the Transit Terrace**, a world-class multimodal transit center at Central Station, to connect future regional high-speed rail, the downtown circulator, regional and local bus service, and active transportation modes.
- **Construct and operate a high-quality and frequent downtown streetcar line** providing east-west circulation along 2nd Street SW and north-south circulation along 1st and 3rd Avenues. This includes a new operations and maintenance facility to accommodate streetcar vehicles and maintain service facilities. It will also be anchored by several “mobility centers” to provide access to multimodal connections.

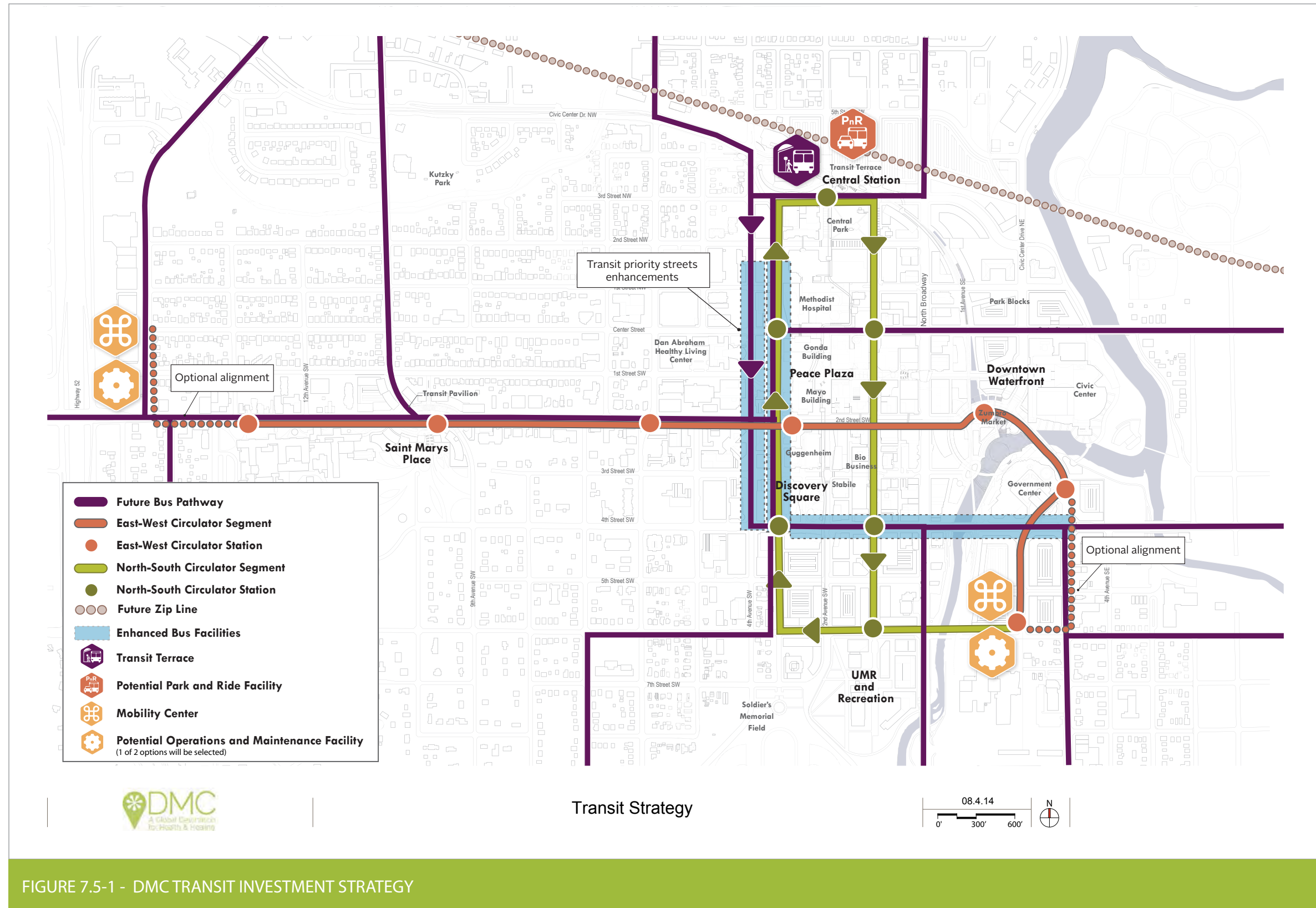


FIGURE 7.5-1 - DMC TRANSIT INVESTMENT STRATEGY

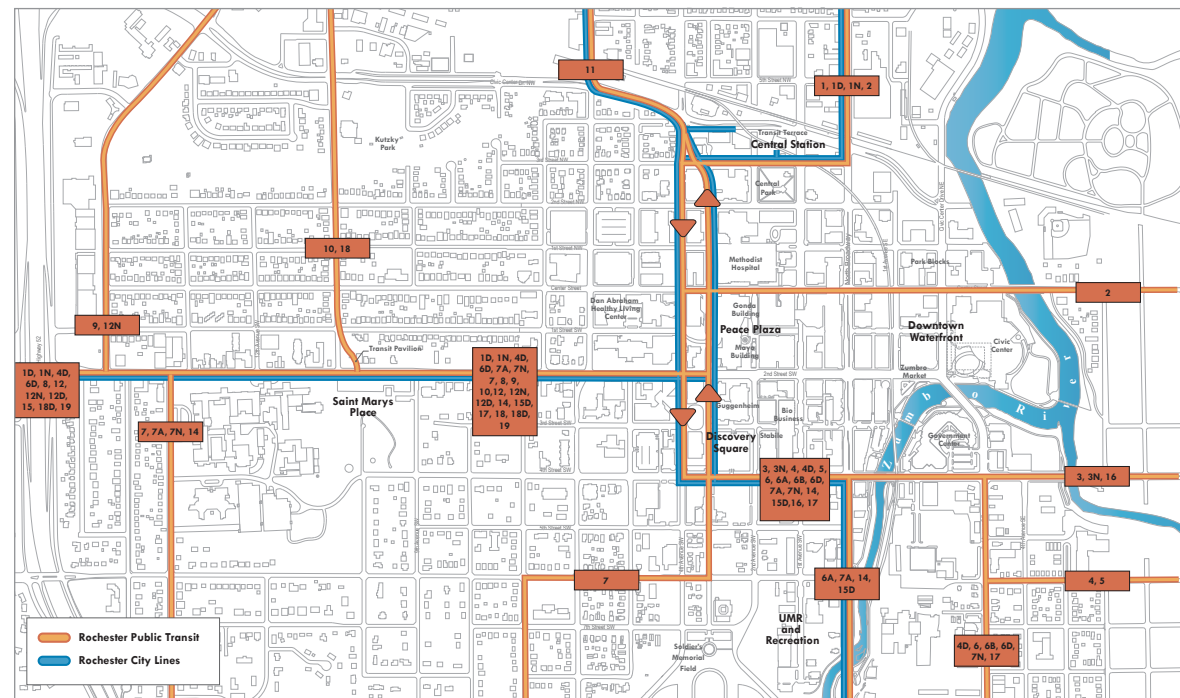


FIGURE 7.5-2 - FUTURE DMC DEVELOPMENT DISTRICT TRANSIT ROUTING

7.5.2.1 OPTIMIZE LOCAL AND REGIONAL TRANSIT SERVICE DOWNTOWN

The DMC Transportation Plan is predicated on increased transit mode share to downtown employment, requiring increased levels of local and regional transit service. To efficiently and effectively facilitate the increased number of transit vehicles traveling through downtown and allow convenient transfers between bus operations and downtown circulator operations, service will be restructured to utilize the 3rd and 4th Avenue couplet for all major passenger activity. Concentrating the service along a single bi-directional couplet will provide the opportunity to enhance service in downtown by:

- Increasing the capacity and speed of transit service through downtown
- Identifying locations where enhanced passenger amenities can be placed to accommodate future transit demand
- Implementing transit priority measures to be more cost-effective in increasing service efficiency through downtown
- Enhancing the legibility of transit within downtown by focusing service on a few corridors

LOCAL TRANSIT SERVICE

Figure 7.5-2 illustrates the future bus pathways within the DMC Development District. Service will operate northbound on 3rd Avenue and southbound on 4th Avenue. Local Rochester Public Transit (RPT) bus service will be removed from 2nd Street SW east of 3rd Avenue and be restructured to 4th Street SW or Center Street via the 3rd/4th Avenue couplet.

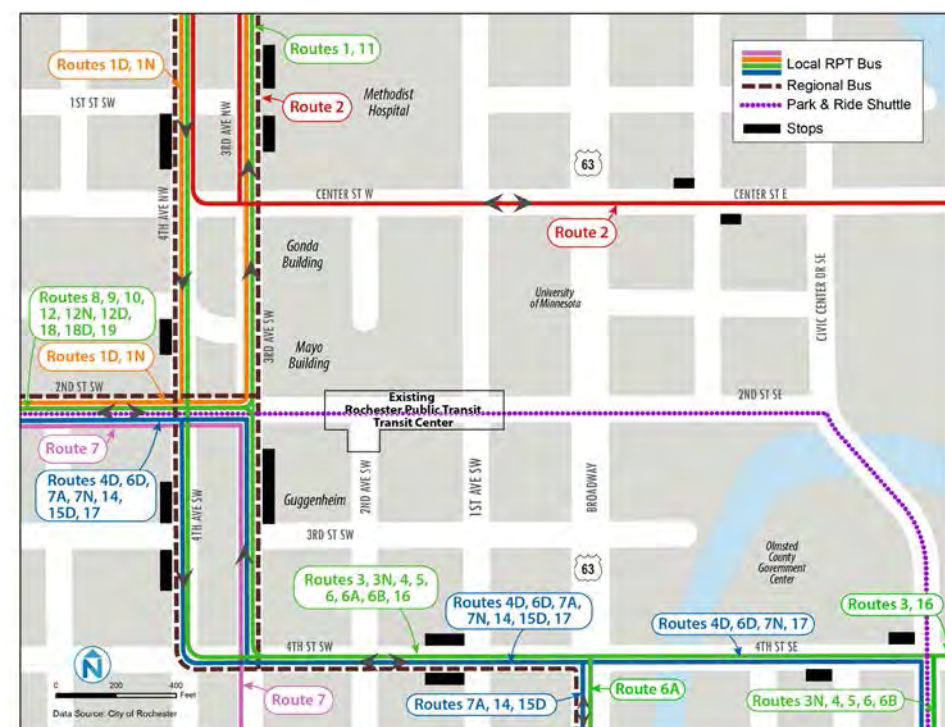


FIGURE 7.5-3 - PROPOSED DOWNTOWN BUS CIRCULATION

Figure 7.5-3 illustrates how downtown bus operations will be restructured along the couplet and potential bus stop locations. The high concentration of service will remain along 2nd Street SW west of 3rd Avenue to continue providing connections between the downtown core and Saint Marys Hospital while maintaining local service west of downtown. This circulation will also create high concentrations of service along 4th Street SW/SE to continue to serve areas of south and southeast Rochester.

Bus service along 3rd Avenue will be designed to integrate with future downtown streetcar operations. Northbound streetcar service is expected to use the curb-side lane given the availability of a transit only lane south of 2nd Street SW. Bus service will have the opportunity to share the exclusive lane but will be able to weave around streetcar service in general purpose lanes whenever needed. At major auto entries to the Gonda and Charlton Buildings, the streetcar will operate in a center lane maintaining unimpeded access for shuttles and private vehicles.

Local Service Operations Costs (not funded by DMC)

Anticipated Increase in 20-Year Operating & Maintenance (O&M) Costs¹

¹ Appendix 8 contains background analysis on local service cost assumptions.

- Based on forecasted levels of transit demand, local transit service is expected to increase by \$8.1 M - \$12.5 M, resulting in a total O&M cost of \$14.5 M - \$18.9 M per year.

ENHANCED PARK-AND-RIDE TRANSIT SERVICE

Downtown Rochester draws employees from a broad geographic area. Many employees travel over 60 miles to work. Given downtown parking costs and the dispersed markets from which people travel, park-and-rides enhance access to downtown. The DMC Plan envisions growth in park-and-ride facilities at the outskirts of Rochester. The plan proposes a new high-frequency, direct connection park-and-ride transit service that connects major NW, W, SE, and S park-and-ride lots to downtown using the streetcar circulator pathway, lanes, and stations. The park-and-ride lots will provide additional parking supply to accommodate growth in travel demand into downtown Rochester. Figure 7.5-5 illustrates the park-and-ride transit service concept.

Downtown transit service will operate along 2nd Street and 3rd Avenue SE as shown above. It will replace existing park-and-ride based RPT service (all “Direct” routes) with more capacity and higher levels of service. Figure 7.5-4 details the conceptual operations for the park-and-ride transit service. Each park-and-ride location will provide trips every 20 minutes, creating a combined 10 minute frequency within downtown Rochester by spacing trips evenly.

PARK-AND-RIDE LOCATION	SERVICE FREQUENCY	COMBINED INBOUND FREQUENCY	WEEKDAY SERVICE HOURS	REQUIRED NUMBER OF VEHICLES WITH SPARES
Northwest	20 minutes	10 minutes	6am - 8pm	8
West	20 minutes			
East	20 minutes	10 minutes		
Southeast	20 minutes			

FIGURE 7.5-4 - ENHANCED PARK-AND-RIDE TRANSIT SERVICE OPERATIONS

Service along 2nd Street SW and 3rd Avenue SE will be integrated with the early phases of downtown circulator service to cost-effectively deliver high frequency transit service within downtown. More information on this short-term operating plan and integration can be found in subsequent sections. Figure 7.5-6 illustrates the conceptual service integration between the park-and-ride transit service and the first segment of the downtown circulator service. The park-and-ride transit service leverages existing operating funds employed by Rochester Public Transit to serve existing park-and-rides. It will also be further reviewed in the context of the Rochester Comprehensive Plan Transit Framework to determine whether some very-limited stop services connecting outer park-and-rides and downtown Rochester can be employed.

2 Inbound trips will be evenly staggered to create 10 minute frequency between trips along 2nd Street and 3rd Avenue SE.

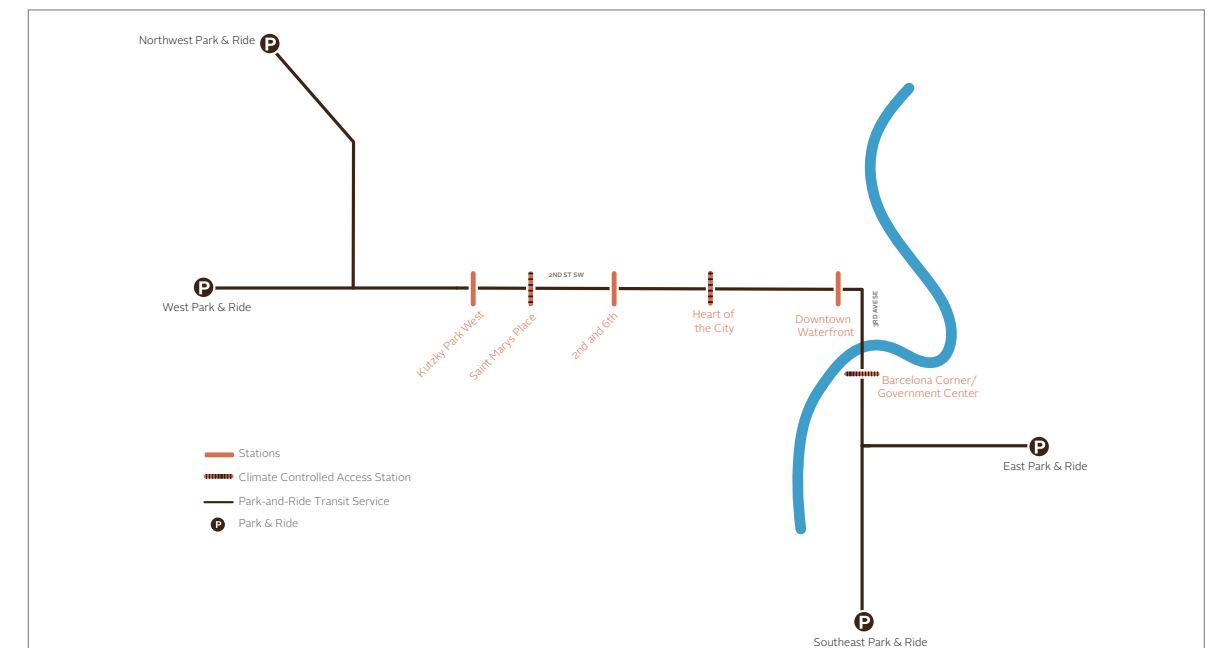


FIGURE 7.5-5 - ENHANCED PARK-AND-RIDE TRANSIT SERVICE CONCEPT

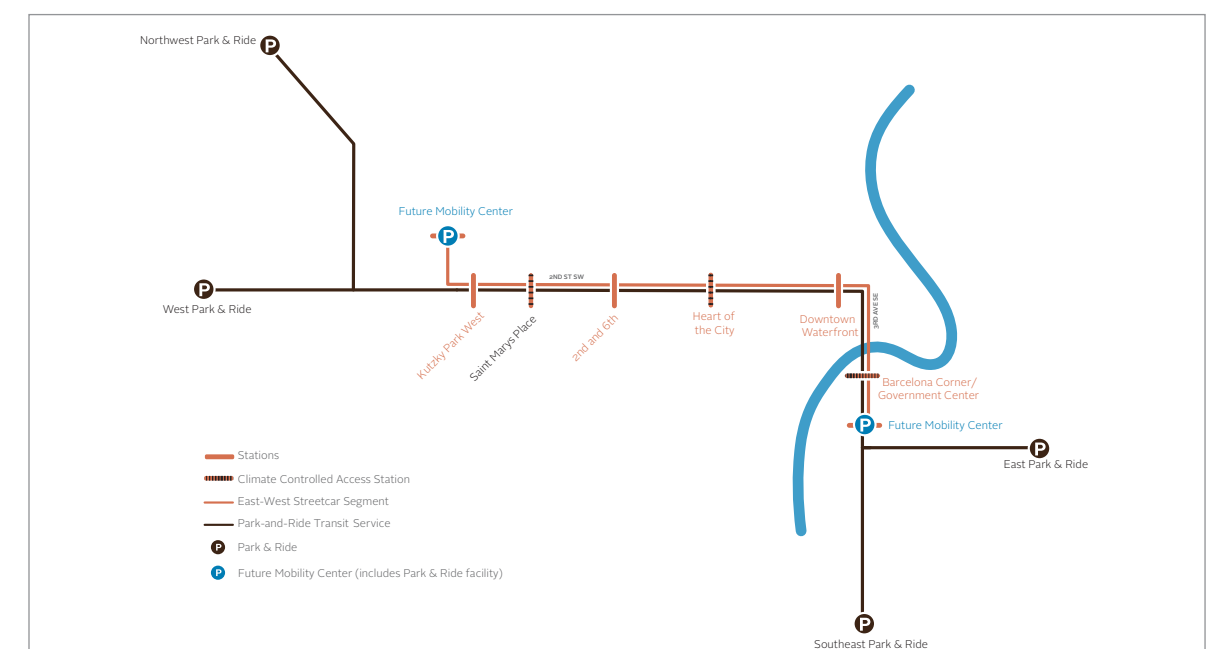


FIGURE 7.5-6 - 2ND STREET SERVICE INTEGRATION CONCEPT



BRT Vehicle in Cleveland, OH

Image by Nelson\Nygaard

PROJECT ELEMENT	UNIT COST	QUANTITY	TOTAL COST	ESCALATED COST
Park-and-ride vehicles	\$2.0 million	8	\$12.0 million	\$19.0 million
Park-and-ride lots	-	5*	\$32.3 million	\$48.1 million

FIGURE 7.5-7 - DMC-SUPPORTED VEHICLE AND PARK-AND-RIDE COSTS

* Includes Central Station Surface Lot (Project T3.1) and all park-and-ride projects (P4.6-P4.9).

PARK-AND-RIDE TRANSIT SERVICE VEHICLES

The park-and-ride transit service will be operated with high-capacity, articulated bus vehicles, similar to bus rapid transit (BRT) style vehicles. BRT vehicles are approximately 60' long with a total capacity of 90 passengers (including standees). The vehicles are single-ended with doors typically on the right side. The vehicles have a 15-foot clearance, minimum turning radius of 42 feet, and an 11- to 15-inch vehicle floor height. The vehicles are uniquely branded to differentiate the service as a different mode from typical local bus vehicles. Figure 7.5-7 shows the total cost for the park-and-ride transit service vehicles to operate the planned levels of service, which will be supported by DMC investment dollars.

Park-and-Ride Service O&M Costs (not funded by DMC)¹

Annual costs to operate enhanced park-and-ride based services are included in total 20-year O&M costs estimated above.

¹ Appendix 8 contains background analysis on Park-and-Ride service cost assumptions.

- Total annual O&M cost: \$2.17 M
- Less Existing RPT park-and-ride based service O&M cost: \$1.47 M
- Net New O&M cost for the park-and-ride transit service: \$700,000 (included in total local operating costs discussed above)

REGIONAL EXPRESS SERVICE

It is expected that ridership on the regional express bus system will more than double over the next 20 years. This means more commuter coaches entering downtown to drop and pick-up passengers. Creating more active, pedestrian friendly streets will necessitate a different approach to commuter bus loading. Once the Transit Terrace is complete (see Section 7.5.2.3 below), commuter coaching loading, and layover can occur at that off street facility. Still, providing pick-up and drop-off opportunities proximate to job concentrations is important. The DMC Plan envisions transit priority streets on 3rd and 4th Avenues that will support this function for local and regional service. This will integrate local service, provide additional vehicle and passenger activity, enhance speed through downtown, and increase service legibility. Figure 7.5-2 and Figure 7.5-3 above illustrate the regional express circulation within downtown Rochester.

The existing RCL downtown transit hub (on street layover and loading locations) is expected to be vacated within the first five years of the DMC Plan, which will require a change to the current operations within downtown. The site of the future Transit Terrace at Central Station (located at the north end of the 3rd/4th Avenue couplet) will be used as a staging/layover space for regional express service. Once the Transit Terrace is fully built and operational, regional express service will continue to use this location for all staging, layover, and passenger activity.

Regional Service Vehicle Requirements (not funded by DMC)¹

Anticipated 20-Year regional express vehicle requirements:

¹ Appendix 8 contains background analysis on Park-and-Ride service cost assumptions.

- Based on forecast levels of transit demand and existing capacity utilization of 72%, regional express transit service is expected to require between 80 and 120 new vehicles.

7.5.2.2 INVEST IN TRANSIT PRIORITY STREETS

As demand for transit grows within downtown Rochester, operating and passenger environments along major transit corridors will need to be improved. Ensuring fast and reliable service with transit priority treatments and investing in high quality, comfortable transit stops and stations will accommodate the expected levels of transit demand needed to achieve mode split goals adopted by the City of Rochester in the RDMP and incorporated into this Development Plan and implementation strategy. The current E/W transit activity along 2nd Street SW presents an opportunity to enhance current bus operations and integrate with a future downtown circulator. Creating a N/S transit corridor to accompany the existing E/W spine on 2nd Street SW will provide the necessary capacity for increases in transit vehicle throughput and passenger loading. High concentrations of service along 4th Street SW/SE also present an opportunity to ensure efficient operations through downtown.

TRANSIT PRIORITY STREETS

Transit priority streets combine in-lane treatments, intersection priority, and passenger amenities and information. In combination, these amenities make transit faster, more reliable, more comfortable, and more easy to understand. The future concentration of high-frequency services along the 3rd and 4th Avenue couplet and 4th Street SW/SE provide an opportunity to invest in priority treatments. Certain design and operational treatments that reduce transit travel times and increase reliability can be applied to ensure the highest quality transit in downtown Rochester. Following are some low-cost elements typically associated with improving the transit experience. Specific recommendations for the downtown Rochester area are included in a subsequent section.

- **Dedicated lanes** for exclusive use by transit can be used by multiple modes (e.g., streetcar and bus) to minimize conflicts with general purpose traffic, ensure high travel time reliability, and optimize service speeds. Reserving an existing lane of traffic for transit-only is a low-cost improvement with significant benefits for travel time and reliability and can increase transit capacity by allowing vehicles to operate quickly along designated streets.
- **Transit signal priority** reduces significant delay to transit service associated with intersection queues and signal timing by providing longer green signal phases or shorter red signal phases for approaching transit vehicles. It can also be used for transit queue jumps where vehicles receive priority to travel through the intersection before waiting automobiles. Transit vehicles are typically equipped with emitters to communicate to nearby signals of their approach.
- **“Bulb Out” stops** on sidewalk extensions allow transit vehicles to board passengers from the travel lane, thereby minimizing delay associated with heavily congested corridors because they do not have to navigate in and out of traffic.
- **Off-board fare payment** allows passengers to pay their fares prior to boarding transit vehicles, minimizing dwell time delay associate with passenger queuing at the front door of a transit vehicle to purchase tickets. Off-board fare payment does require a “proof-of-payment” policy under which passengers may be asked to show tickets or receipts to inspectors.
- **Level boarding** at transit stops and stations can significantly reduce dwell time delay and overall



Bus only lane in New York, NY.

Image by Nelson\Nygaard



Bus bulb out stop in Portland, OR.

Image by Nelson\Nygaard



Real-time transit display in Seattle, WA.

Image by Nelson\Nygaard



Heated "smart" shelter in Montreal.

Image by Flickr user Doug

travel times associated with transit vehicles boarding passengers using wheelchair or other mobility devices. Level boarding can also reduce dwell time by eliminating the need to step up into or down out of transit vehicles. This requires raised platforms to meet the level of low-floor vehicles.

- **Stop consolidation** is the most cost-effective strategy to speed up service by removing underutilized stops along transit corridors. Although some stops may have a few passengers who use underutilized stops, increasing the service speed will provide increased travel time benefits for those riders on-board.
- **Real-time information** displays to communicate service arrival and departure times at particular locations will greatly enhance the passenger experience. Listing exact bus arrivals tends to attract riders to locations designated for high passenger activity.
- **Climate control "smart" passenger shelters** provide heated areas, signage, lighting, seating, wayfinding, real-time information, and security call boxes. These amenities improve the passenger's overall experience waiting for the bus.

Figure 7.5-8 illustrates the downtown corridors that will require transit priority improvements to facilitate the highest level of operational benefits. Improvements to potential bus stops include above mentioned enhancements in addition to new concrete vehicle bus pads to minimize street damage made by stopping vehicles. Designated bus stops on 3rd and 4th Avenue south of 2nd Street SW will require curb space equivalent to four full-size bus vehicles (local and regional express) plus space between vehicles to accommodate the higher levels of service expected to operate along these segments of the couplet. Station and pathway improvements along 2nd Street SW/SE are discussed in the downtown circulator section below (Section 7.5.2.4).

As illustrated in Figure 7.5-8, transit-only lanes will be designated along the couplet as follows:

- 3rd Avenue NW between 3rd Street NW and 1st Street SW, shared between streetcar and bus
- 3rd Avenue SW between 2nd Street SW and 6th Street SW, shared between streetcar and bus
- 4th Avenue SW between 2nd Street SW and 4th Street SW, for bus only

These investments represent an increase in transportation system efficiency and transit throughput. One lane of general purpose traffic on 3rd Avenue NW will carry roughly 900 people in vehicles per peak hour. If converted to a transit only lane, that same lane can carry over 4,000 people per peak hour.¹

¹ Based on 2035 out year person capacity of vehicle trips (calculated by taking the year 2035 traffic volumes multiplied by an assumed 1.1 per vehicle loading factor) versus the number of transit trips passing through the corridor per peak hour multiplied by the expected passengers per trip rate by mode (bus, streetcar, and commuter bus).

DMC-supported transit-priority corridors should be developed in close coordination with transit service operations adjustment and streetscape improvements. Pedestrian and bicycle improvements will also need to be enhanced along the corridors to ensure safe and effective access to transit services.

DMC-SUPPORTED COSTS FOR TRANSIT PRIORITY STREETS

Costs to design, procure, and install the transit priority streets enhancements will be covered by DMC-supported investment. Costs include the following components:

- Bus stop construction (10-foot wide stops)
- Concrete bus pads
- Enhanced shelters (including heating components)
- Stop identification post
- Recycling receptacles at stops
- Maps at stops
- Fare collection vending machine (coin-based system) and system software
- Security cameras
- Emergency callbox
- Improvements to pedestrian access ways
- Bicycle parking at stops
- Real-time information hardware, software, and displays
- Transit-only lane pavement markings

Total transit priority streets improvements by segment are detailed in Figure 7.5-9.

TRANSIT PRIORITY SEGMENT	COST COMPONENT	COST (LOW)	COST (HIGH)
3rd/4th Ave couplet	Transit priority street improvements	\$5.1 million	\$5.8 million
	Real-time transit information hardware, software, and displays	\$450,000	
	Transit-only lanes	\$300,000	
4th St SW/SE	Transit priority street improvements	\$4.1 million	\$4.6 million
	Real-time transit information hardware, software, and displays	\$300,000	
Total Costs (2014 dollars)		\$10.3 million	\$11.5 million
Escalated Costs (per the Finance Plan in Section 9.0)		\$13.2 million	

FIGURE 7.5-9 - TRANSIT PRIORITY STREETS COST ESTIMATES



FIGURE 7.5-8 - DOWNTOWN TRANSIT FACILITY ENHANCEMENTS



Anaheim Regional Transportation Intermodal Center (ARTIC) is an example of a major multimodal facility planned and constructed as part of an area redevelopment plan. The ARTIC is at the center of one of Anaheim's most exciting new neighborhoods.

Image by Flickr user beyondDC

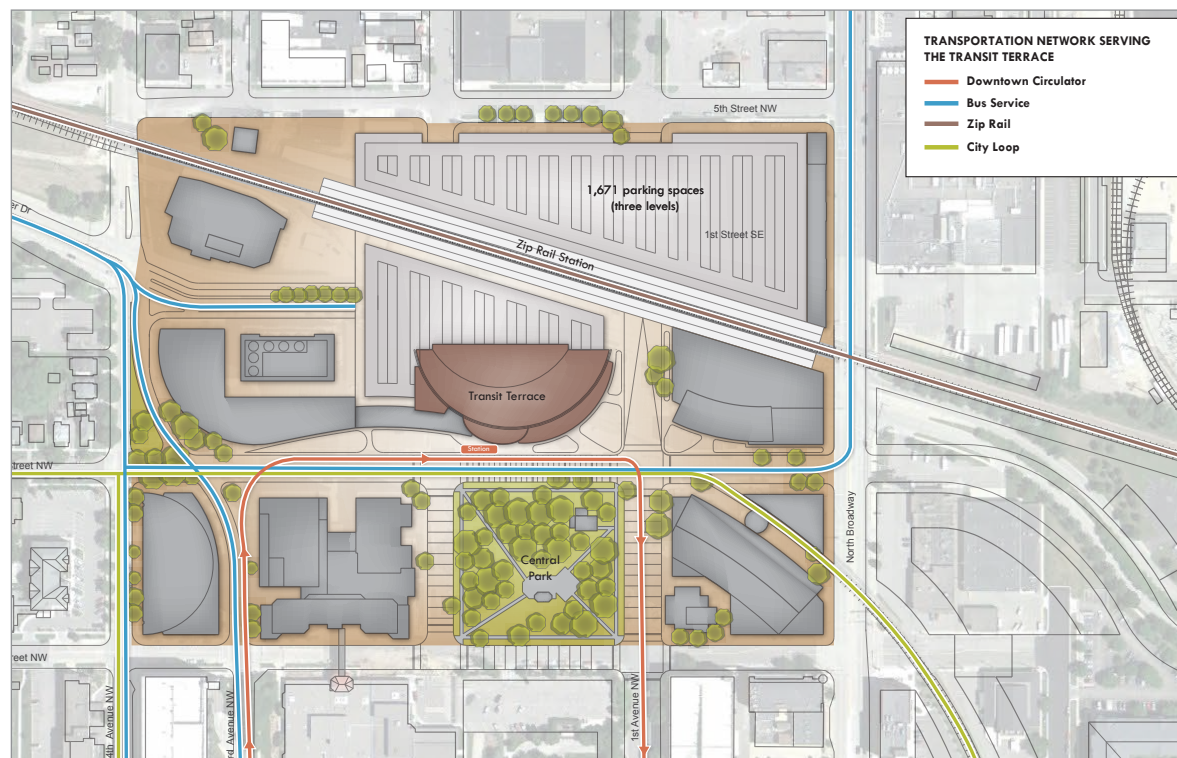


FIGURE 7.5-10 - CONCEPTUAL TRANSIT TERRACE SITE PLAN

7.5.2.3 DEVELOP THE TRANSIT TERRACE

The Transit Terrace is a world-class regional transit center that will connect multiple travel modes at one central location, including the downtown circulator, regional and local bus service, and active transportation modes. The Transit Terrace will integrate these modes with shuttles, a kiss-and-ride,¹ and a future peripheral park-and-ride lot within the Central Station district. The Transit Terrace has been strategically located to provide a future potential connection to high-speed rail (i.e. Zip Rail or other). Such a connection would be additive, as the strategy is not dependent on the high speed rail connection being made.

Central Station is conceived as a mixed-use development that, in addition to the Transit Terrace, will include office, hotel rooms, residential, retail, and medical uses which will all increase travel demand coming into downtown Rochester. Direct connections to high-quality, frequent transit service to the core of downtown Rochester will be essential to provide ample access to employment, services, and recreation. Figure 7.5-10 illustrates the Transit Terrace conceptual site plan. The proposed location of the Transit Terrace site will provide a convenient location for commuters originating north of downtown to park and ride transit services destined for the downtown core. The proposed site is adjacent to Civic Center Drive and Broadway, two major arterials that provide direct connections for many commuters traveling into downtown.

The Transit Terrace will become an integral part of connecting regional transit services to other modes. It will accommodate the northern terminus of the downtown circulator and provide bays for local and regional bus services, providing an opportunity for an off-street regional bus hub for vehicle staging and connections to other services.

Based on an analysis of needed bus bays and platforms, circulation, walkways and concourses, parking, kiss-and-ride, bike share, information, and vending and retail uses, the site requires an area approximately 140,000 square feet. Figure 7.5-11 details the space requirements for each component.

¹ A kiss-and-ride is a feature at many multimodal transit centers that allow vehicles to drop off and pick up passengers along a designated curb. These allow drivers to stop and wait for passengers rather than requiring parking and waiting.

Development and full operations of the Transit Terrace is projected to occur concurrently with the completion of the north-south segment of the downtown circulator. In the short term, the Transit Terrace site will provide a staging/layover space for RCL bus services to accommodate the removal of the existing RCL transit hub along 2nd and 3rd Avenues south of 3rd Street.

High-quality pedestrian connections between the Transit Terrace location and the downtown core must be provided along 3rd Avenue (including pedestrian crossings) and 1st Avenue (proposed calmed, shared street). The pedestrian environment will be fully integrated with the second phase of the downtown circulator project along this couplet.

TRANSIT TERRACE FEATURE	SQUARE FEET REQUIRED
Bays	18,483
Circulation	24,028
ZipRail Platforms and Ped Circulation	41,400
Walkways and concourses	32,020
Kiss-and-ride	4,300
Staff parking	3,200
Carshare parking	1,920
Bike Share Stations	640
Information and Signage	73
Vending	30
Retail	1,058
<i>Subtotal area needed</i>	<i>127,152</i>
Add 10 percent for service areas*	12,715
Total area needed (without ZipRail)	98,467
With ZipRail Platforms and Pedestrian Circulation	41,400
Total area needed (with ZipRail)	139,867

FIGURE 7.5-11 - TRANSIT TERRACE SPATIAL REQUIREMENTS

*Includes restrooms, storage, maintenance, and back offices.



The future Transbay Transit Center will connect high-speed rail, multiple modes of transit service, pedestrians, and bicyclists at a world-class multimodal center in San Francisco, CA.

Image by Flickr user Curbed SF



The future Transbay Transit Center, in San Francisco, will be designed to provide graceful entries for pedestrians connecting to multiple modes of transportation.

Image by Flickr user Curbed SF

DMC-SUPPORTED COSTS FOR THE TRANSIT TERRACE

The Transit Terrace would be funded through a combination of DMC funds, City funds, private/sponsorship funds, and federal grants (see the Finance Plan in Section 9.0).

COST COMPONENT	COST
Temporary Regional Bus Staging Area	\$200,000 – \$300,000
Transit Terrace Planning and Design	\$8,250,000
Transit Terrace Construction	\$24,450,000
Total	\$33,000,000
Escalated Costs	\$44,408,000

FIGURE 7.5-12 - DMC SUPPORTED TRANSIT TERRACE COSTS

Capital Funding Opportunities to Leverage DMC-Supported Investment Dollars

Federal Grants

- **Surface Transportation Program (STP):** Highly flexible funding program for transit capital projects and bicycle/pedestrian facilities
- **Congestion Mitigation and Air Quality Improvement (CMAQ):** Federally administered funding to help improve air quality. CMAQ has funded various major transit capital projects around the nation.

7.5.2.4 CONSTRUCT AND OPERATE A HIGH-QUALITY AND FREQUENT DOWNTOWN STREETCAR LINE

A streetcar in downtown Rochester will accommodate new demand for downtown circulation for a variety of transit markets, including visitors, residents, patients, and commuters. The service will provide mobility for short, frequent trip making within the District, connections to the regional transit network, and “last-mile” connections for commuters parking at peripheral park-and-ride lots. The downtown streetcar is critical in supporting District growth, promote livability within the District, and mitigate the impact of parking outside the downtown core.

Streetcar service typically operates in either mixed or exclusive travel lanes in medium- to high-density areas. The service is frequent and stop spacing is relatively short to focus on serving trips within a neighborhood or downtown environment but also connect to higher capacity services. It generally attracts more riders than bus service in the same area and has more vehicle capacity to do so. Streetcars cost far less to construct than other fixed-rail transit (e.g., light rail or monorail) and are eligible to receive competitive public grant funding.

Fixed-guideway circulators like streetcars have been shown to catalyze and organize development and encourage higher land use densities within close proximity of the service. The streetcar will be developed in conjunction with the planned DMC-supported development program, ensuring that the development will be transit-oriented and built with optimal zoned capacity of the land.

The development of the streetcar in downtown Rochester also presents an opportunity to attract private funding since they are proven to bring value to properties, business, and neighborhoods connected to or easily accessible to the streetcar routes.

PROJECT DESCRIPTION

Based on an evaluation of several downtown circulator modes, a downtown modern streetcar was selected as the recommended option. The downtown streetcar will provide high-quality, frequent service to accommodate the growth planned in the DMC Development District and align with the DMC's goals and objectives.

MODE

The modern streetcar mode was selected as the recommended downtown circulator mode using an evaluation of several modes. Appendix 8 summarizes the evaluation of the modes using a simplified set of evaluation criteria. The modes that were considered include the following:

- **Modern streetcar:** Electrically-powered vehicles running on at-grade tracks with overhead power supply. Provides high-frequency service with vehicles that can carry more passengers than buses. Streetcars have a higher propensity to catalyze land use development due to the permanence of the infrastructure and results of recent streetcar line development in several American cities.
- **Enhance bus:** Electrically-powered rubber tier vehicles with similar station features as streetcars. Provides high-frequency service with vehicle capacities less than streetcar vehicles. Capital costs are generally lower due to no tracks being required.
- **Elevated automated rapid transit:** Rail vehicles operating on an elevated fixed-guideway without requiring a driver to operate. This mode is relevant to integrate with an existing elevated pedestrian walkway network, although costs to construct and level of complexity to operate is substantial.

ALIGNMENT

Figure 7.5-13 illustrates the proposed alignment of the downtown streetcar. The proposed alignment will be developed in two segments to coincide with demand projections, the DMC Development Plan, and availability of funding, as follows:

- **East-West Segment (Proposed Early Phase Improvements):** This service will provide east-west mobility along the 2nd Street corridor from Highway 14 to the Government Center where it will continue along 3rd Avenue SE, through the Government Center, and travel along 2nd Avenue SE to its terminus at 6th Street SE.¹ This phase will provide service to Saint Marys Place, The Heart of the City, and The Gardens. The service will operate with bi-directional center-running exclusive transit-

¹ Optional streetcar alignment south of the Government Center will continue along 3rd Avenue SE to 6th Street SE instead of 2nd Avenue SE.

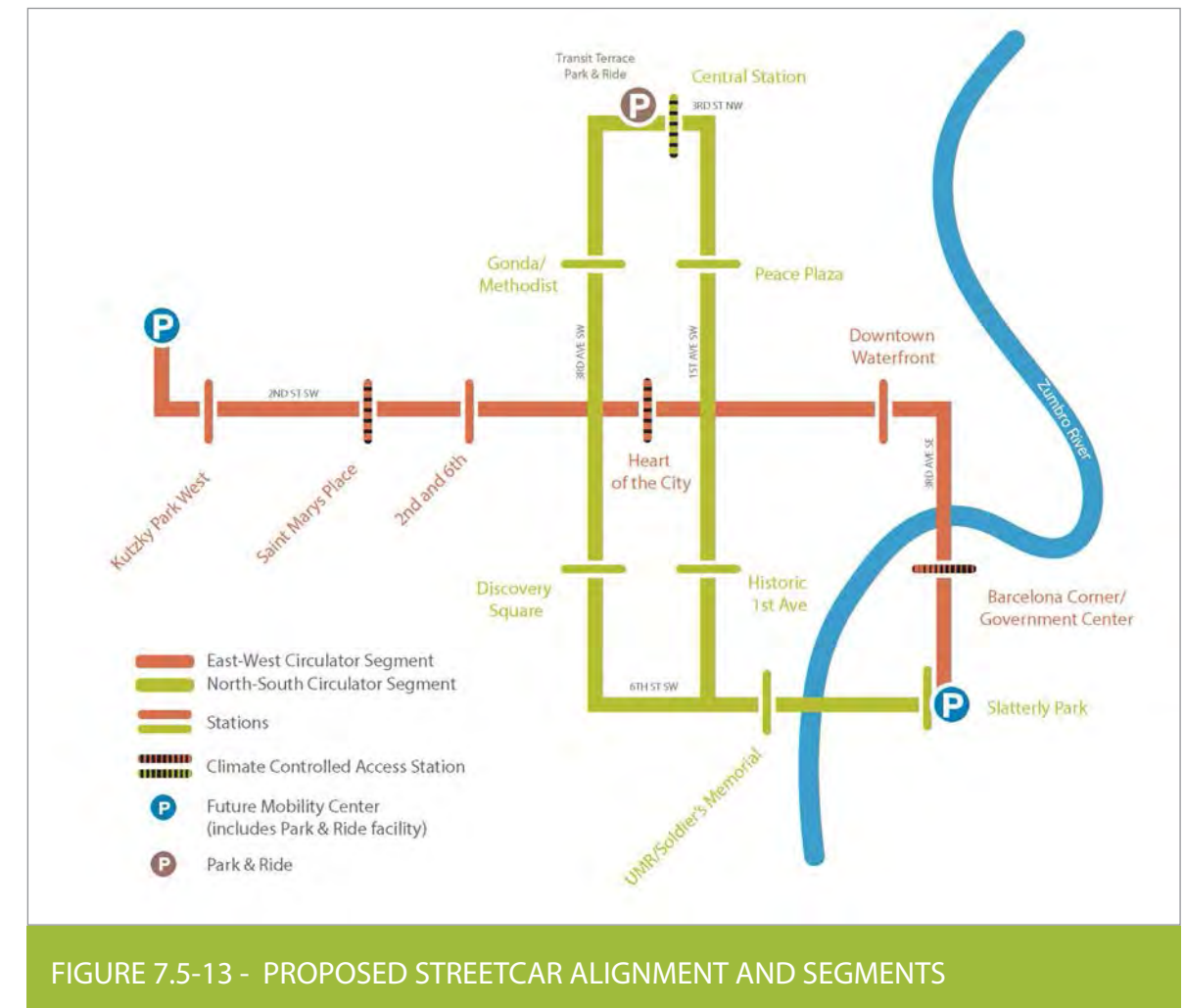


FIGURE 7.5-13 - PROPOSED STREETCAR ALIGNMENT AND SEGMENTS



Modern streetcar vehicle in Seattle, WA.

Image by Nelson\Nygaard



Shared stop between bus and streetcar in Seattle, WA.

Image by Nelson\Nygaard

only lanes along the entire alignment with stations located at major destinations, transfer points, and at mobility centers within the DMC District. The transitway and stations will be designed to accommodate both streetcar and the park-and-ride transit service operations (see Section 7.5.2.1).

- **North-South Segment (Proposed Later Phase Improvements):** The alignment will continue from the terminus of the east-west segment and travel along 6th Street SE over a new 6th Street SE bridge where it will operate as a bi-directional couplet along 1st Avenue (northbound) and 3rd Avenue (southbound) via a connecting segment along 3rd Street NW, provide north-south mobility through major DMC Development Districts, UMR, and Central Station. The service will operate with a mix of exclusive and shared travel lanes with right-side stations located at major destinations, transfer points, and mobility centers within the DMC District.

STREETCAR VEHICLES

Modern streetcar vehicles are approximately 66 feet long with a seated capacity of 29 and total capacity of 130 passengers (including standees). The vehicles are double ended with doors on both sides, allowing drivers to easily switch sides without physically turning the vehicle at terminal points. The vehicle has a 14-foot clearance, minimum turning radius of 58-66 feet, and a 14-inch floor vehicle height.

STREETCAR STATIONS

Stations typically include a 60-foot platform to accommodate access to the vehicle's doors and a 20-foot transition for bulb-out stations. The platform is designed with a minimum 8-foot width, but a preferred width of 10-12 feet. Stations generally include signage, a heated shelter, real-time schedule information, lighting, and seating. The stations can be designed to accommodate both streetcars and bus vehicles. Major activity stations along the streetcar line will be built to be climate controlled (see Figure 7.5-13 above for station locations). The streetcar stations will be designed with grade level platforms and transitions to allow for wheelchair accessibility, and select locations will be furnished with climate-controlled station access.

OPERATIONS AND MAINTENANCE FACILITY

A new operations and maintenance facility will be required to store and maintain streetcar rolling stock. Two potential locations for an operations and maintenance facility have been identified, one at the western terminus of the east-west segment alignment (near Highway 14) and the other at the southeastern terminus of the east-west segment alignment (near 6th Street SW east of Broadway). One facility can be designed to accommodate both phases of the streetcar.

OPERATING PLAN

The streetcar will provide high-frequency connections to all major destinations and districts within downtown. The long-term operating plan for each phase is included in Figure 7.5-14 below. The operating plan identifies the number of vehicles required to successfully implement the service. While DMC-supported investments will contribute to the planning, design, construction, and purchase of the streetcar vehicles, ongoing operations and maintenance costs will not be covered by DMC funding. There are a number of options for structuring governance and funding operations of the streetcar line. These will be addressed during the planning and implementation phases of the project.

STREETCAR PHASE	OPERATIONS	WEEKDAY SERVICE FREQUENCY	SERVICE HOURS	REQUIRED NUMBER OF VEHICLES WITH SPARES
East-West Segment	Exclusive center running	Peak/Midday: 5 minutes Off-peak: 10 minutes	7am - 8pm	5
North-South Segment	Exclusive and shared right-side running			4

FIGURE 7.5-14 - LONG-TERM STREETCAR OPERATING PLAN

PROJECTED RIDERSHIP

The downtown circulator is expected to generate a high level of ridership at the opening of the first segment and at build out. Ridership is expected to consist of commuters parking at peripheral lots, visitors, residents, employees, and current users of the intercampus Mayo shuttles. As discussed in Section 7.4.2.4, the East-West segment is projected to generate between 8,380 and 10,660 passengers per average weekday, while the North-South segment is expected to generate between 2,700 and 3,890 per average weekday, for a total projected ridership of 11,080 to 14,550 per average weekday. The capacity to handle this level of ridership is well accommodated with the conceptual operating plan and vehicle capacities planned for the streetcar project.

DMC-SUPPORTED COSTS FOR THE STREETCAR

Costs to plan, design, and construct the downtown streetcar will be covered by both DMC-supported investment other funding opportunities identified in the Finance Plan (Section 9.o). Other funding sources may include Federal Transit Administration Small Starts grant funding, City matching funds, and private investment. Capital costs include the following components:

- Trackwork (track materials, installation, drains)
- Stations (platforms, shelters, lighting, heating, signage, landscaping, furnishings and adjacent sidewalks)
- Site work (construction administration, temporary traffic control)
- Systems (overhead catenary system providing electric power, fare collection, and train controls/signals)
- Utility coordination allowance
- Traffic control and lighting (signal upgrades and priority measures, signing, striping)
- Right-of-way allowance
- Professional service and contingency
- Vehicles

Total streetcar costs by streetcar segment are detailed in Figure 7.5-15 below. Appendix 8 details the cost estimate assumptions for each item.



Inside a streetcar maintenance facility in Portland, OR.

Image by Colas Construction

STREETCAR PROJECT ELEMENTS*	COST COMPONENT	COST (LOW)***	COST (HIGH)***	ESCALATED COSTS
East-West Segment	Planning and Preliminary Engineering/ Design	\$5.7 million	\$6.5 million	\$159.9 million
	Vehicles (including spares)	\$22.5 million		
	OMF	\$4.0 million		
	Streetcar construction	\$95.3 million	\$109.3 million	
	Subtotal	\$127.5 million	\$142.3 million	
North-South Segment	Planning and Preliminary Engineering/ Design**	\$5.4 million	\$6.2 million	\$128.5 million
	Vehicles (including spares)	\$18.0 million		
	Streetcar construction	\$51.7 million	\$65.7 million	
	Subtotal	\$75.1 million	\$89.9 million	
Government Center Transit Station		\$4.0 million		\$4.8 million
Saint Marys Place Transit Plaza		\$6.8 million		\$8.1 million
Total (2014 dollars)		\$202.6 million	\$232.2 million	-
Total Escalated Costs		-	-	\$301.3 million

FIGURE 7.5-15 - DMC SUPPORTED STREETCAR CAPITAL COST ESTIMATES*

* Appendix 8 contains background on the transit priority streets cost assumptions.

** Planning and Preliminary Engineering is slightly less for the N-S segment since an OMF will not need to be planned.

*** These costs are in 2014 dollars.

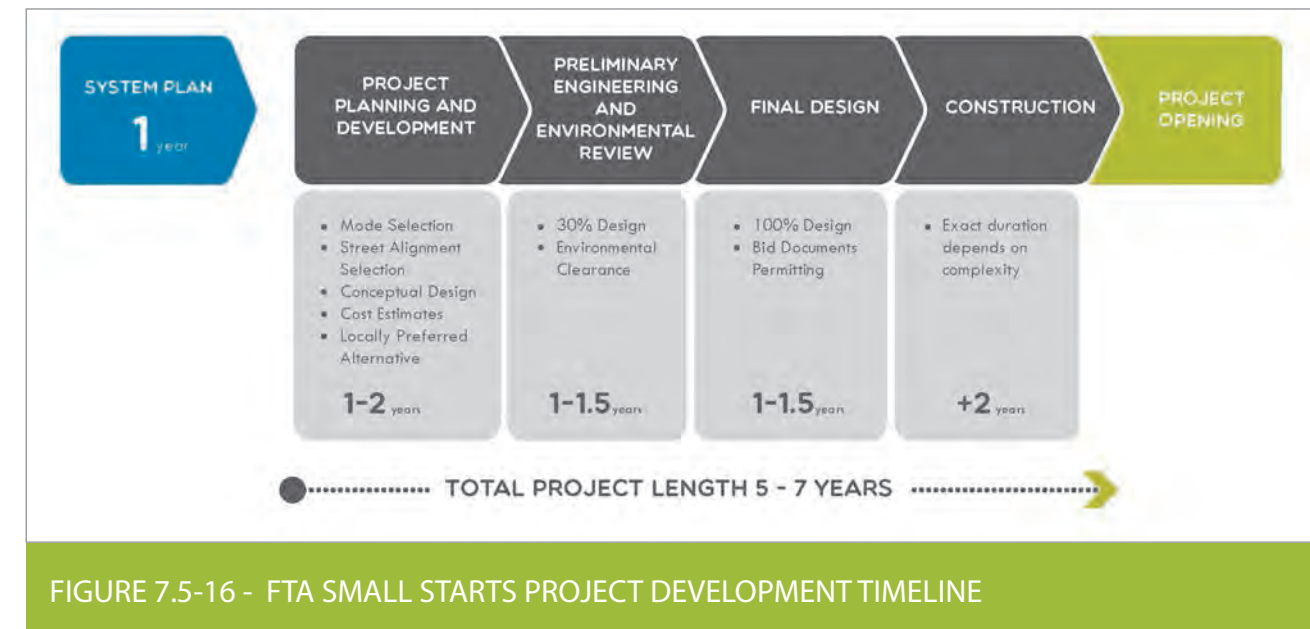


FIGURE 7.5-16 - FTA SMALL STARTS PROJECT DEVELOPMENT TIMELINE

Capital Funding Opportunities to Leverage DMC-Supported Investment Dollars

Federal Grants

- **FTA 5309 'Small Starts' Grants:** Major transit investment projects seeking less than \$250 Million in capital construction funding can receive federal funding through the Federal Transit Administration (FTA)'s "Small Starts" grant process. In order to request federal funding through this funding package, the sponsoring agency must conduct rigorous analysis to satisfy the requirements developed by the Federal FTA. Funding is competitively awarded based on series of evaluation criteria, one of which evaluates the level of local financial commitment to project costs and the commitment to operations costs. Figure 7.5-16 below illustrates the four phased FTA "Small Starts" Project Development process, typically a 5-7 year timeframe between project inception and project opening.
- **Congestion Mitigation and Air Quality Improvement (CMAQ):** Federally administered funding to help improve air quality, CMAQ has funded various major transit capital projects around the nation.

Local Funding Sources

- **Tax Increment Financing:** A method to use future tax revenue earned from projected property tax revenues within a defined district on infrastructure projects. A method used to fund many modern streetcar projects, the project "pays for itself" over time by the development it generates.
- **City General Fund:** Dollars generally made up of property taxes and intergovernmental transfers used to pay for some capital improvements.
- **Institutional Contributions and Corporate Sponsorships:** Additional funding from higher education institutions, medical facilities, large corporations, etc.

NON DMC-SUPPORTED COSTS

Operations and maintenance (O&M) costs are an ongoing expense. A viable operations funding plan will be critical to delivering and attaining federal funding to build the capital project. Figure 7.5-14 above highlighted the long-term operating plan for both segments of the streetcar. However, streetcar service levels will gradually increase as demand grows and as O&M funding becomes available.

Integrating bus service into early phases of streetcar operations will limit required streetcar operating costs in initial years of operation, but will create combined levels of service to match the long-term operating plan shown in Figure 7.5-14. New park-and-ride-based transit service will travel along the exclusive streetcar travel lanes on 2nd Street SW, arriving and departing downtown Rochester every 10 minutes. Operating the first segment of the streetcar at similar 10-minute intervals will create an opportunity to coordinate schedules between the two modes to operate a combined 5-minute frequency, identical to the proposed long-term operating plan for the East-West streetcar segment. Figure 7.5-17 below illustrates the combined service frequency concept, where bus and streetcar service are offset to produce higher levels of service along overlapping segments. Bus vehicles will provide similar levels of capacity, will stop at all streetcar stations along this segment, and will be branded similarly to streetcar vehicles.

Annual operating costs for each service proposed in the transit investment strategy in each phase of implementation are detailed in Figure 7.5-18 below.

	PHASE 1 (YEARS 1-5)		PHASE 2 (YEARS 6-10)		PHASE 3 (YEARS 11-15)		PHASE 4 (YEARS 16-20)	
SERVICE	ACTION	ANNUAL O&M COST	ACTION	ANNUAL O&M COST	ACTION	ANNUAL O&M COST	ACTION	ANNUAL O&M COST
Transit Service	Operate peak/midday service every 10 minutes	\$700K	Operate peak/midday service every 10 minutes	\$700K	Operate peak/midday service every 10 minutes	\$700K	Operate peak/midday service every 10 minutes	\$700K
East-West Streetcar Segment	Plan and design segment	-	Construct segment; Operate peak/midday service every 10 minutes	\$1.25 million	Operate peak/midday service every 5 minutes	\$1.96M	Operate peak/midday service every 5 minutes	\$1.96 million
North-South Streetcar Segment	No action	-	No Action	-	Plan and design segment	-	Construct segment; Operate peak/midday service every 5 minutes	\$1.61 million
Total New	\$700K		\$1.95 million		\$2.66 million		\$4.27 million	

FIGURE 7.5-18 - PHASED STREETCAR OPERATING COST¹

¹ Park-and-ride service and streetcar operating cost assumptions are included in the detailed modal evaluation in Appendix 8. Total costs for this service totals \$2.17 M. Costs shown are total new costs, assuming costs for current RPT park-and-ride bus service will be reallocated and used to operate enhanced P&R based services.



Washington DC circulator with similar branding on bus and streetcar vehicles.

Image by Flickr users thisbossi and Elvert Barne.

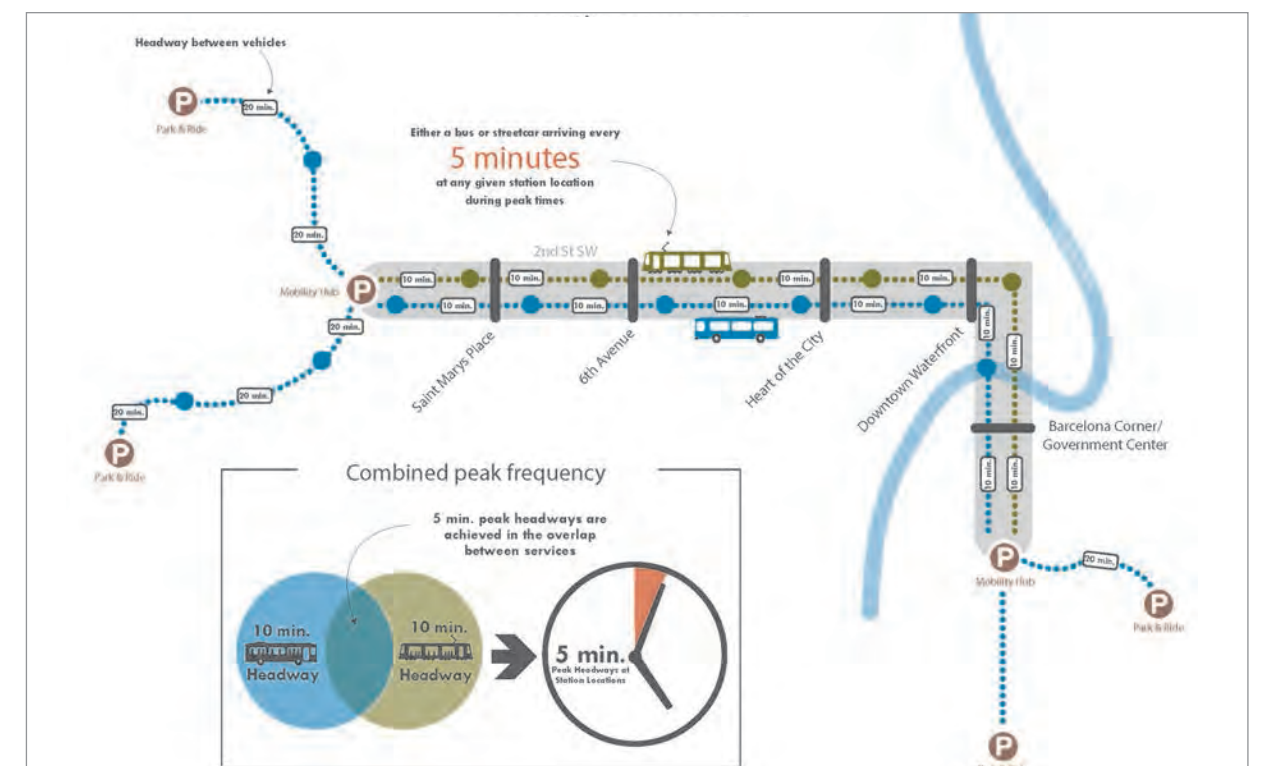


FIGURE 7.5-17 - COMBINED SERVICE FREQUENCY ALONG EAST-WEST STREETCAR SEGMENT

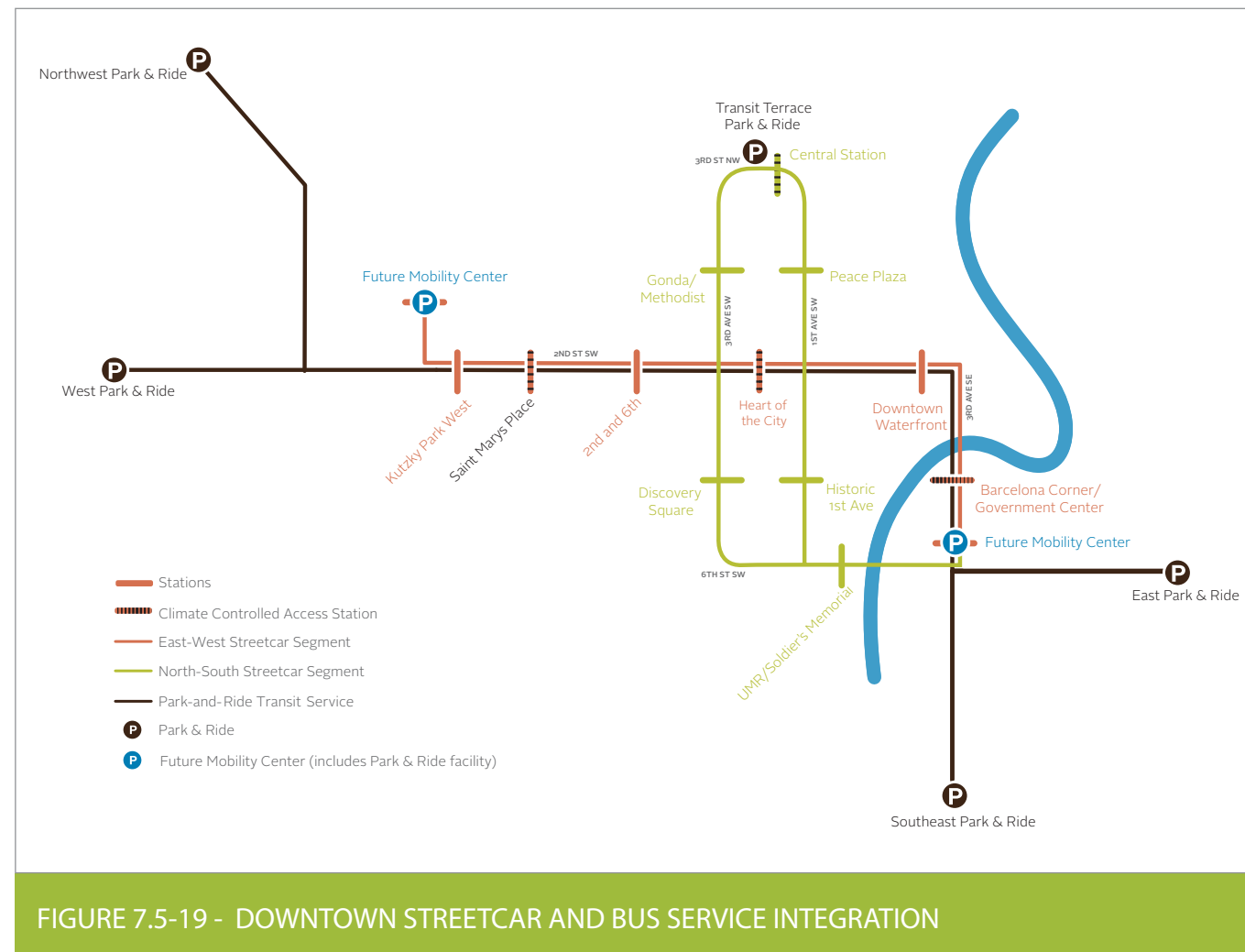


Figure 7.5-19 illustrates the integration of both downtown circulator segments with the park-and-ride transit service. Park-and-ride transit service will continue operating once the downtown streetcar is fully built and operational.

Streetcar Operations Funding Opportunities

O&M Funding Opportunities

- Existing Mayo Shuttle operations costs
- Use of current State and local transit operations funding sources
- Station sponsorships, advertising
- Parking fee increases
- Expansion of paid parking district with market based pricing principles

Operator Management Options

- City operated (RPT)
- Turnkey operation under City contract
- Non-profit operator using turnkey provider (or contracting back to RPT for operations)



1st Avenue SW is a building block street for Rochester. The basic design principles reinforced through its design will serve as a model for future pedestrian-oriented street investments in the DMC Development District.

Images from Nelson\Nygaard

7.5.3 STREETS INVESTMENT STRATEGY

Reinvesting in the street network is a critical component of achieving the DMC's 20-year vision. Street investments, along with the modal enhancements that support the streets, connect people to destinations and support the changing landscape of downtown Rochester. Streets also represent the largest public space in the DMC District and present an opportunity to create welcoming, interesting, and vibrant places. The DMC Streets Investment Strategy sets street investment priorities for the next 20 years.

While accommodating growth is a fundamental element of the Streets Investment Strategy, so too is establishing people-oriented streets that support the level of development planned as part of the DMC Development Plan. Streets consume between 25-30% of downtown Rochester's land area and therefore serve as the DMC Development District's largest public space and community asset. Streets within the Development District will establish and reinforce a world-renowned destination place, while effectively moving people to and throughout downtown. Street life is what draws people to any great destination city. Streets will emphasize person movement by strategically and cost-effectively reprioritizing select streets for transit and pedestrian movement.

A NEW APPROACH TO STREET DESIGN AND INVESTMENT IN ROCHESTER

The DMC Transportation Plan anticipates a significant urbanization of Rochester's downtown core resulting in the need to increase person movement capabilities of key streets, particularly during the commute peak hour. At the same time, significant development in a constrained downtown area will require DMC Development District streets to accommodate a variety of non-transportation uses necessary to support and sustain a vibrant destination place and downtown community. To do so, transit plays a major role in increasing access capacity to downtown and is given priority on key streets. What results is a system that has more capacity to bring people in and out of the downtown area and frees up underutilized street space for pedestrian and placemaking enhancements—the hallmark features and investments of the world's great destination places.

DMC-driven employment and visitation projected for downtown Rochester is unprecedented for a city of its size. This will require a vastly different approach to downtown access (per the Access and Parking Investment Strategy in Section 7.5.1), network priority, and street design. To that end, the Streets Investment Strategy establishes modal priorities for key streets and repurposes streets in ways that are vastly different from conditions today. This transition will not happen immediately. However, the shift in transportation investment will need to happen over time, and is the end result of a natural progression for a city doubling downtown employment and quadrupling the number of visitors.

The DMC Transportation Plan's Streets Investment Strategy seeks to address four key objectives:

- **Design for pedestrians.** While streets may take on different priorities for movement of vehicles, transit, and bicycles between the curbs, all streets will be constructed to provide a safe, pleasant, and interesting passage for pedestrians.
- **Accommodate employment, visitation, and residential growth.** Street investments will improve the person-carrying capacity of the downtown street network through transit priority and efficient

automobile routing to peripheral park-and-ride facilities. Some streets will be prioritized for traffic movement to get employees into downtown and other users through downtown (to a lesser extent). Others will be prioritized for transit access and circulation. While others will be prioritized for pedestrian-oriented customer and visitor access.

- **Support and catalyze economic development within the DMC Development District boundaries.** Destination placemaking and economic development efforts rarely enjoy sustainable success if their underlying land use and transportation strategy is not built upon walkable, pedestrian-oriented community design. All DMC street investment priorities will engender public spaces that attract the workforce of the future. New employers and business will seek office locations along DMC street investments as they attract the best and brightest labor talent and foster innovation and creativity. Still, other streets will be specifically designed as great retail environments and passive recreation opportunities. Streets will better connect visitors to existing and new amenities, and also serve as amenities themselves.
- **Create spaces that imprint downtown Rochester as a great destination.** Streets investments will provide value that extends far beyond mobility. These investments will be unique assets that are cherished and experienced year-round by residents, employees, visitors, or Mayo Clinic patients. Development District streets will be comprised of spaces and experiences that are visitor amenities; places that encourage people to stay and experience the city's offerings.

7.5.3.1 THE DMC STREETS PRINCIPLES AND INVESTMENT FRAMEWORK

The Streets Investment Strategy will ensure downtown Rochester streets are pleasant, verdant, and safe for walking. Street investments will emphasize family, hospitality, inclusiveness, and pedestrian access to community and Mayo Clinic facilities. The following street investment principles mirror the objectives of the Street Investment Strategy and will inform the design and operation of DMC Development District streets. This section also summarizes the overarching streets investment framework, recommended network connectivity changes, and proposed lane configurations.

The principles for DMC Development District street investments are:

- **Focus design on movement and access for people.** Thriving cities focus design on moving people efficiently using a balanced system of modes. While the automobile will remain an important element of DMC Development District access, automobile access and parking in the District will be prioritized for patients, customers, and visitors.
- **Create world-class streets that not only move people, but create places for people to linger, relax, and enjoy a rich civic life.** The downtown street system forms the city's largest and most economically productive public space. Street designs will create opportunities for spontaneous connections, commerce, and vibrant retail places.
- **Connect and enhance Rochester's three pedestrian levels.** Streets, skyways, and subways will be designed to accommodate users of all ages and abilities. More than most other US cities, downtown Rochester has visitors with a wide range of mobility needs, disabilities, and mobility challenges.
- **Employ methods to enable year-round walking and active recreation.** To the extent possible,

HOW DO STREETS SERVE THE DMC DEVELOPMENT DISTRICT?

As public amenities that serve a diverse array of functions and activities, downtown Rochester's streets will provide safe, comfortable, and aesthetically pleasing travel environments. Recent improvements to 1st Avenue SW and 6th Street SW near the new mixed use grocery store/residential development are an excellent example of street investments that balance the needs of a variety of users—including visitors and Mayo Clinic patients that require unique travel conditions—while supporting economic and social use. Providing access and circulation options in the Development District will not diminish the ability of streets to support the social, economic, environmental, and recreational functions of the public realm. Rather, they will further these community functions.

This balanced approach to street investment and functionality can safely move all users of the transportation system, while adding lasting value to downtown Rochester and nearby neighborhoods, adjacent land uses, and open spaces. The Streets Investment Strategy manifests the City of Rochester's Complete Streets Ordinance by establishing the first comprehensive implementation package of livable streets projects.



The recent reconstruction of 6th Street SW (left) reallocated underutilized street space to balance the needs of people accessing downtown and those linking into the regional trail network. Streets should also be considered as places for programming, café seating, conversation, and other social and economic uses. 1st Avenue SW (right) is an excellent example of the various functions of Rochester's streets.

Images from Nelson\Nygaard

HOW DOES THE DMC STREETS INVESTMENT FRAMEWORK DIFFER FROM THE RDMP STREETS ACTION PLAN?

The streets investment framework is largely supportive of the streets framework and street classifications established in the Rochester Downtown Master Plan (RDMP). Some corridor improvements proposed in the Streets Investment Strategy differ from the RDMP classifications, responding to updates to local and regional travel demand opportunities for iconic street designs and supplemental analysis and recommendations related to park-and-ride access and downtown transit circulation. A key similarity between the two frameworks is maintaining Broadway and Civic Center Drive as primary traffic streets. Major changes to the streets framework are as follows:

- Expand the transit spine network to 3rd, 4th, and 1st Avenues. Transit priority is shifted off of Broadway.
- Pedestrian priorities, or pedestrian zones, are expanded to the new network of shared streets along 1st and 2nd Avenues, 1st Street, and the proposed new street connections in the Downtown Waterfront.
- “Bike Streets” in the RDMP have been updated in the Rochester Bicycle Master Plan. Likewise, the proposed City Loop facility will establish a world-class multi-use trail that will serve as the downtown backbone to the bikeway network. The planned bicycle network is supported by the DMC Streets Investment Framework, except where planned bikeways are proposed for upgrade as part of the City Loop project.

street investments should apply treatments and technology that extend the utility of downtown streets through Rochester’s often harsh winter weather conditions. This includes outdoor heating, establishing a more engaging subway and skyway system, and communicating weather-protected routes to destinations and transit amenities. As a living laboratory for active and healthy streets, the DMC Development District could showcase how to keep people active even during the bite of the winter months.

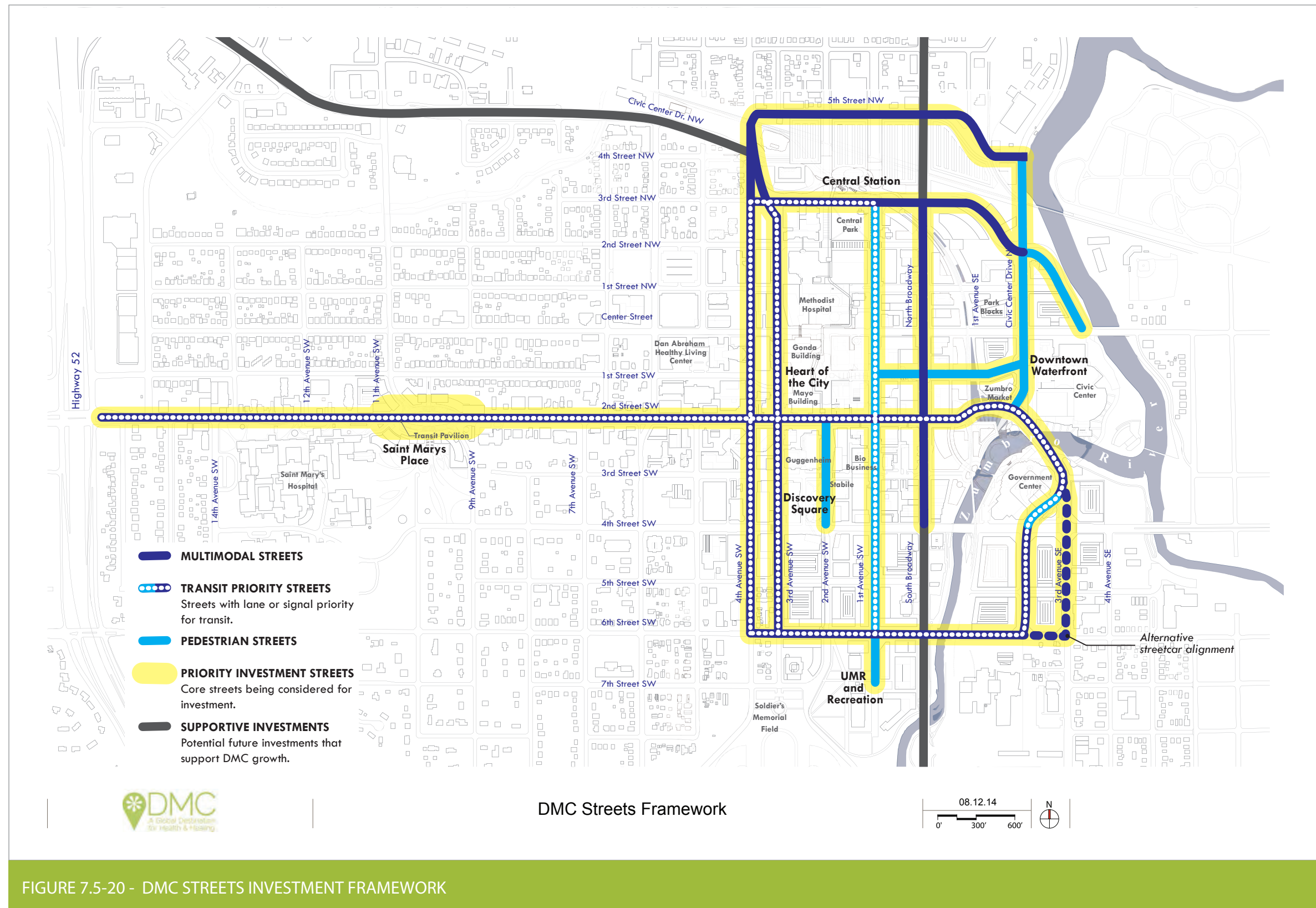
- **Use private development to leverage improvements to the public rights-of-way.** Unprecedented development offers opportunity for the City to leverage construction activities to improve sidewalks, roadways, and small pedestrian-oriented public spaces.
- **Establish a streets plan that is inherently a good land use and development plan.** The most important goal of DMC transportation investments is to enable and support the DMC development program. Downtown Rochester streets will be designed, programmed, and operated to promote the economic progress of the DMC initiative; ensure the enjoyment of residents, employees, and visitors; and accommodate the mobility and access needs of a massively growing workforce, residential, and visitation/patient population. This Streets Investment Strategy supports the DMC development program illustrated in Section 6.1.4.
- **Create a safe and accessible street network through balanced and well-designed streets.** Street designs proposed in the Streets Investment Strategy will create safe, comfortable, and aesthetic street environments that provide genuine choice of movement. All streets will be designed to accommodate people walking, rolling, riding bicycles, taking transit, and driving so that people have a range of mobility options at their disposal. With many patients and visitors with special mobility needs, street designs will meet or surpass basic Americans with Disabilities Act standards. Safe streets will be achieved through speed management and beautiful design. If DMC streets are designed as multi-purpose public spaces that engender community pride, rather than mobility facilities, safety and comfortable access will ensue.
- **Use system management technology to further transportation system efficiency.** Transportation systems technology will be used in the Development District to effectively manage access to downtown. Technology has the power to reallocate valuable street capacity for person movement, transit and pedestrian amenities, and other placemaking and economic development opportunities.

These guiding street investments principles ensure the thoughtful and deliberate design of Rochester’s most significant public asset—its streets.

THE DMC STREETS INVESTMENT FRAMEWORK

The DMC Streets Investments Strategy is built upon a backbone of priority streets investments that physically manifest the core streets investment principles listed in Section 7.5.3.1. This backbone of streets is supported by an overlay of transit, active transportation, wayfinding, and technological investments that will help move people to and through downtown Rochester. In many ways, this strategy serves as the underlying framework of investments that activate and enable all other mobility investments.

The DMC streets investment framework illustrated in Figure 7.5-20 is a coordinated, prioritized, and implementable package of street projects.



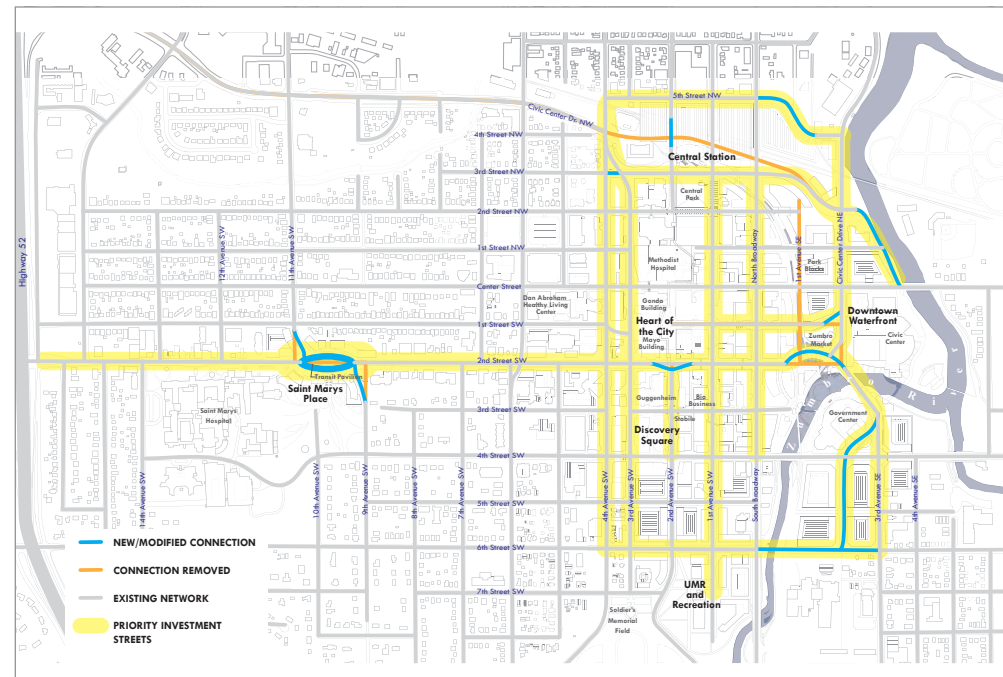


FIGURE 7.5-21 - PROPOSED STREET NETWORK CHANGES (2035)

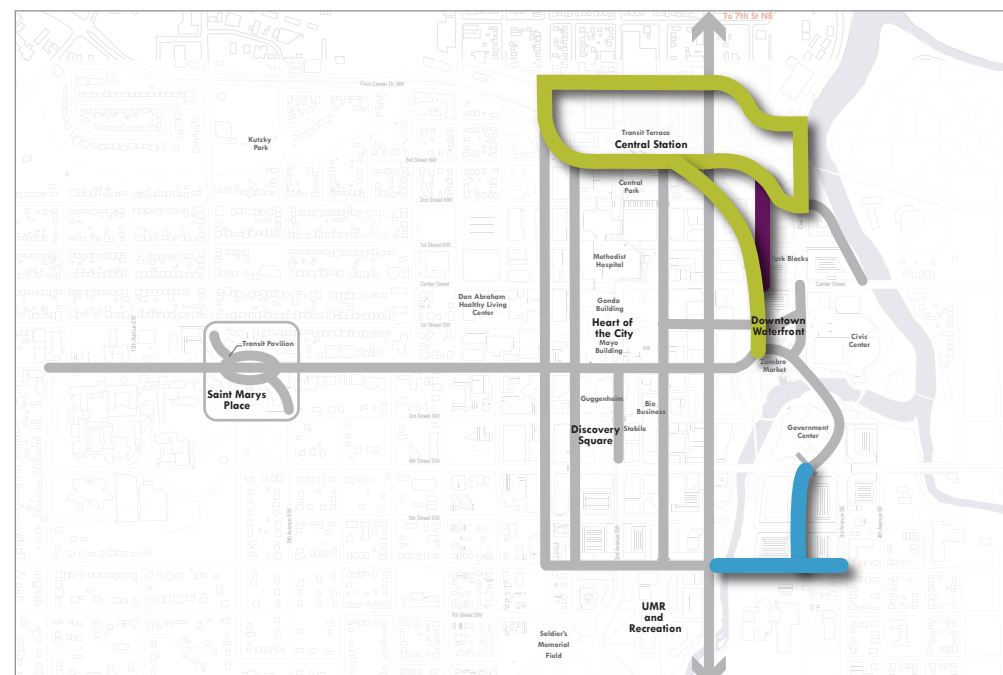


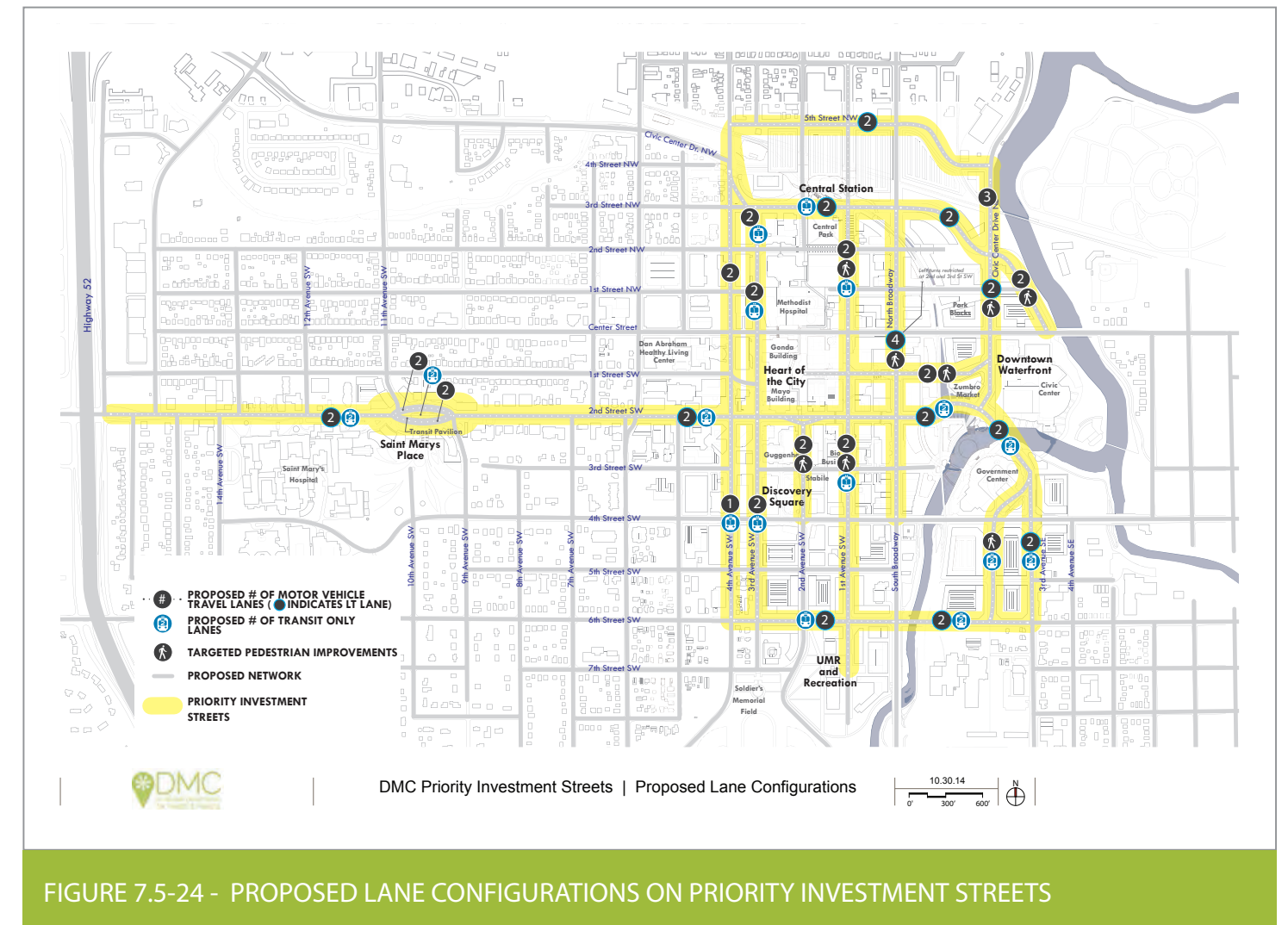
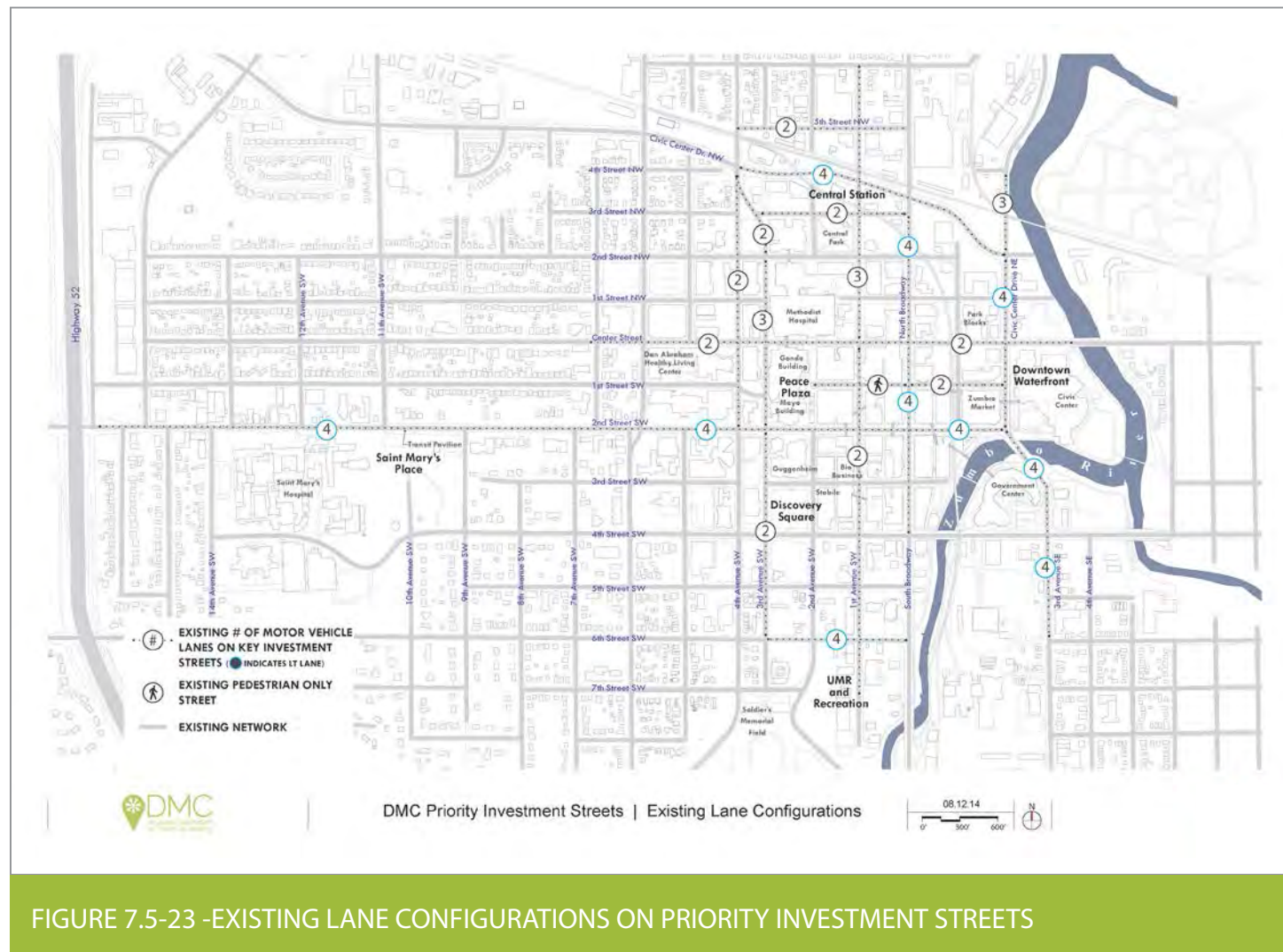
FIGURE 7.5-22 - RECOMMENDED NORTH AND SOUTHEAST GRID IMPROVEMENTS

PROPOSED LANE CONFIGURATIONS AND STREET NETWORK CHANGES

Select projects will reallocate lane capacity for other uses, including transit-only lanes and expanded spaces for active transportation. Figure 7.5-23 and Figure 7.5-24 summarize the existing and proposed lane configurations on affected DMC funded street investments. Likewise, the Streets Investment Strategy includes a slate of network connectivity and street realignment projects that will improve downtown access and expand connections for pedestrians. The scale of these projects ranges from minor alignment changes and new street construction to street decommissioning. The recommended network in 2035 is shown in Figure 7.5-25 and include the following network changes. Figure 7.5-21 shows the new street connections and streets that have been removed for pedestrian improvements and development opportunities. They include:

- North downtown grid realignment projects, including removal of Civic Center Drive NW between 4th Avenue NW and Civic Center NE; a new connection on 3rd Street NW between 3rd and 4th Avenue NW (one eastbound transit only lane, two general purpose travel lanes and a center turn lane); and a new connection on 5th Street NW between N Broadway and Silver Lake Drive NE (two general purpose travel lanes and a center turn lane)
- Realigned 9th Avenue SW and 11th Avenue SW to connect into a modified rotary at Saint Marys Place
- Removal of 1st Avenue NE between 3rd Street NE and 2nd Street SW
- Realignment of Civic Center Drive NE at 2nd Street SW
- Realignment of 1st Street NE at Civic Center Drive NE
- Realignment of 2nd Street SW at 2nd Avenue SW and between 1st Avenue SE and Civic Center Drive
- New 6th Street SE connection between 3rd Avenue SE and S Broadway (a four lane cross section including two transit only lanes; includes a new bridge connection across the Zumbro River)
- New waterfront street between 2nd Street NE and Center Street (two lane shared street)
- New streetcar and pedestrian connections from 3rd Avenue SE to 6th Street SE (one shared streetcar/pedestrian transitway spanning across the Government Center and the South Warehouse properties)
- New pedestrian connection along the Canadian Pacific railroad spur

It is important to note that all of these proposed street configurations or lane reallocations are conceptual until further study is conducted. That further analysis would, in all cases, require more detailed travel demand and traffic operations analysis. See Figure 7.5-30 for cost estimates.



7.5.3.2 PRIORITY STREET PROJECTS

This section illustrates the DMC Development District recommended street investments. It begins by providing common street investment elements and benefits. Then, each investment is described in detail and supported by conceptual cross-sections and plan view diagrams. Final design and engineering of the recommended streets projects will require separate design processes that may result in variance from the graphics illustrated below.

COMMON STREET INVESTMENT ELEMENTS

No formula exists to develop a great street. Every street must be contextually designed according to land use context, multimodal functional needs, and right-of-way availability. However, well-designed street types do follow basic design patterns and include common features. Guided by the street investment principles espoused above, the following street elements represent common design themes in the street investment project sheets displayed in Section 7.5.3. While not all streets will incorporate every design feature, this list is instructive of the aesthetics and street features that can be expected on DMC Development District streets.

- In-street tree wells
- Placemaking features
- Bicycle-transit integration facilities
- Enhanced transit passenger facilities
- Transit only lanes
- Planters and street trees
- On-street parking buffers
- Pedestrian refuge islands
- Public art
- Wayfinding and sub-district branding
- Curb extensions
- City Loop trail facilities
- Clearly defined sidewalk zones
- Bike share stations
- Bollard-protection
- Mid-block crossings
- Raised landscaped medians
- Curbless street design
- Stormwater bioswales
- Lane narrowing
- Lane reallocation
- Pedestrian-scale street lights
- Pedestrian countdown signal heads
- Fixed signal timing
- High visibility crosswalks
- Accessible intersection design

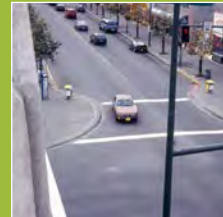
COMMON STREET INVESTMENT ELEMENTS



IN-STREET TREE WELLS



PLANTERS AND STREET TREES



CURB EXTENSIONS



MID-BLOCK CROSSINGS



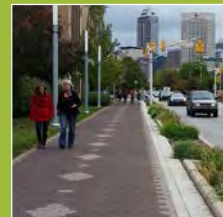
LANE REALLOCATION



PLACEMAKING FEATURES



ON-STREET PARKING BUFFERS



CITY LOOP TRAIL FACILITIES



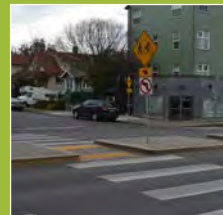
RAISED LANDSCAPED MEDIANS



PEDESTRIAN-SCALE LIGHTING



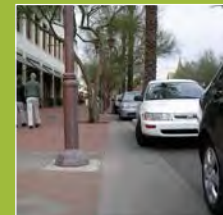
BICYCLE-TRANSIT INTEGRATION FACILITIES



PEDESTRIAN REFUGE ISLANDS



CLEARLY DEFINED SIDEWALK ZONES



CURBLESS STREET DESIGN



PEDESTRIAN COUNTDOWN SIGNAL HEADS



ENHANCED TRANSIT PASSENGER FACILITIES



PUBLIC ART



BIKE SHARE STATION



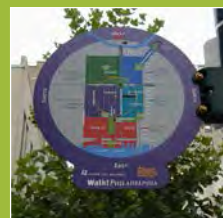
STORMWATER BIOSWALES



FIXED SIGNAL TIMING



TRANSIT-ONLY LANES



WAYFINDING AND SUB-DISTRICT BRANDING



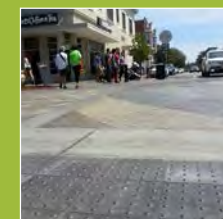
BOLLARD PROTECTION



LANE NARROWING



HIGH VISIBILITY CROSSWALKS



ACCESSIBLE INTERSECTION DESIGN

USER MARKET	BENEFITS
Employee	<ul style="list-style-type: none"> Provides access to downtown via transit, car, walking, and bicycling Quickly moves employees arriving by car to parking ramps and peripheral park-and-ride locations Enables the park-once environment by providing walkable and transit-oriented streets that link people to destinations Provides comfortable, visible crossings that help weave together destinations and sub-districts Placemaking features offer opportunities to relax and enjoy the street environment Creates a more accessible downtown for people with mobility impairments
Visitor Mayo Clinic patient	<ul style="list-style-type: none"> Provides access to downtown via transit, car, walking, and bicycling Enables the park-once environment by providing walkable and transit-oriented streets that link people to destinations Offers comfortable, healthy environment to walk and rehabilitate Maintains drop-off access to Mayo Clinic facilities (e.g., Gonda and Charlton building) Provides comfortable, visible crossings that help weave together destinations and sub-districts Placemaking features offer opportunities to relax and enjoy the street environment Connects with the rehabilitative components of the Integrated Care model Creates a more accessible downtown for people with mobility impairments
Visitor Convention attendee, patient family, youth sport participant, etc.	<ul style="list-style-type: none"> Provides access to downtown via transit, car, walking, and bicycling Enables the park-once environment by providing walkable and transit-oriented streets that link people to destinations Provides comfortable, visible crossings that help weave together destinations and sub-districts Creates a more accessible downtown for people with mobility impairments Placemaking features offer opportunities to relax and enjoy the street environment Provides on-street parking access for short retail trips
Resident	<ul style="list-style-type: none"> Provides access to downtown via transit, car, walking, and bicycling Increases the number and extent of public open spaces Beautifies downtown and engenders community pride Provides comfortable, visible crossings that help weave together destinations and sub-districts Creates a more accessible downtown for people with mobility impairments Placemaking features offer opportunities to relax and enjoy the street environment Provides on-street parking access for short retail trips

FIGURE 7.5-25 - VARIOUS USER BENEFITS FROM DMC STREET INVESTMENTS

HOW WILL STREET INVESTMENTS BENEFITS USER MARKETS?

Not all people accessing the DMC Development District will use streets for the same purpose. Figure 7.5-25 summarizes the various benefits generated from street investments from the eyes of the different types of street users.

BROADWAY CORRIDOR AND GATEWAY ENHANCEMENTS

PROJECT DESCRIPTION

Broadway's 100' right-of-way and a recent jurisdictional transfer from Minnesota DOT to the City of Rochester offers the opportunity to transform this important downtown corridor from an urban highway into a grand urban street that supports and connects a thriving downtown. Investing in streetscape and pedestrian improvements will not only tie into the DMC Development District vision of creating a vibrant and walkable destination, but also help catalyze development in the early stages of the Development Plan's implementation. Broadway street investments will initiate downtown Rochester's shift from vehicle-oriented transportation system design toward more balanced, people-oriented design that achieve various mobility and community goals. Improvements to enhance crossings on Broadway are needed to better link the Heart of Downtown with the Waterfront District.

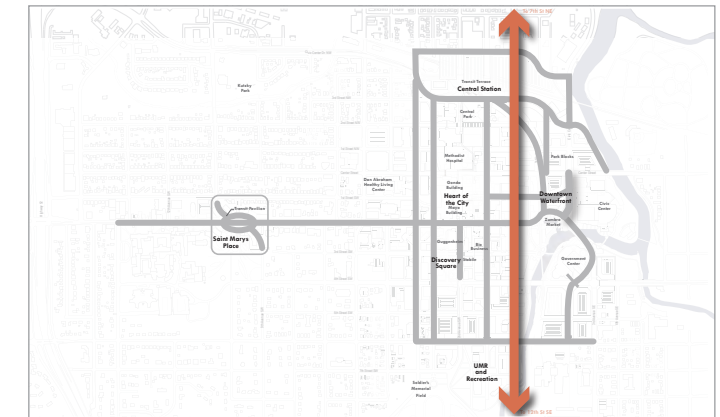
PROJECT OBJECTIVES

The following list of key project objectives is supplemented by specific design or operational elements that either achieve or support project objectives:

- **Pedestrian conditions.** Pedestrian connectivity, comfort, and safety will be improved. Pedestrian improvements along Broadway will expand sidewalks with generous buffers from traffic, establish high visibility crosswalks, and reduce crossing distances.
- **The public realm.** Open space, landscaping, and useable street furniture will be upgraded to encourage people to stay and experience the street. Placemaking features on Broadway will include benches, pedestrian lighting, stormwater facilities, planters, and street trees, as well as public art.
- **Retail support.** The street's design encourages people to access retail amenities. An expanded pedestrian realm offers opportunities for café seating and helps attract shoppers.
- **Catalyze economic development.** Broadway will serve as a catalytic project that will help attract economic development opportunities. An attractive streetscape that will attract consumers and encourage businesses of all types to locate on Broadway or in the adjacent Heart of the City and Downtown Waterfront sub-districts.
- **Destination, people-oriented entrance.** The project signals to people entering the DMC Development District that they are entering a great destination, a distinct place, and a thriving community where people can comfortably walk and participate in activities on the street. Gateway improvements and large landscaped medians will transition motorists into a walkable, urban core.
- **Motor vehicle circulation.** The project will maintain adequate vehicle capacity in the broader downtown Rochester network. Broadway improvements will maintain the current 4-lane cross-section and reduce delay by dispersing traffic ingress and egress to alternative intersection corridors. Left turns will be eliminated at 2nd and 3rd Streets.
- **Parking and loading.** Parking and loading access to businesses will be maintained. Parking will be maintained and better defined using recessed parking and in-street tree wells.

PROJECT EXTENTS

N/S Broadway from 7th Street NE to 12th Street SE



PRECEDENT EXAMPLE



Ben Franklin Parkway in Philadelphia offers an inviting gateway and pedestrian amenities to help transition the street from a highway to an urban downtown context.

Image from M.Edlow

BROADWAY CORRIDOR AND GATEWAY ENHANCEMENTS

There are two priority projects are recommended for DMC investment on Broadway:

CORE BROADWAY ENHANCEMENTS FROM CENTER STREET TO 4TH STREET SE (PROJECT S1.1)

A place to stroll, cross, shop, drive, celebrate...

Streetscape and pedestrian investments between Center Street and 4th Street SE will reassert Broadway's stature as downtown Rochester's center of gravity. Broadway will maintain its function as a major traffic street of regional significance, but the street will be calmed and converted into a walkable urban boulevard where people are comfortable walking along and traversing across.

- **Cross-section/lane narrowing.** Broadway will be designed as a four lane street with large landscaped medians. Left-turns will be restricted at significant pedestrian and transit connections, including 2nd Street SW/SE, 3rd Street SW/SE, and 3rd Street NW/NE. Travel lanes will be narrowed to 10', which will maintain the street's carrying capacity, while ensuring traffic operates at speeds suitable for a livable and thriving downtown.
- **Streetscape.** A generous 10' landscaped median will help manage traffic speeds and allow for two stage crossings at intersections and mid-block crossing locations. The landscaped median is a critical design element that will facilitate City Loop crossings at Broadway and 2nd Street NE. The median will include a variety of plantings and street trees to add to Broadway's resurgent main street aesthetic. Other streetscape elements recommended for Broadway include in-street tree wells and landscaped bioswales.
- **Pedestrian improvements/sidewalk expansion.** Pedestrian improvements along Broadway will be dramatic including enhancements to the walking experience and placemaking elements that will encourage people to gather, congregate, and socialize. Sidewalks will be widened from 10' to 15' on both sides of the street. This amounts to a 33% increase in pedestrian space. Sidewalks will be retrofitted with landscaped buffers and lush stormwater bioswales, street furniture, public art, and bike parking. These improvements will help establish Broadway as a place where people, especially visitors and employees, can enjoy the retail and commercial amenities that will continue to line the street.

A suite of crossing improvements will be implemented along the corridor including high visibility crossings with decorative pavers. Crossing improvements will be supported by curb extensions that reduce crossing distances and increase pedestrian visibility. Decorative pedestrian lighting will also ensure greater visibility, while increasing the attractiveness of Broadway as a quaint, main street atmosphere that attracts and sustains vibrant retail opportunities. Intersections will be clearly branded with paver treatments to help establish a beautiful and low speed environment. To facilitate east-west City Loop trail user movements across Broadway, a midblock crossing will be established

north of the Center Street intersection. This crossing will be furnished with a rectangular rapid flashing beacon and curb extensions to reduce the crossing distance and increase user visibility.

- **On-street parking.** On-street parking will be retained and will help reinforce the buffer between the pedestrian/retail realm and moving traffic. In-street tree planters will help delineate parking stalls while serving as streetscape elements that calm traffic speeds. These improvements will reinforce Broadway as an active, tree-lined pedestrian corridor.

BROADWAY GATEWAY ENHANCEMENTS FROM 12TH STREET SE TO 7TH STREET NE (PROJECT S1.2)

An arrival appropriate for a great destination place...

While Broadway will continue to serve as a regional corridor connecting downtown to points north and south, through-connectivity will be deemphasized through a combination of arterial speed management, major pedestrian improvements, and real-time transportation system management (TSM) monitoring. Broadway is envisioned to be a grand urban portal into downtown Rochester, similar to Franklin Parkway in Philadelphia or the I-280 transition into King Street in San Francisco.

- **Gateway improvements.** Gateway improvements such as landscaping and other iconic architectural features will be installed at the downtown entry points to the north (7th Street SE) and south (12th Street SE). The lane narrowing and landscaped median elements implemented in Project S1.1 will continue to the north and south of the core pedestrian improvement project.
- **Speed management.** In addition to the raised median with landscaping and street trees, additional speed management features such as slight chicanes (where right-of-way is available) will help signal to motorists that they are entering a slower speed pedestrian-oriented environment.
- **Transportation system management.** Digital message boards will be installed to direct traffic to alternative facilities such as TH-52 and East Circle Drive NE if motorists seek a higher speed alternative.

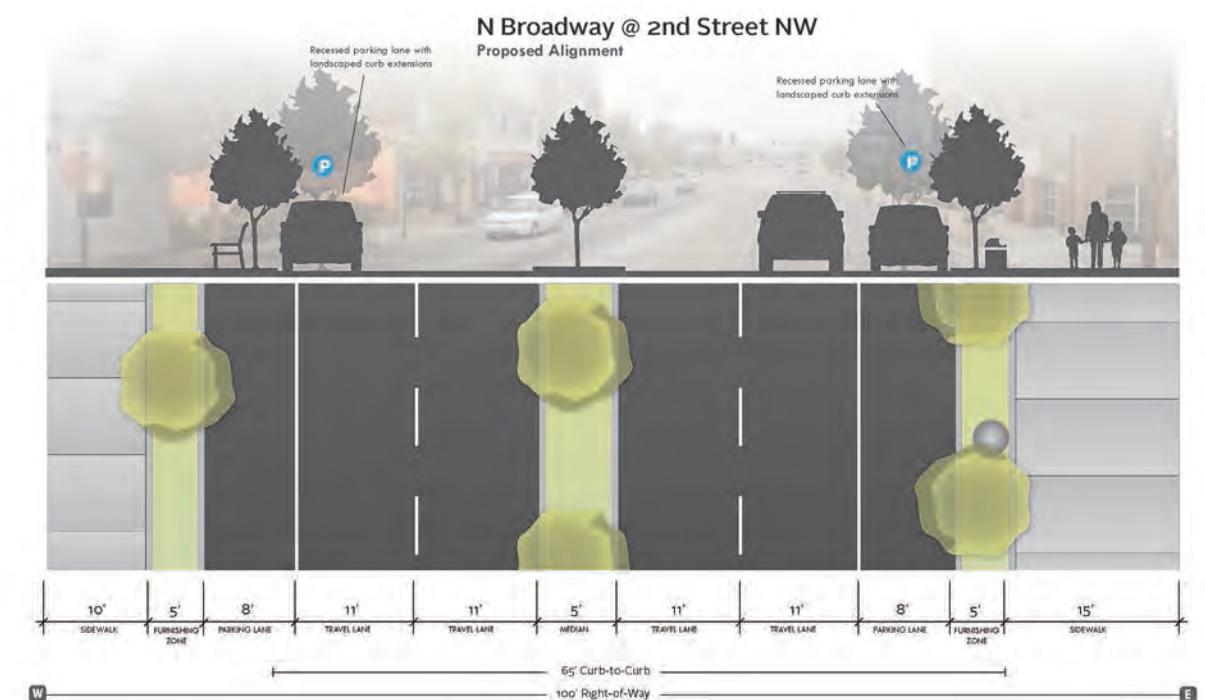
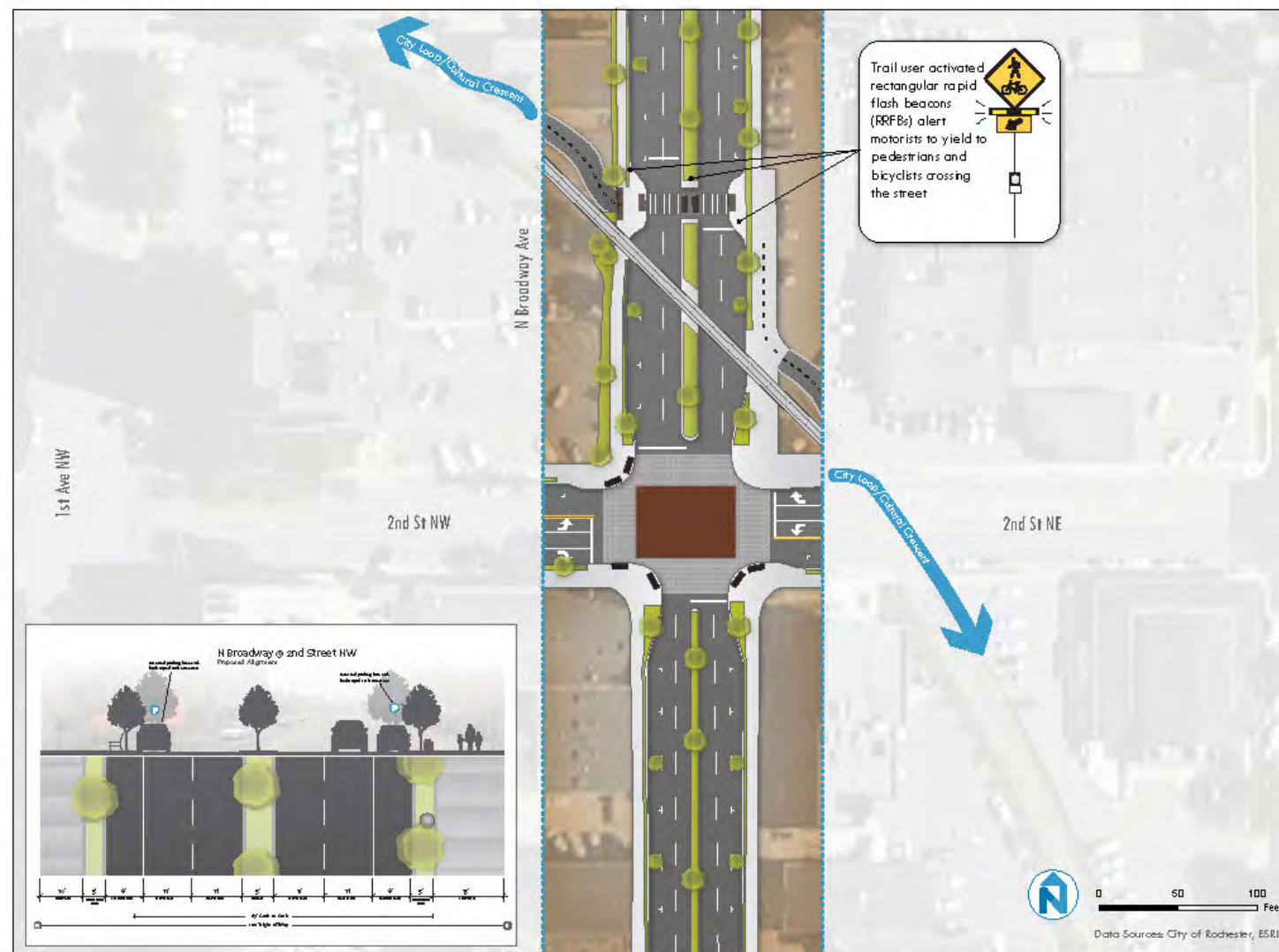
ESTIMATED CAPITAL COSTS

- S1.1 Core Broadway Enhancements from Center Street to 4th Street SE: \$3.75 million (2014) / \$3.9 million (escalated)
- S1.2 Broadway Gateway Enhancements from 12th Street SE to 7th Street NE: \$4.0 million (2014) / \$4.2 million (escalated)

BROADWAY CORRIDOR AND GATEWAY ENHANCEMENTS

OPERATING CONCEPT AT 2ND STREET NW

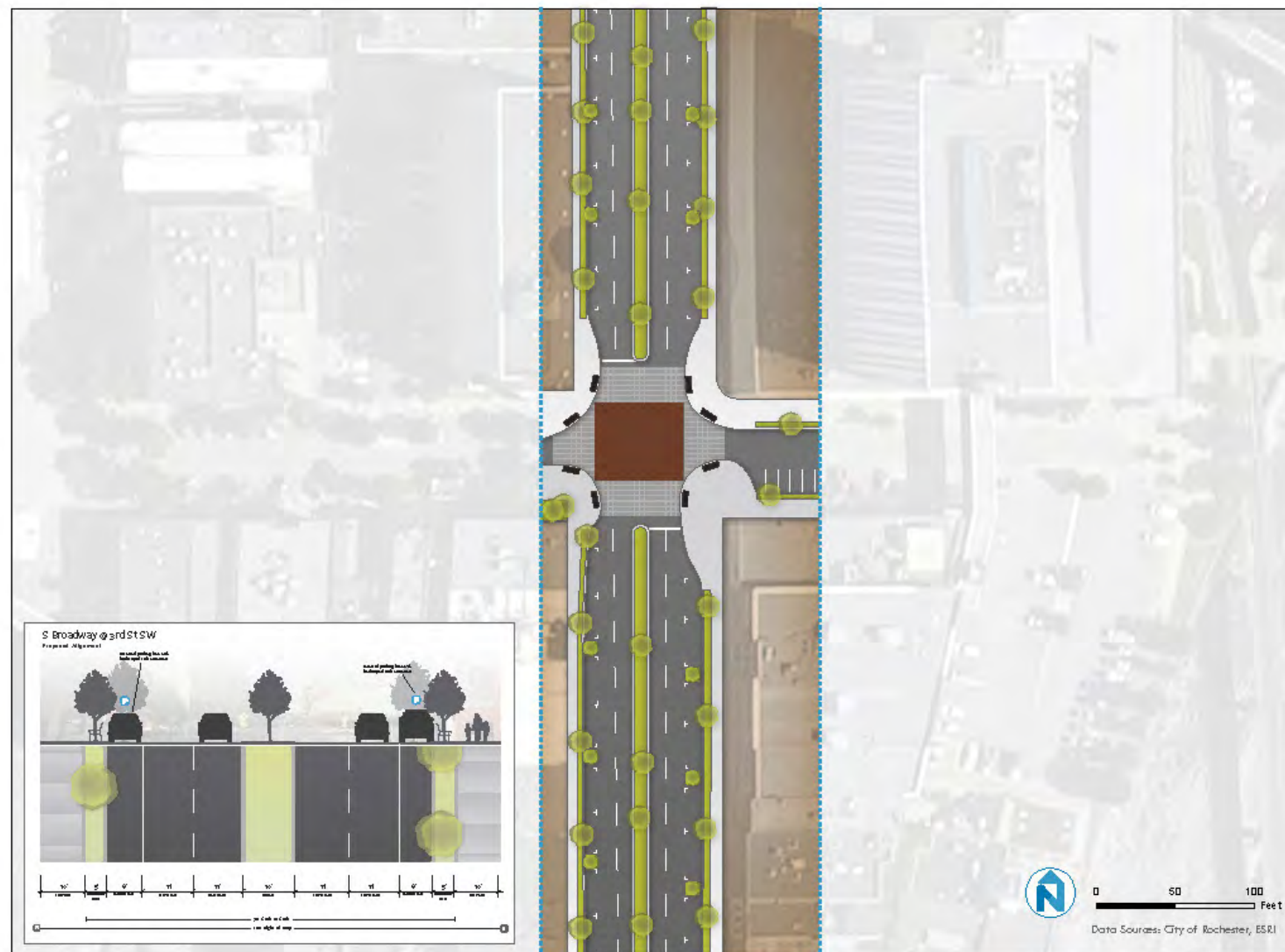
The proposed cross section shows a net increase in sidewalk space while maintaining a 4-lane cross section with a left-turn lane. The landscaped median at 2nd Street NE will help manage traffic speeds, improve pedestrian crossings, and serve as a key linkage for the City Loop trail. Curb extensions are recommended for installation at all corners of the 2nd Street NE intersection. This will reduce crossing distances and ensure safer, low speed turn movements.



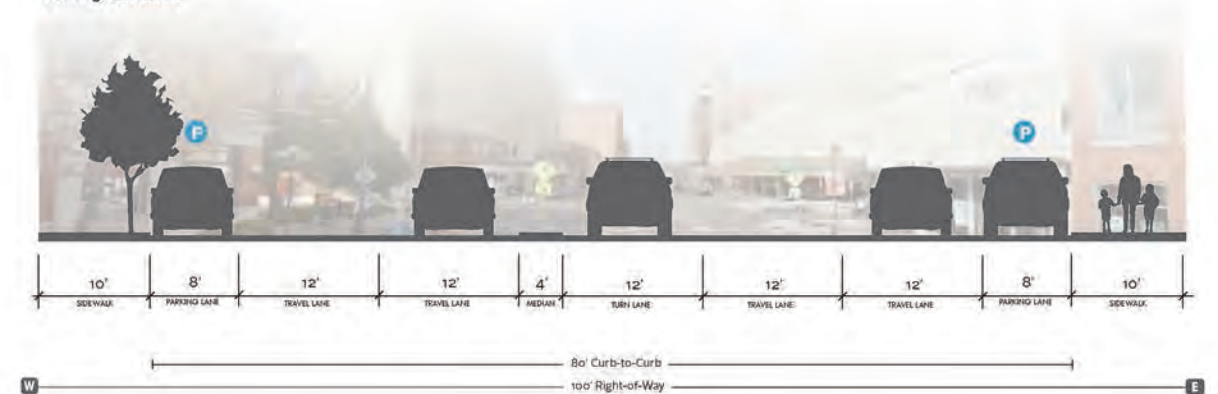
BROADWAY CORRIDOR AND GATEWAY ENHANCEMENTS

OPERATING CONCEPT AT 3RD ST SE

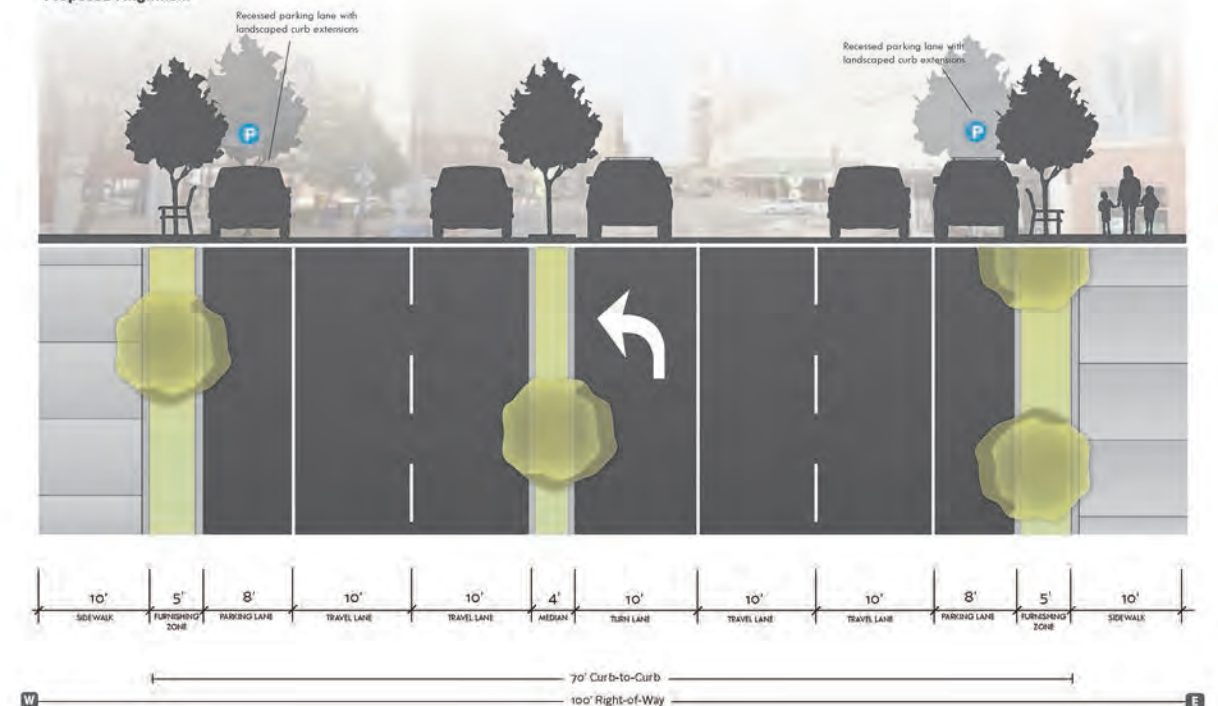
The landscaped median and in-street tree wells will ensure travel speeds suitable for a walkable downtown, while maintaining two travel lanes in each direction. Curb extensions and high visibility marked crosswalks at 3rd Street NE will create a comfortable pedestrian connection between the Discovery Square and Downtown Waterfront sub-districts. Northbound and southbound left turns will be eliminated at this intersection to manage volumes on this pedestrian-oriented street.



S Broadway @ 4th St SW
Existing Conditions



S Broadway @ 4th St SW
Proposed Alignment



CIVIC CENTER ENHANCEMENTS

PROJECT DESCRIPTION

Civic Center serves as a critical connection to the Mayo Civic Center and the Zumbro River. With an 88' right-of-way and four travel lanes with a center turn lane, plenty of capacity exists to accommodate existing and future demand while meeting the destination placemaking needs for this iconic street. Rethinking this street will help establish a welcome mat for Mayo Civic Center arrivals and eliminate challenges connecting from the Heart of the City to the Mayo Civic Center and Downtown Waterfront at street level.

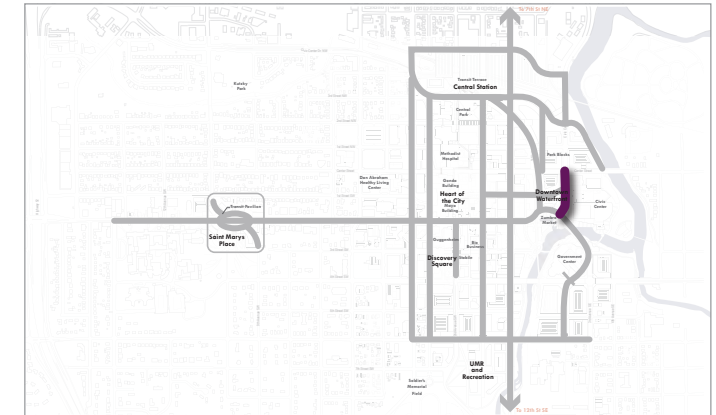
PROJECT OBJECTIVES

The following list of key project objectives is supplemented by specific design or operational elements that either achieve or support project objectives:

- **Pedestrian conditions.** Pedestrian connectivity, comfort, and safety will be improved. Sidewalks will be expanded along Civic Center and streetscape improvements will create generous buffers from traffic and vastly improve user comfort. Reduced traffic lanes, lower travel speeds, high visibility crosswalks, and reduced crossing distances will contribute to a more walkable Civic Center Drive.
- **The public realm.** Open space, landscaping, and useable street furniture will be upgraded to encourage people to stay and experience the street. The expanded pedestrian space in front of the Mayo Civic Center will offer opportunities for social exchange and placemaking. Placemaking features on Civic Center Drive will include benches, pedestrian lighting, stormwater facilities, planters, street trees, and public art.
- **Motor vehicle circulation.** The project will maintain adequate vehicle capacity in the broader downtown Rochester network as a whole. While Civic Center Drive will be narrowed to two travel lanes plus a left turn lane, it will remain a critical north-south connection to and from downtown Rochester. The proposed with left turn lanes at 2nd Street SW and Center Street (both north- and southbound) section on Broadway combined with capacity along Civic Center Drive will accommodate existing and future travel demand.
- **Parking and loading.** Parking and loading access to the Mayo Civic Center will be maintained. Existing tour bus loading zones will be maintained, while additional on-street parking will be provided along Civic Center Drive. On-street parking will be better defined using recessed parking and in-street tree well treatments.

PROJECT EXTENTS

Civic Center Drive from Center Street to 2nd Street SW



PRECEDENT EXAMPLES



Streets in Fairfax, VA's Mosaic District (left) and on 2nd Street along the Phoenix Convention Center (right) are good models for civic streets. The streets displayed above clearly indicate pedestrian friendliness and help establish the broader district as a destination place.

Images from Payton Chung and John Talton

CIVIC CENTER ENHANCEMENTS

The following street project is recommended for DMC investment on Civic Center Drive SE:

CIVIC CENTER DRIVE SE FROM CENTER STREET TO 2ND STREET SW (PROJECT S2.6)

A place to amble, a civic arrival, and the linkage between the Heart of the City and the Downtown Waterfront...

- **Cross section/lane reallocation.** Civic Center Drive SE will be redesigned from a four lane street with a center turn lane to a two lane cross section with a large landscaped median. Left-turn lanes will be maintained at 2nd Street SW and Center Street. Travel lanes will also be narrowed to 10' to reinforce Civic Center Drive SE as a destination arrival point, rather than a Broadway bypass. While the initial DMC investment will cover the lane reallocation from 2nd Street SE to Center Street, this cross section is recommended to extend to 5th Street SW when the Civic Center N Enhancements and Urban Grid Improvements project (Project S3.1) is completed.
- **ROW acquisition for realignment.** As part of the Civic Center Drive SE redesign, the south end of the roadway alignment is recommended to be realigned to meet the realigned 2nd Street SW at a right angle (see Project S2.1 at Zumbro Market). This will reduce crossing distances, ensure safer right turn movements (both westbound and southbound), and create additional space available for placemaking.
- **Streetscaping.** Doubling the sidewalk width and adding space for landscaping and street trees will manage traffic speeds and add visual elements that tie into the overall vision for beautifying Mayo Civic Center's façade and entryway. It will also allow for two stage crossings at intersections create opportunities for mid-block crossings if pedestrian demand increases in the future. Other streetscape elements recommended for Broadway include in-street tree wells and landscaped bioswales. In-street tree planters will help delineate parking stalls while also serving as streetscape elements that calm traffic speeds.
- **Pedestrian improvements/sidewalk expansion.** A key element of the Civic Center Drive SE project is significant sidewalk expansion. Sidewalks will be reconstructed as 19' pedestrian through zones with 7' furniture zones (26' total on both sides of the street). This 100% increase in pedestrian space (from 26' today) amounts to the largest net expansion in pedestrian space of all DMC street investments. Other pedestrian enhancements along the corridor include placemaking elements (street furniture, public art, and bike parking), landscaped buffers with stormwater bioswales and street trees, and crossing improvements.

Crossing improvements recommended for the Civic Center Drive SE corridor include high visibility crossings with decorative pavers, curb extensions to reduce crossing distances and provide street furniture storage, decorative pedestrian lighting, and paver treatments at intersections to enforce

low speeds for passing cars and arriving tour buses. The intersection at 1st Street SE includes a substantial reduction in crossing distances due to a large curb extension on the east edge of the intersection and extensions at the northwest and southwest corners.

- **On-street parking.** Additional on-street parking will be added, which will improve short-term retail access to the Downtown Waterfront sub-district and reinforce the buffer between the pedestrian/retail realm and moving traffic. The existing bus loading zone integrates with the lane reallocation and pedestrian improvements so that there will be no impact on tour bus arrivals.

ESTIMATED CAPITAL COST

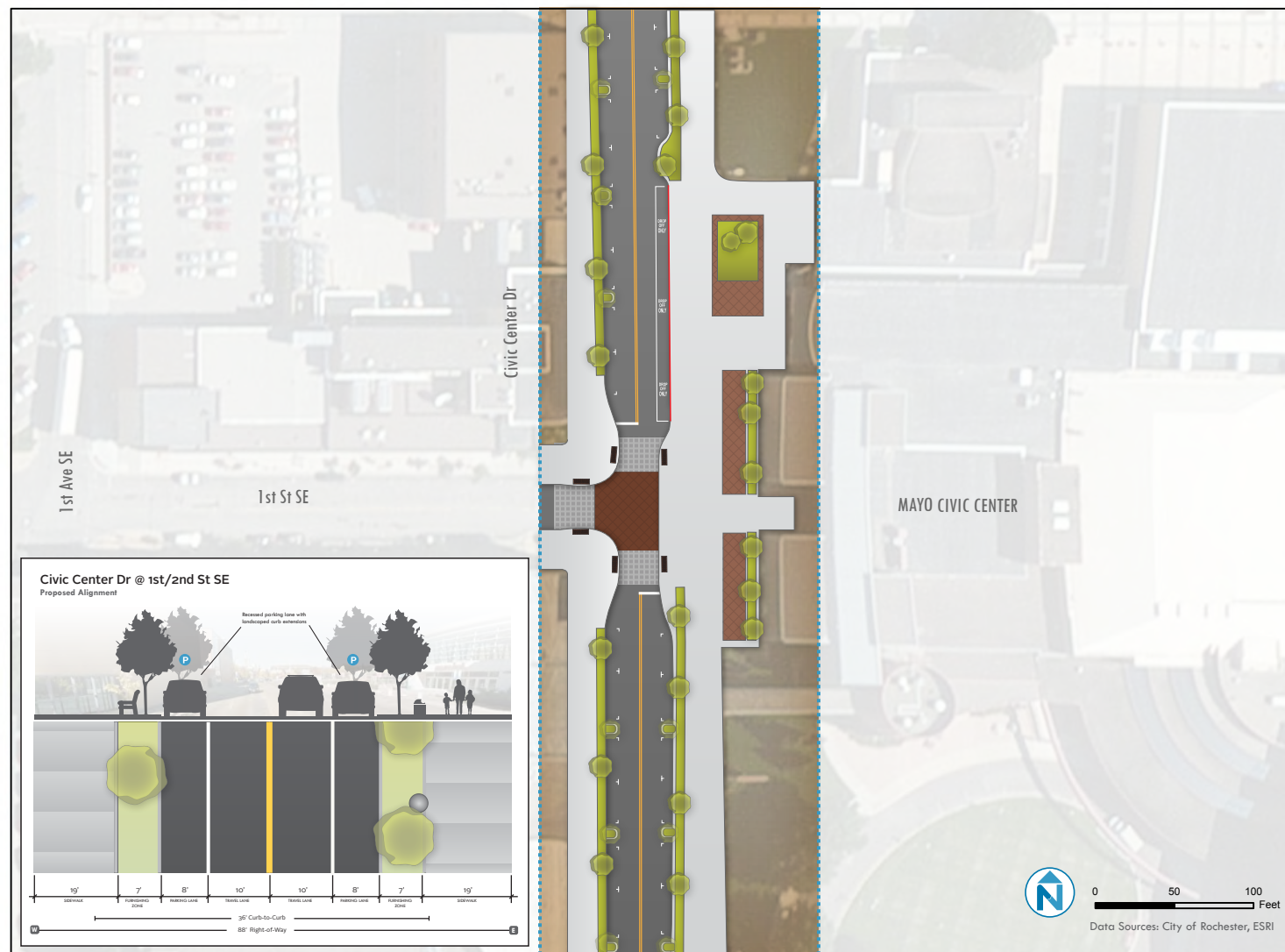
S2.6 Civic Center Drive Enhancements from Center Street to 2nd Street SW)*: \$1.5 million (2014) / \$1.8 million (escalated)

*This project's costs are carried under the Transportation Street costs in Section 9.0.

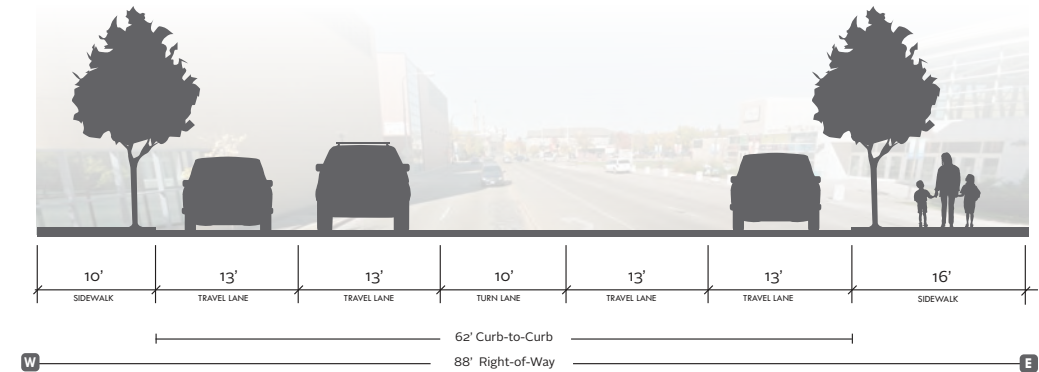
CIVIC CENTER ENHANCEMENTS

OPERATING CONCEPT AT 1ST STREET SE

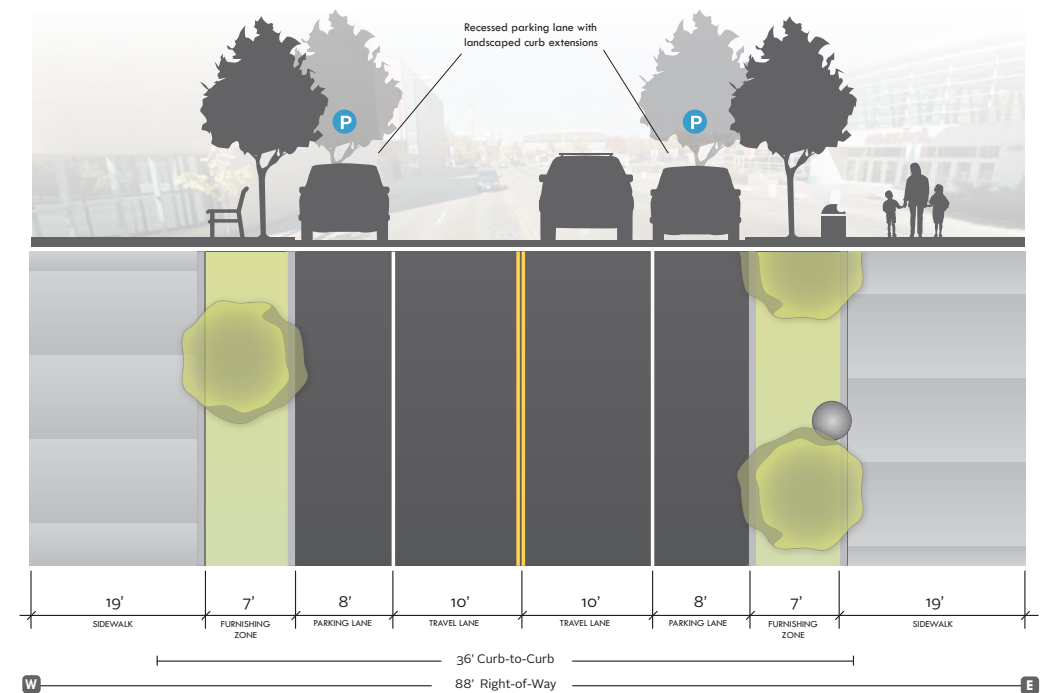
The existing and proposed cross sections of Civic Center SE are presented to the right and plan view illustrations of the recommended street investments are shown below. The plan view design concept below illustrates the 4-to-2 lane reallocation. The reduced footprint of the 1st Street SE intersection is also shown.



Civic Center Dr @ 1st/2nd St SE
Existing Conditions



Civic Center Dr @ 1st/2nd St SE
Proposed Alignment



2ND STREET SW GATEWAY AND TRANSIT STREET ENHANCEMENTS

PROJECT DESCRIPTION

Enhancements to 2nd Street SW will help carry more people through streetcar, local bus, and regional commuter bus services. Working off of recent improvements to the street, this project will broadcast to people and motorists that 2nd Street SW is a pleasant pedestrian experience for people walking to and from destinations in Saint Marys Place, the Heart of the City, and the Downtown Waterfront. Important to the viability of the DMC Development Plan, this project is a critical element to the DMC access strategy as it will help carry the large increase in access demand during the AM and PM peak travel periods. The current configuration of 2nd Street SW (shown below) is well-positioned to cost-effectively modify Rochester's key east-west transit spine into a great transit priority street. There is limited need to reconstruct the existing raised median and the outside general purpose travel lanes can be converted to the transit- only lanes that run both rail and rubber-tired transit service.

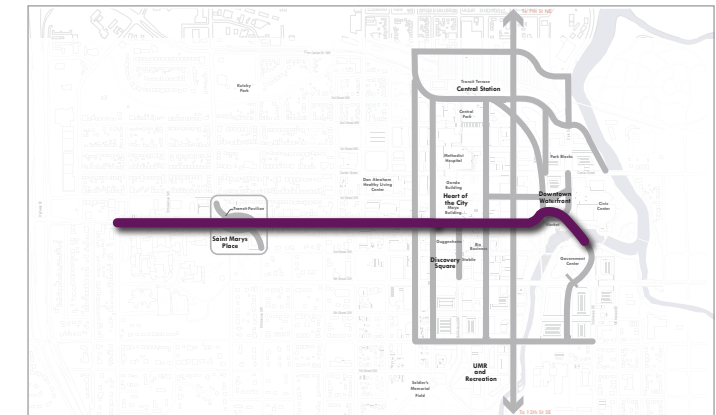
PROJECT OBJECTIVES

The following list of key project objectives is supplemented by specific design or operational elements that either achieve or support project objectives:

- **Transit priority.** This corridor will integrate transit priority features to improve person carrying capacity and ensure transit is reliable and fast. A transit-only lane is recommended in both directions. Each signalized intersection will be retrofitted with transit signal priority and signal preemption capabilities. This is a critical operational element to keep transit moving during peak travel periods.
- **Pedestrian conditions.** Pedestrian connectivity, comfort, and safety will be improved. While sidewalks have been reconstructed as part of a recent reconstruction project, this corridor will require additional pedestrian improvements to improve access to the recommended streetcar circulator. Shifting two travel lanes to transit- only lanes will lower motor vehicle travel speeds, while median pedestrian refuges and high visibility crosswalks will reduce crossing distances and create a transit and pedestrian-oriented 2nd Street SW.
- **The public realm.** Open space, landscaping, and useable street furniture will be upgraded to encourage people to stay and experience the street. While recently upgraded sidewalk space on 2nd Street SW will remain largely untouched, opportunities to extend and enhance the public realm still exist. Where placemaking opportunities are available, particularly along the short City Loop connection between 7th Avenue SW and 11th Avenue SW, features may include benches, pedestrian lighting, stormwater facilities, planters, street trees, and public art.
- **Motor vehicle circulation.** The project will maintain adequate vehicle capacity in the broader downtown Rochester network as a whole. This project makes a tradeoff to prioritize motor vehicle access to downtown via Civic Center Drive NW to transfer two general purpose travel lanes into transit-only lanes.
- **Bicycle connectivity.** A safe, comfortable, and attractive bicycle route will be provided within the corridor. Due to network, right-of-way, and topography constraints, 2nd Street SW will serve as a critical link along the City Loop trail network.
- **Parking and loading.** Parking and loading access to businesses will be maintained. On-street parking will be maintained except in select locations. A net increase in parking supply is a result of the redesign.

PROJECT EXTENTS

2nd Street SW from Government Center to 14th Avenue SW



PRECEDENT EXAMPLES



Main Street in Houston, TX (left) and Pacific Avenue in Tacoma, WA (right) both include transit-only lanes. The streets displayed above clearly indicate pedestrian friendliness and help establish the broader district as a destination place.

Images from Payton Chung and John Talton

2ND STREET SW GATEWAY AND TRANSIT STREET ENHANCEMENTS

The following street project is recommended for DMC investment on 2nd Street SW:

2ND STREET SW TRANSIT PRIORITY STREET ENHANCEMENTS (PROJECT S2.1, S2.2, AND S2.4)

A home address that connects people to places and places to transit...

Streetscape, pedestrian, and transit investments on 2nd Street SW between 14th Avenue SW and Civic Center/3rd Street SE will reinforce 2nd Street SW as a gateway into the DMC Development District and a destination place built around walkable, transit-oriented development. Speed management features, lush median and furniture zone landscaping, and safe crossings will signal to visitors and serve as a reminder to residents that 2nd Street SW is one of the Midwest's grand transit streets. This project includes the following elements:

- **Cross-section/lane narrowing.** While the cross section will vary block by block, 2nd Street SW will generally be designed as a four lane street with a large landscaped median. The curb lanes in each direction will be preserved as general purpose transit lanes. Transit will be shifted to outside transit-only lanes in each direction. Both the general purpose travel lanes and the transit-only lanes will generally be striped along the corridor to 11'.
- **Transit-only lanes.** One transit-only lane will be striped in each direction on 2nd Street SW. The transit-only lanes will operate as a shared facility between streetcar, RPT local bus (including park-and-ride transit service), and RCL regional commuter buses. These transit priority lanes will quickly and directly link buses to the 3rd/4th Avenue transit couplet (see project S4.6) and the off-street Transit Terrace passenger facility. More project details on the transit priority lanes can be found in Section 7.5.2 (Note: transit-only lanes are not part of this project's cost estimates).
- **Streetscape and public space enhancements.** Landscaped medians will be provided throughout the corridor as a way to beautify the corridor, house utilities and streetcar catenary poles, and manage traffic speeds. Pedestrian refuge islands will allow two stage crossings for pedestrians crossing the street at intersections and/or accessing transit at mid-block crossing locations. The median will include a variety of plantings and street trees (where possible) to narrow the visual field of motorists and to reduce the visual impact of catenary wires. Landscaped stormwater bioswales are also proposed in the sidewalk's furniture zone and at intersections with curb extensions.
- **Grand transit arrival.** Two iconic transit amenities of the re-imagined 2nd Street SW will provide two DMC arrival points for transit passengers and signal to people accessing the District by car that they have arrived. The Transit Plaza, located at 2nd Avenue SW, will realign and expand the current street right-of-way to the south to create a new expansive public space and an exceptional transit island with shared streetcar and bus stops. The Saint Marys Place modified rotary will serve a similar function with the beautifully designed transit island and shared streetcar and bus stops located in the center of the rotary. These two intersection redesigns and architectural elements will provide

critical connections between the Gonda Building in the Heart of the City and Saint Marys Hospital and Saint Marys Place amenities, respectively.

- **Pedestrian improvements/sidewalk expansion.** People walking and rolling along 2nd Street SW will enjoy new placemaking features like public art, seating, and LED lighting. Like other pedestrian efforts throughout the Development District, these enhancements to the walking experience will encourage people to gather, congregate, and socialize. Sidewalks will be retrofitted with landscaped buffers, stormwater bioswales, and bike parking. Intersections will be furnished with decorative pavers and high visibility crosswalk materials to signal pedestrian priority at these conflict points. Sidewalk widths will generally be maintained on the south side of the street to reduce construction costs and eliminate the need to reconstruct drainage. On the north side of the street, sidewalks will be widened anywhere between 5'- 6'. The most dramatic increase in pedestrian space will be the short City Loop connection on the north side of the corridor between 7th Avenue SW and 11th Avenue SW.
- **Transit access.** As transit priority is elevated on 2nd Street SW, there will be a corresponding increase in demand for transit access. A suite of crossing improvements will be implemented along the corridor to facilitate access to the Kutzky Park West, Saint Marys Place, Heart of the City, 2nd and 6th, and Downtown Waterfront transit stations. Access improvements include high visibility crossings with decorative pavers. Crossing improvements will be supported by curb extensions that reduce crossing distances and increase pedestrian visibility. Decorative pedestrian lighting will also ensure greater visibility. Intersections will be clearly branded with paver treatments to help establish a beautiful and low speed environment.
- **Speed management.** The combined impact of the raised median, narrowed travel lanes, curbside landscaping and street trees, slight transit plaza diversion, and the modified rotary at Saint Marys Place will offer speed management functions necessary to espouse a walkable, pedestrian- and transit-oriented street environment.
- **On-street parking.** The proposed design will see a net increase in on-street parking supply. Most of the increase in parking stalls will be focused in the Heart of the City, offering premium parking supply for people looking for short-term retail access.

ESTIMATED CAPITAL COST

S2.1 2nd St SW from 14th Avenue SW to 3rd Avenue SW: \$13.0 million (2014) / \$15.5 million (escalated)
 S2.2 3rd Avenue SE bridge lane reallocation from Civic Center Drive to Government Center: \$12.0 million (2014) / \$14.3 million (escalated)
 S2.4 2nd Street SW Transit Plaza at 2nd Avenue SW: \$6.0 million (2014) / \$7.1 million (escalated)
 TOTAL Capital Cost: \$31.0 million (2014) / \$36.9 million (escalated)
 Note: Project cost estimates do not account for transit improvements.

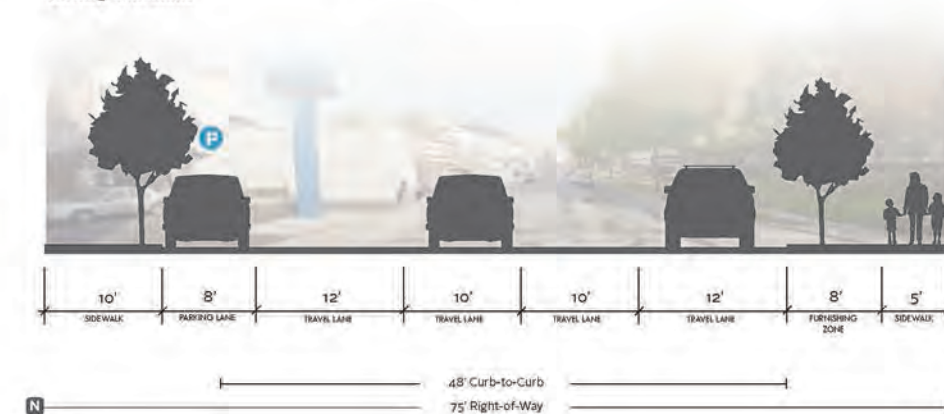
2ND STREET SW GATEWAY AND TRANSIT STREET ENHANCEMENTS

OPERATING CONCEPT AT THE TRANSIT PLAZA (2ND AVENUE SW)

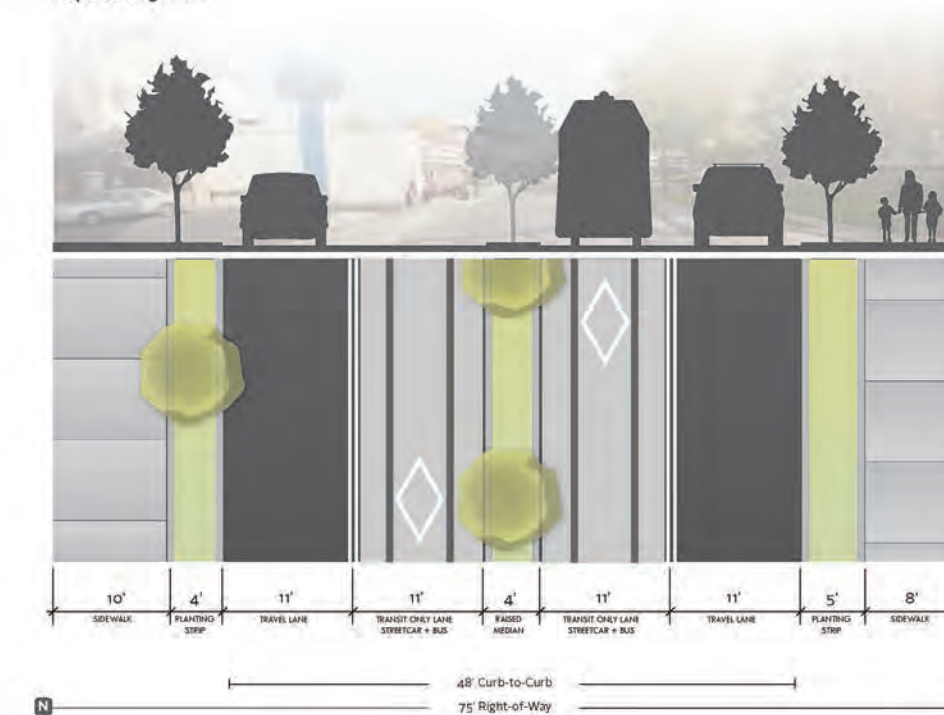
The existing and proposed cross sections of 2nd Street SW between 12th and 13th Avenue SW are presented to the right and plan view illustrations of the recommended street investments are shown below. The Transit Plaza will offer a generous public space and transit arrival for people accessing amenities at the Heart of the City. The 2nd Avenue SW intersection will be broken into junctures with tight intersection geometries to ensure comfortable pedestrian conditions and seamless transit access. Curb extensions and high visibility marked crosswalks at this intersection offer comfortable pedestrian connections between Discovery Square and the Heart of the City sub-districts. The transit stops will be configured so that both streetcar and bus can serve passengers.



2nd St SW between 12th/13th Ave SW
Existing Conditions



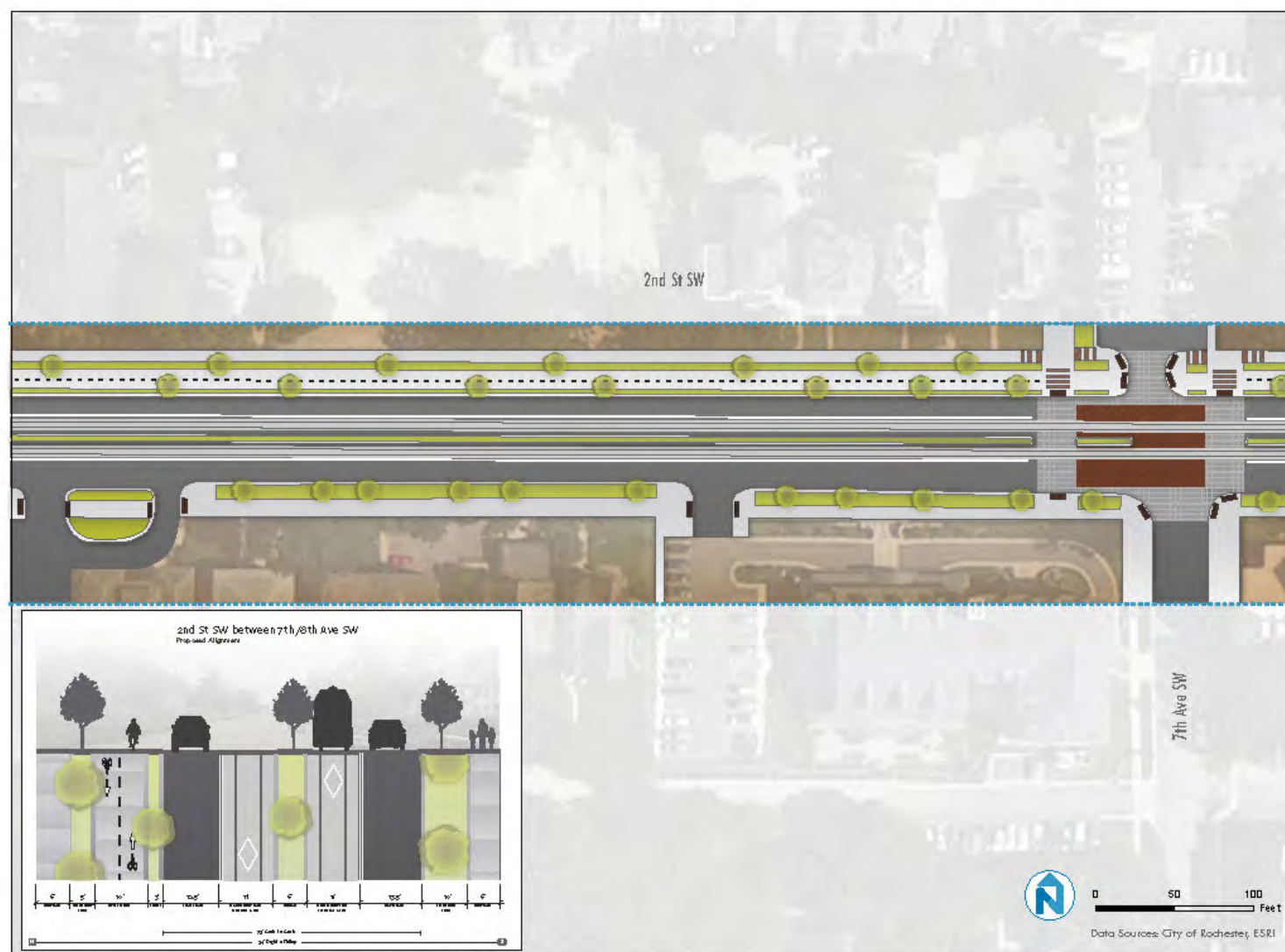
2nd St SW between 12th/13th Ave SW
Proposed Alignment



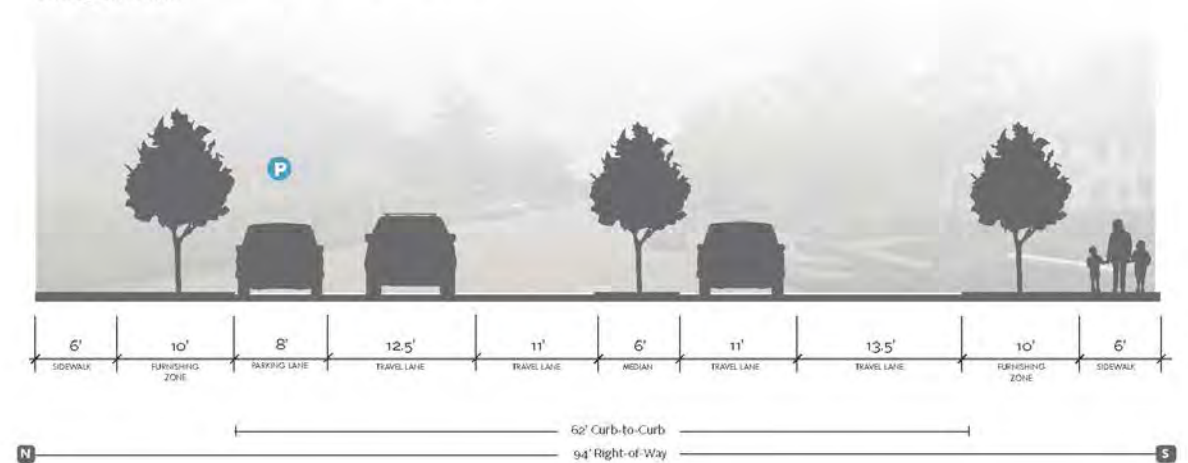
2ND STREET SW GATEWAY AND TRANSIT STREET ENHANCEMENTS

OPERATING CONCEPT AT 7TH/8TH STREET SW

The existing and proposed cross sections of 2nd Street SW at 7th/8th Avenue SW are illustrated to the right. The plan view concept design below shows the representative lane configuration and pedestrian crossing improvements for the project. The median nose on the west leg of the 7th Avenue SW intersection will provide added pedestrian comfort and protection from left turning vehicles. The plan view concept also illustrates the City Loop urban trail facility with a separated pedestrian walkway and a two-way protected bikeway. Although not shown in the conceptual design, the median space will house the streetcar utilities along the corridor.



2nd St SW between 7th/8th Ave SW
Existing Conditions



2nd St SW between 7th/8th Ave SW
Proposed Alignment



TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

PROJECT DESCRIPTION

3rd Avenue NW/SW, 4th Avenue NW/SW, and 6th Street SW will serve as three critical pieces of the downtown transit access puzzle. Moving the requisite transit vehicles to bring people into and out of the DMC Development District during peak commute periods necessitates a number of transit priority and pedestrian enhancement improvements. The collective impact of these three projects will create distinguished and dignified places that connect people walking, taking transit, and riding bicycles to key destinations in the core of the Development District. People connecting between transit and Development District destinations will be offered a pleasant walking experience supported by safe crossings. 3rd and 4th Avenue will serve as key at-grade pedestrian connections (and retail access) between the Central Station, the Heart of the City, and UMR & Recreation sub-districts.

As transit priority is elevated on 3rd and 4th Avenue NW/SW and 6th Street SW, demand for pedestrian access to transit will increase along these relatively narrow corridors. To facilitate safe access to transit, crossing improvements will be implemented along all three corridors including high visibility crosswalk markings with decorative pavers. Crossing improvements will be supported by curb extensions that reduce crossing distances and increase pedestrian visibility. Decorative pedestrian lighting will also ensure greater visibility. Intersections will be clearly branded with paver treatments to help establish a beautiful and low speed environment. These improvements will be targeted at all RPT, RCL, and streetcar stops. It should be noted that portions of 1st Avenue NW/SW will provide additional transit priority for southbound streetcars only (see the Shared Streets project sheet for more information). Fourth Street SE will also include transit priority features, but not full street reconstruction or major improvements to the streetscape.

PROJECT OBJECTIVES

The following list of key project objectives is supplemented by specific design or operational elements that either achieve or support project objectives:

- **Transit priority.** These corridors should integrate transit priority features to improve person carrying capacity and ensure transit is reliable and fast. Transit-only lanes are recommended along portions of the 3rd and 4th Avenue couplet as well as the eastern segments of 6th Street SE. Each signalized intersection along these corridors will be retrofitted with transit signal priority and signal preemption capabilities. This is a critical operational element to keep transit moving during peak travel periods.
- **Pedestrian conditions.** Pedestrian connectivity, comfort, and safety should be improved. Sidewalks will be reconstructed and crossing improvements will enhance access to the recommended streetcar circulator as well as RPT and RCL service on 3rd and 4th Avenues. Narrowing travel lanes and reallocating travel lanes to provide transit-only lanes will reduce motor vehicle travel speeds, while median pedestrian refuges (on 6th Street) and high visibility crosswalks (on all three streets) will reduce crossing distances and create transit and pedestrian-oriented 3rd Avenue, 4th Avenue,

and 6th Street corridors.

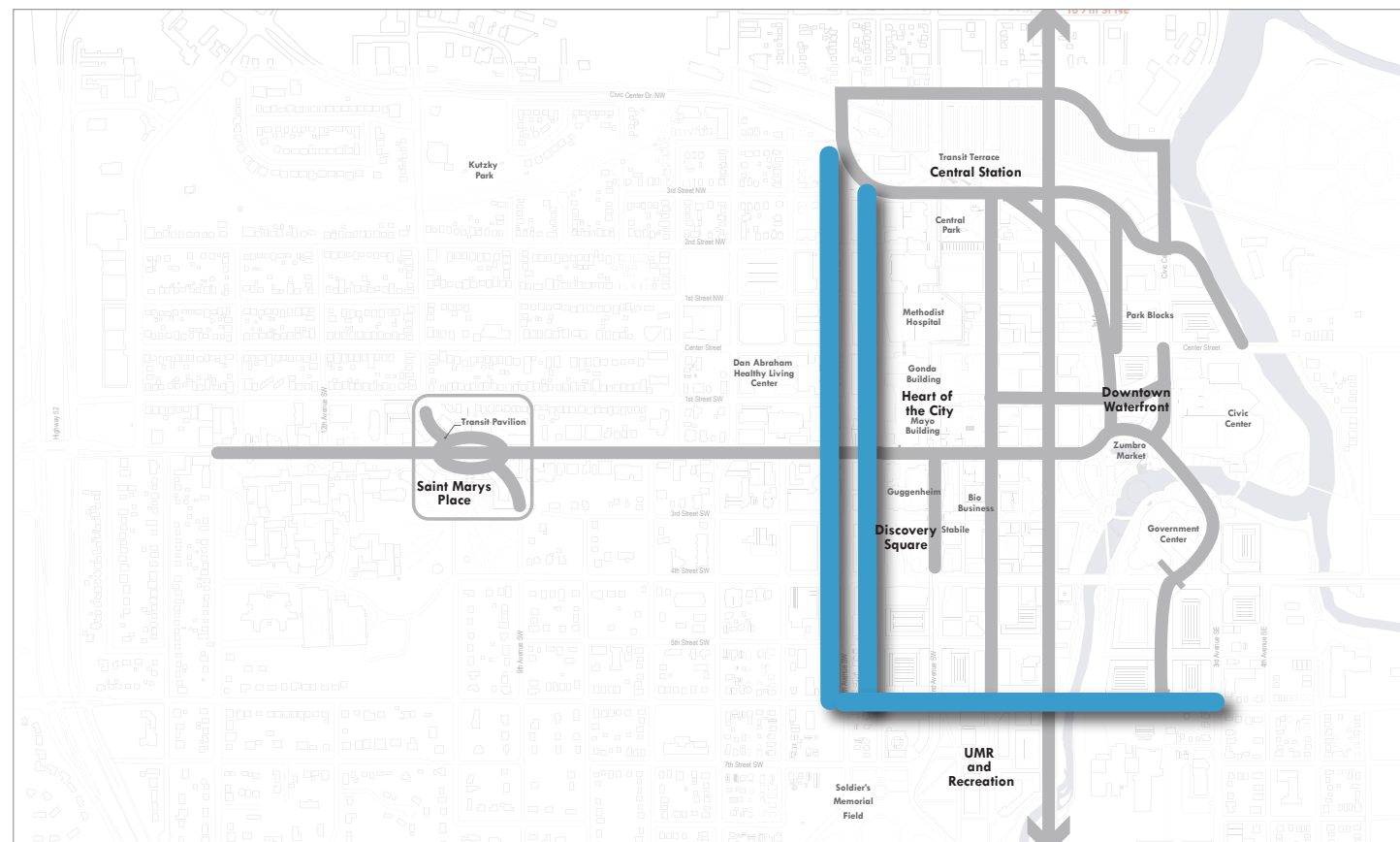
- **Street connectivity.** Additional street connections should be constructed to improve network connectivity. A new bridge connection over the Zumbro River at 6th Street SE will greatly improve multimodal access to downtown by adding a new downtown portal that accommodates transit, people driving cars, people walking, and people riding bicycles.
- **The public realm.** Open space, landscaping, and useable street furniture should be upgraded to encourage people to stay and experience the street. These street investments and investments tied to transit projects offer the opportunity to extend and enhance the public realm. Opportunities for placemaking will be focused on 3rd and 4th Avenue, while the City Loop connection on 6th Street SW between 7th Avenue SW and the east end of the proposed 6th Street bridge connection will build in placemaking and other spaces for public use. Recommended placemaking features may include benches, pedestrian lighting, stormwater facilities, planters, and street trees, as well as public art.
- **Motor vehicle circulation.** The project should maintain adequate vehicle capacity in the broader downtown Rochester network as a whole. By turning over roadway capacity to transit only, peak hour person throughput on these corridors will increase fourfold. Likewise, the new 6th Street bridge connection will reduce intersection delay at Broadway and intersections entering into downtown via 4th Street SE and 3rd Avenue SE/Civic Center Drive
- **Bicycle connectivity.** A safe, comfortable, and attractive bicycle route should be provided within the transit corridors. 4th Avenue NW/SW will serve as a vital north-south link for the City Loop trail connecting users between the Central Station, Heart of the City, Discovery Square, and UMR & Recreation sub-districts. Likewise, 6th Street SW will serve as the key east-west City Loop connection on the south end of the loop. This segment will connect users between the Barcelona Corner and the Saint Marys Place/ UMR & Recreation sub-districts.
- **Parking and loading.** Parking and loading access to businesses should be maintained. Existing parking drop-off activity at the Mayo Clinic Gonda and Charlton Buildings will be accommodated with the proposed street designs.

TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

PROJECT EXTENTS

3rd and 4th Avenue NW/SW from Civic Center Drive NW to 6th Street SW

6th Street SE from the Zumbro River to 3rd Avenue SE



PRECEDENT EXAMPLES



Like the Indianapolis Cultural Trail, the City Loop will direct users around transit stops and clearly mark conflict zones between people walking, bicycling, and trying to access stop amenities.

Images from Curt Ailes



This example of the Portland Transit Mall illustrates the quality of the pedestrian environment and is instructive of how streetcars, buses, and cars could mix and co-operate on 3rd Avenue SW transit-only lanes.

Images from Nelson\Nygaard

ESTIMATED CAPITAL COST

S4.1 6th Street SE from the Zumbro River to 3rd Avenue SE: \$2.25 million (2014) / \$3.4 million (escalated)

S4.2* 6th Street SW Bridge connection at the Zumbro River: \$6.0 million (2014) / \$9.1 million (escalated)

S4.5 6th Street SW Complete Street and Transit Priority Project from Zumbro River to 4th Avenue SW: \$3.0 million (2014) / \$4.6 million (escalated)

S4.6 3rd and 4th Avenue NW/SW from Civic Center Drive NW to 6th Street SW: \$7.0 million (2014) / \$10.3 million (escalated)

Note: Project cost estimates do not account for transit improvements.

**Project S4.2 is included in the Transit Bridge cost assumptions in Section 9.0.*

TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

Two transit priority corridor enhancement projects are recommended for DMC investment:

3RD AND 4TH AVENUE NW/SW TRANSIT PRIORITY STREETS (PROJECT S4.6)

A multimodal couplet that optimizes transit and connects people to destinations ...

- **Cross-section/lane narrowing.** South of 2nd Street SW, 3rd Avenue SW will maintain a 40' curb-to-curb width, but expand to a three lane one-way northbound cross section. The proposed cross section includes an 8' parking lane (west side of street), 10' general purpose travel lane, 11' transit and general purpose lane, and 11' transit only lane (shared between streetcar and bus). North of 2nd Street SW, 3rd Street NW/SW will continue its three lane cross section, but transit priority is eliminated between 2nd Street SW until 1st Street NW. The streetcar trackway will be aligned in the center travel lane and offer mixed traffic operation. A curbside transit-only lane (shared streetcar and bus) operation will resume at north of the 1st Street NW intersection. The two other travel lanes will remain general purpose. This will allow Mayo Clinic drop-offs to continue safely. North of 2nd Street SW, 4th Avenue NW/SW will maintain a three lane one-way southbound cross section. The proposed cross section includes an 8' parking lane (east side of street), 10' general purpose travel lane, and an 11' transit and general purpose lane. This cross section is mirrored south of 2nd Street SW; however, the right-side travel lane is turned into a transit-only lane between 2nd Street SW and 6th Street SW to accommodate RPT and RCL boarding and alighting demand. The entire length of 4th Avenue NW/SW between 3rd Street NW and 6th Street SW between 4th Avenue SW and the Zumbro River will include the City Loop facility on the west side of the street. This facility will generally include a 6' pedestrian zone, a 2' furniture zone, a 10' two-way bikeway, and a 3' landscaped buffer from the adjacent travel lane.
- **Transit-only lanes.** Transit only lanes will be striped in the following locations: 3rd Avenue between 6th Street SW and 2nd Street SW and again between 1st Street NW and 3rd Street NW and 4th Avenue SW from 2nd Street SW to 6th Street SW. In all cases, the transit-only lanes will operate as a shared facility between streetcar, RPT local bus (including park-and-ride transit service), and RCL regional commuter buses. These transit priority lanes will quickly and directly link buses to the off-street Transit Terrace passenger facility in the Central Station sub-district. More project details on the transit priority lanes can be found in Section 7.5.2 (Note: transit only lanes are not part of this projects cost estimates).
- **Streetscape and public space enhancements.** Landscaped medians will be provided throughout the entire length of each corridor. These enhancements will uniformly beautify the transit corridors with landscaping, manage traffic speeds, and house utilities and streetcar catenary poles (on 3rd Avenue NW/SW only). Expanded sidewalks and curb extensions will be planted with landscaping (including stormwater bioswales) and street trees (where possible) to narrow the visual field of motorists. This will reduce the visual impact of catenary wires on 3rd Avenue NW/SW.

- **Pedestrian improvements/sidewalk expansion.** People walking and rolling along 3rd and 4th Avenues NW/SW will enjoy expanded sidewalks with more defined buffers from traffic. Placemaking features like public art, places to sit, and LED lighting will create an interesting set of streets that encourage people to gather, congregate, and socialize. Intersections will be furnished with decorative pavers and high visibility crosswalk materials to signal pedestrian priority at these conflict points. Sidewalks widths on 3rd Avenue NW/SW will increase from 6' to 10', while pedestrian zone widths on 4th Avenue will generally be maintained, but furniture zones and buffers will be expanded (mostly on the west side of the street as part of the City Loop construction).
- **Speed management.** Lane narrowing, the addition of more street trees and curbside landscaping will calm traffic speeds while allowing motorists to access parking ramps entrances located on 3rd and 4th Avenue. That said, speeds will be managed to promote a walkable, pedestrian- and transit-oriented street environment.
- **City Loop integration.** The City Loop will be constructed on the west side of the street from 3rd Street NW to 6th Street SW. The urban trail will include separated pedestrian and bicycle facilities as well as spaces for placemaking, landscaping and traffic buffers.
- **Mayo Clinic Pickup/Drop Off.** Existing parking drop off activity at the Mayo Clinic, Gonda, and Charlton Buildings will be accommodated with the proposed street designs.

6TH STREET SW COMPLETE STREET AND TRANSIT PRIORITY PROJECT (PROJECT S4.1, S4.2, AND S4.5)

A complete street that connects people into downtown whether they drive, take transit, walk, or bike...

- **Cross-section/lane narrowing.** This 4-lane cross section will be converted to a 3-lane cross section with narrowed travel lanes between 4th Avenue SW and 1st Avenue SW. From 1st Avenue SW to 3rd Avenue SE, the street will be designed as a 5-lane cross section with two general purpose travel lanes, two center running transit-only lanes and a center turn lane/median. The westbound curb lane between 1st Avenue and 4th Avenue will operate mixed traffic streetcar, while an exclusive center running track will be developed between 1st Avenue and the Slatterly Park streetcar station to the east. General purpose travel lanes will be striped to 10' and any portion that is running streetcar will generally be striped along the corridor to 11'.
- **New street connections.** 6th Street SW will extend beyond Broadway to 3rd Avenue SE. This new 6th Street SE street connection will be supported by a new bridge over the Zumbro River. This new street will connect the Barcelona Corner and Slatterly Park to the downtown streetcar circulator network.
- **Streetscape and public space enhancements.** Landscaped medians will be provided throughout the corridor as a way to beautify the corridor, house utilities and streetcar catenary poles, and manage traffic speeds. Pedestrian refuge islands will allow two stage crossings for pedestrians crossing the street at intersections and/or accessing transit at mid-block crossing locations. The median will include a variety of plantings and street trees (where possible) to narrow the visual field of motorists and to

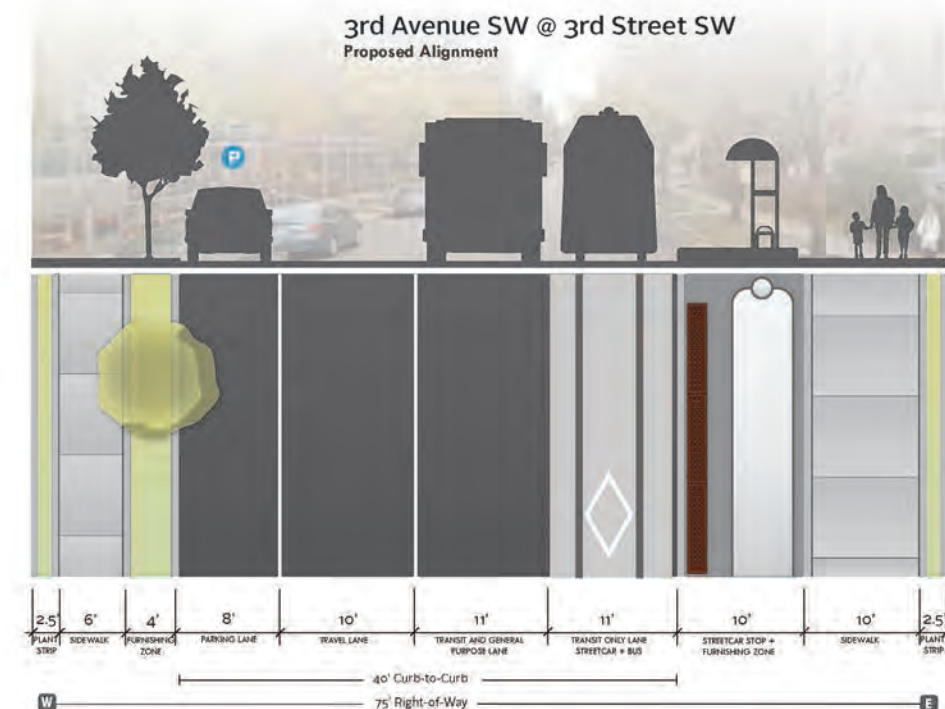
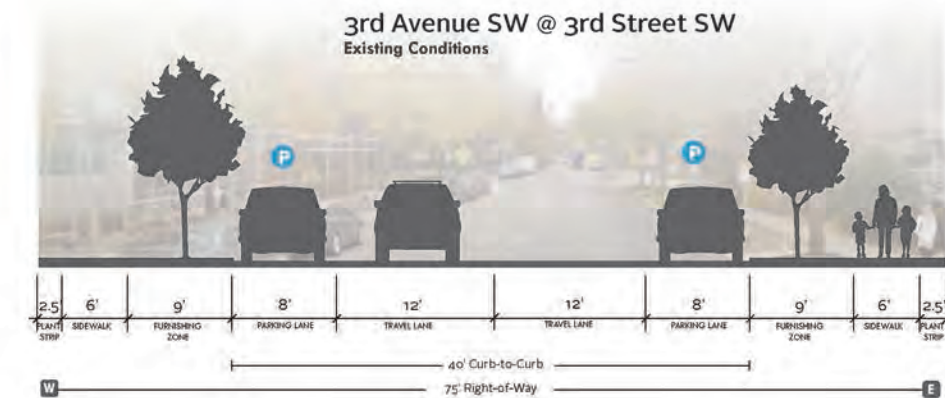
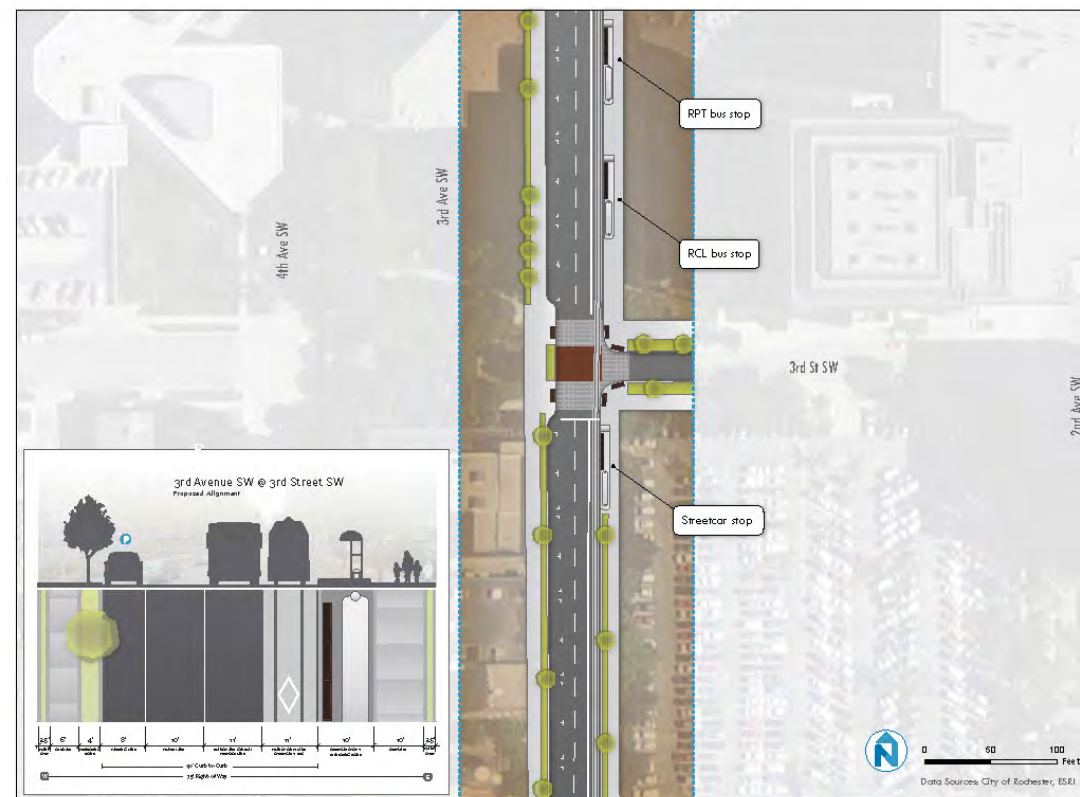
TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

reduce the visual impact of catenary wires. Landscaped stormwater bioswales are also proposed in the sidewalk's furniture zone and at intersections with curb extensions.

- **Pedestrian improvements/sidewalk expansion.** People walking and rolling along 6th Street SW will enjoy wider sidewalks with more space for street furniture and more generous buffers from adjacent travel lanes. Placemaking features will include public art, street furniture, and pedestrian-scale LED lighting. Outside of placemaking features, sidewalks will be retrofitted with landscaped buffers, stormwater bioswales, and bike parking. Intersections will be furnished with decorative pavers and high visibility crosswalk materials to signal pedestrian priority at these conflict points. Sidewalk widths on 6th Street SW will increase from 7' to 13' on the south side and will generally be maintained at 7' on the north side of the street. This will reduce construction costs and eliminate the need to reconstruct drainage.
- **City Loop integration.** The City Loop will be constructed on the south side of 6th Street SW from 7th Avenue SW to the east end of the Zumbro River. The urban trail will include separated pedestrian and bicycle facilities as well as spaces for placemaking, landscaping, and traffic buffers. If additional space is required for streetcar passenger facilities, the trail can be designed for shared use between people walking and bicycling (i.e., eliminate separate bicycle facilities, but maintain traffic buffers and placemaking features).

OPERATING CONCEPT FOR 3RD AVENUE SW AT 3RD STREET SW

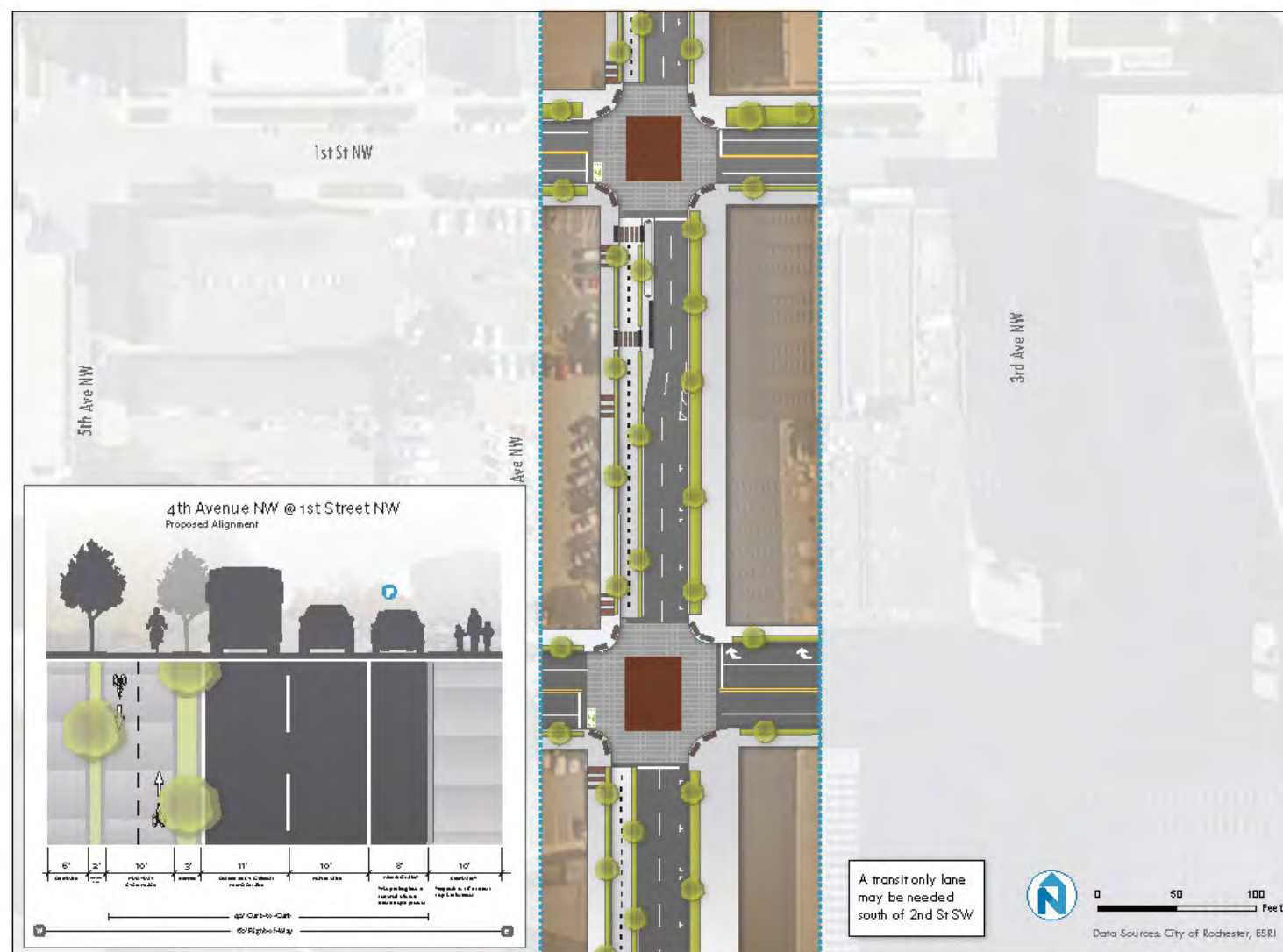
The existing and proposed cross sections of 3rd Avenue SW at 3rd Street SW and plan view illustrations of the recommended street investments are presented to the right. The right side transit-only lane will facilitate streetcar and bus movements between 6th Street SW and 2nd Street SW. A large curb extension and high visibility marked crosswalks at the 3rd Street SW intersection will help manage this corridor as a comfortable pedestrian-oriented corridor. Transit stops will be configured so buses can weave in and out of the transit-only lane to bypass dwelling streetcar vehicles.



TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

OPERATING CONCEPT FOR 4TH AVENUE NW AT 1ST STREET NW

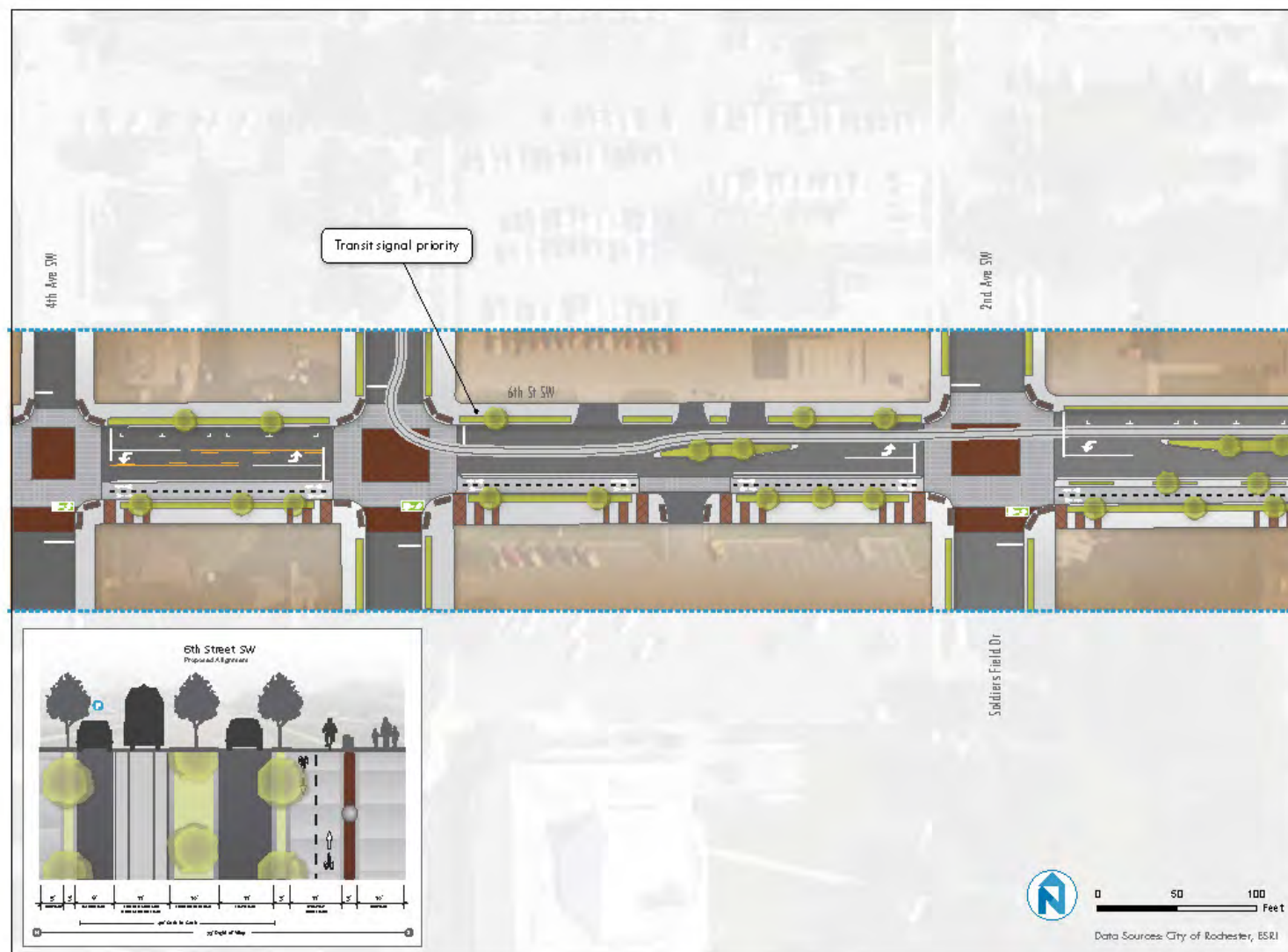
The existing and proposed cross sections of 4th Avenue NW at 1st Street NW are presented to the right and plan view illustrations of the recommended street investments are shown below. The plan view illustrates the integration of the City Loop with the curb side transit passenger facilities. The City Loop will wrap around transit stops to manage conflicts between trail users and people who access transit. This is an effective treatment that is increasingly being used throughout North America.



TRANSIT PRIORITY STREET ENHANCEMENTS: 3RD AVENUE NW/SW, 4TH AVENUE NW/SW, AND 6TH STREET SW

OPERATING CONCEPT FOR 6TH STREET SW AT 2ND/3RD AVENUE SW

The existing and proposed cross sections of 6th Street SW at 2nd/3rd Avenue SW are illustrated to the right. The plan view concept design below shows the representative lane configuration, streetcar trackway, City Loop, and pedestrian crossing improvements for the project. The City Loop urban trail facility, as illustrated, will include a separated pedestrian walkway and two-way protected bikeway. Although not shown in the conceptual design, the median space will house the streetcar utilities along the corridor.



SAINT MARYS PLACE MODIFIED ROTARY

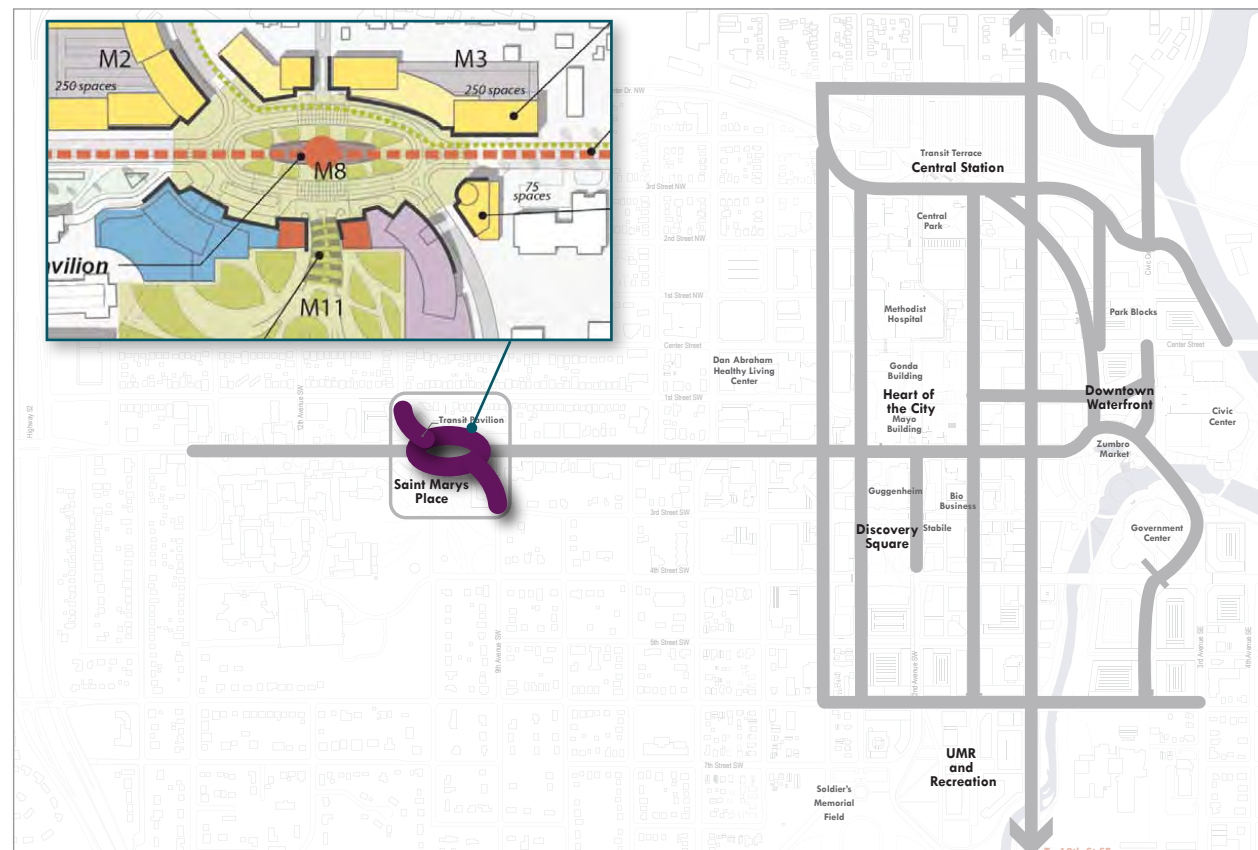


FIGURE 7.5-6 - SAINT MARYS PLACE MODIFIED ROTARY CONCEPT

ESTIMATED CAPITAL COST

S2.3 Saint Marys Place Modified Rotary: \$7.0 million (2014) / \$8.3 million (escalated)

Note: Project cost estimates do not account for transit improvements.

SAINT MARYS PLACE MODIFIED ROTARY (PROJECT S2.3)

The Saint Marys Place modified rotary project (displayed in Figure 7.5-6) will create a dramatic downtown gateway intersection and iconic transit pavilion, helping to catalyze development in the Saint Marys Place sub-district. The intent of this project is to create a gateway for traffic entering and exiting downtown Rochester, establish a transit oriented district node, and slow traffic to support a new neighborhood commercial center.

The proposed improvements are recommended for implementation as part of the Saint Marys Place sub-district development and the east-west segment of the downtown circulator. This project will require major right-of-way acquisition as part of the realignment of 9th and 11th Avenues. Key project elements include the following:

- **Street realignment.** The proposed 2nd Street SW alignment will bend around a central pavilion space and rejoin the current alignment immediately east of the 9th Avenue SW and west of the 11th Avenue SW intersections. Ninth Avenue SW will also be realigned with a slight bend to the west, while 11th Avenue SW will be realigned with a bend to the east.
- **Cross-section.** The east and west intersection approaches will match the two-lane plus transit-only lane cross-section on 2nd Street SW. After passing through the first intersection, the cross-section will include two travel lanes in each direction to accommodate dedicated turn lanes at the westbound 11th Avenue SW and eastbound 9th Avenue SW approaches.
- **Pedestrian improvements.** Pedestrian comfort and crossings will be greatly improved by this project. At the 9th Avenue and 11th Avenue approaches, pedestrians will be afforded shorter crossings and pedestrian refuge islands. Between 9th and 11th Avenues, mid-block crossings and hybrid pedestrian beacons will facilitate safe crossings to new land uses and a future streetcar station at the Transit Pavilion. All crossings will be supported by high visibility crosswalk markings and decorative pavers, as well as pedestrian actuated signals. Sidewalk widths will also be expanded to allow for café seating space, street furniture, and generous buffers between the pedestrian zone and adjacent travel lanes.
- **Streetscape.** An expansive central median and widened sidewalks will provide ample space for landscaping, street trees, stormwater bioswales, public art, and other placemaking features.
- **Signal operations.** The rotary will effectively operate as two signals bisected by a pedestrian signal at the mid-block location. Due to the complexity of this multi-leg intersection and the need to accommodate transit signal priority for streetcars, signals will be required at 9th Avenue, 11th Avenue, and both mid-block crossing locations on the north and south ends of the rotary.

SHARED STREET IMPROVEMENTS: 1ST AVENUE NW/SW, 2ND AVENUE SW, 1ST STREET NE, NEW WATERFRONT STREET (CIVIC CENTER NE TO CENTER STREET)

PROJECT DESCRIPTION

The DMC Transportation Plan envisions four shared street corridors to help connect people to destinations at street level and connect motorists to parking ramps in a low speed environment. Shared streets remove all traffic control devices such as signals and stop signs, all markings such as crosswalks, and all signing. The roadbed is curbless to blur the lines between sidewalks and motorized travel way. With all traffic control and curbing removed, users are forced to negotiate passing in a slow speed environment. Shared streets will be considered in places where pedestrian activity will be high and vehicle volumes are currently low or will be prioritized for land use/parking access (rather than through trips). Low speed design through pedestrian volumes, textured materials and placemaking features, and other visual cues will still permit easy loading and unloading for delivery trucks, as these corridors largely serve commercial land uses.

PROJECT OBJECTIVES

The following list of key project objectives is supplemented by specific design or operational elements that either achieve or support project objectives:

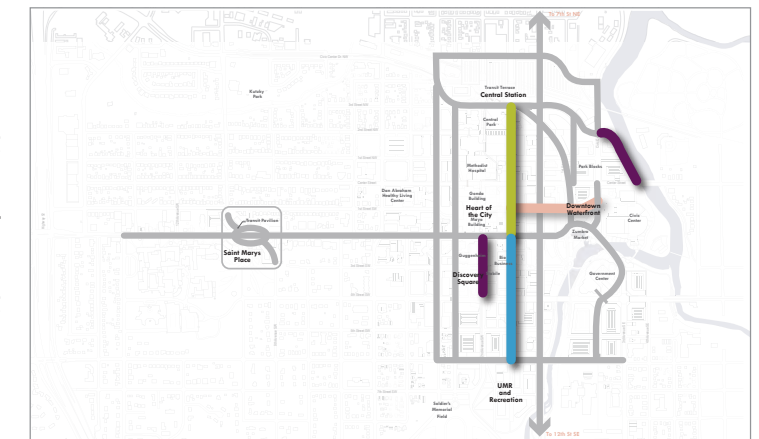
- **Pedestrian conditions.** Pedestrian connectivity, comfort, and safety should be improved. All streets will expand pedestrian spaces through shared street, low speed design. Pedestrians will be encourage to walk where they please as the street's design will espouse sharing between modes with no priority given in the travelway. Expanded dedicated pedestrian space will include generous buffers from traffic and establish high visibility crosswalks through textured paver materials.
- **The public realm.** Open space, landscaping, and useable street furniture should be upgraded to encourage people to stay and experience the street. Placemaking will be featured prominently on all shared streets. Features will include benches, pedestrian lighting, stormwater facilities (as feasible), planters and street trees, and public art.
- **Retail support.** The street's design should encourage people to access retail amenities. An expanded pedestrian realm on all shared streets will offer opportunities for café seating and help attract shopping. These corridors will serve as the Development District's marquee retail street.
- **Catalyze economic development.** Recommended shared street corridors should serve as catalytic projects that will help attract economic development opportunities. Shared streets will provide attractive streetscapes that attract consumers and encourage businesses of all types to locate in the Heart of the City, Downtown Waterfront, Discovery Square, and UMR and Recreation sub-districts.
- **Destination, people-oriented entrance.** The projects signal to people entering the DMC Development District that they are entering a great destination, a distinct place, and a thriving community where people can comfortably walk and participate in activities on the street. Gateway improvements and large landscaped medians will transition motorists into a walkable, urban core.
- **Motor vehicle circulation.** The projects should maintain adequate street connectivity in the broader downtown Rochester network as a whole. The shared street projects will expand street

connectivity. These streets will support parking ingress and egress for short-term parking supply as well as delivery truck access.

- **Parking and loading.** Parking and loading access to businesses should be maintained. Parking will be maintained and better defined using recessed parking and in-street tree wells.

PROJECT EXTENTS

- 1st Street SW from Broadway to 1st Avenue SE
- 2nd Avenue SW from 2nd Street SW to 4th Street SW
- New Waterfront from Civic Center Drive NE to Center Street
- 1st Avenue NW from 3rd Street NW to 6th Street SW



PRECEDENT EXAMPLES



Shared street environments in Binghamton, NY (left) and Indianapolis, IN (right) successfully comeingle pedestrians and motor vehicle traffic in a pedestrian friendly and calmed street space. Curbless design and removing pavement markings helps ensure safe, shared use of the street between motorists and people walking and rolling.

Images from Nelson\Nygaard

SHARED STREET IMPROVEMENTS: 1ST AVENUE NW/SW, 2ND AVENUE SW, 1ST STREET NE, NEW WATERFRONT STREET (CIVIC CENTER NE TO CENTER STREET)

SHARED STREET IMPROVEMENTS (PROJECTS S1.3, 2.5, 2.8, 2.9, 3.2, 4.3, AND 4.4)

A Place to promenade, shop, relax, access parking, and arrive at home...

The recommended shared street corridors—located on 1st Avenue NW/SW, 2nd Avenue SW, 1st Street NE, and a new waterfront street located north of Center Street from Civic Center Drive NE to Center Street—serve as the DMC’s retail focal point, but could potentially help residential neighborhood development organize around calmed and shared spaces in the Downtown Waterfront and UMR and Recreation sub-districts. The 1st Avenue SW shared street project (S4.4) is consistent with the recommended shared street project recommended in the UMR Campus Master Plan.

All shared streets will be designed with similar design elements. Due to the context sensitive nature of shared streets, each priority street project will require a detailed corridor design plan and preliminary engineering to investigate drainage issues. For example, 1st Avenue NW/SW (pictured in the plan view and cross section diagrams below) will integrate a dedicated streetcar guideway between 3rd Street NW and Center Street. Since this is the only shared street corridor that will integrate a transit priority lane, the design process needs to provide added detail related to transit access and the relationship between the trackway, the shared travelway, and dedicated pedestrian spaces. As is common practice where streetcars operate in a shared street environment (e.g., Portland, OR and many cities throughout Europe), streetcars will operate at slow speeds (approximately 6-9 mph). Common design elements between the seven shared street projects include:

- **Curbless design.** All shared streets will be designed flush to the travelway from lot line to lot line. The edges of dedicated pedestrian space should be indicated by textured materials that act as detectable warnings for people with visual impairments. Bollards could be used to further reinforce where motorists and can and cannot operate their vehicle and/or to designate parking stalls.
- **Cross-section/lane narrowing.** All shared streets will be designed as two lane streets without lane markings. Shared travel spaces should be no more than 22’ total, 20’ preferred where diagonal parking is not provided. These lane widths will ensure traffic operates at speeds suitable for a livable and thriving downtown.
- **Textured materials.** Textured materials help to establish distinguished and unique shared street environments. By applying textured paver materials that are flush with the curb, these streets will reinforce where pedestrians have priority and where the travelway is delineated. Special pavements applications and paver materials should be selected based on Rochester’s climate.
- **Streetscape.** Landscaped buffers between the travelway and dedicated pedestrian spaces are critical design elements; both add aesthetic value to the shared streets and support the low speed

vehicle environment. Landscaping will include a variety of plantings, street trees, in-street tree wells, and stormwater bioswales to reinforce these streets as attractive retail and residential streets. Drainage channels should be provided either at the center of the street or along the flush curb. Drainage channels can be used to delineate the travelway from dedicated pedestrian spaces.

- **Pedestrian improvements/sidewalk expansion.** While crosswalk markings will be removed, texture crossing delineated by paver materials will improve crosswalk visibility. The shared street design will create a pleasant walking environment and integrate placemaking elements. These design elements will encourage people to gather, congregate, and socialize, but also force motorists to drive carefully. Placemaking elements serve another critical purpose: delineating the travelway from areas dedicated for pedestrians only. The curbless design of the street will improve the walking and rolling experience for people with mobility constraints or for those that have difficulty stepping down from typical curb heights. Decorative pedestrian lighting will also ensure greater visibility, while increasing the attractiveness of the shared streets’ pleasant retail and residential environments. As with all street investments, intersections will be clearly branded with paver treatments to help establish a beautiful and low speed environment.
- **On-street parking.** On-street parking will be retained and will help reinforce the buffer between dedicated pedestrian spaces, retail frontage, and moving traffic. In-street tree planters, bollards, and unique paver materials (that differ from the travelway and dedicated pedestrian spaces) will help delineate parking stalls.
- **Speed management.** Narrow lanes, landscaping, street trees, slight chicanes (where the travel lane shifts alignment to allow space for café seating or parking stalls), and pedestrian use of the travelway will help signal to motorists that they are entering a slower speed, pedestrian-oriented environment.

ESTIMATED CAPITAL COST

S1.3* 1st Street SW Shared Street from Broadway to 1st Avenue SE: \$0.75 million (2014) / \$0.79 million (escalated)
S2.5 2nd Avenue SW Shared Street from 2nd Street SW to 4th Street SW: \$2.25 million (2014) / \$2.7 million (escalated)
S2.8 Realignment of the 1st Street SE to the north from Civic Center Drive to 2nd Avenue SE: \$0.75 million (2014) / \$0.89 million (escalated)
S2.9 New Waterfront Shared Street from Civic Center Drive NE to Center Street: \$1.5 million (2014) / \$1.8 million (escalated)
S3.2 1st Avenue NW Shared Street from 3rd Street NW to 2nd Street: \$3.0 million (2014) / \$4.0 million (escalated)
S4.3 1st Avenue NW Shared Street Redesign + Transit Access Improvements from 3rd Street NW to 2nd Street SW: \$0.08 million (2014) / \$0.12 million (escalated)
S4.4 1st Avenue SW Shared Street from 2nd Street SW to 6th Street SW: \$3.0 million (2014) / \$4.6 million (escalated)
TOTAL Capital Cost: \$11.3 million (2014) / \$4.9 million (escalated)

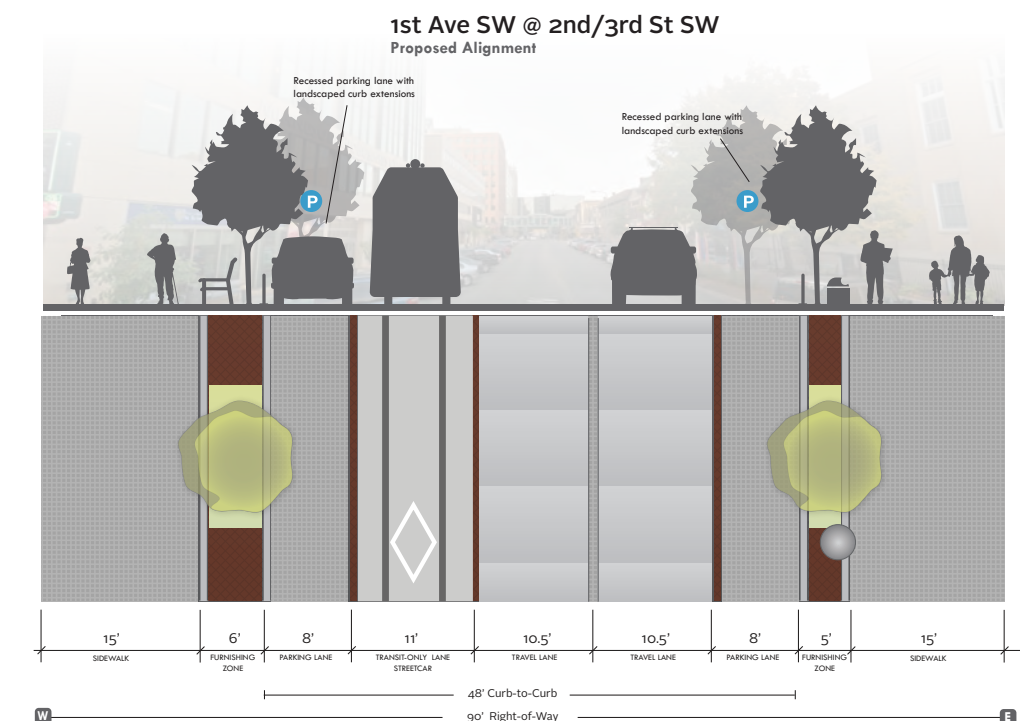
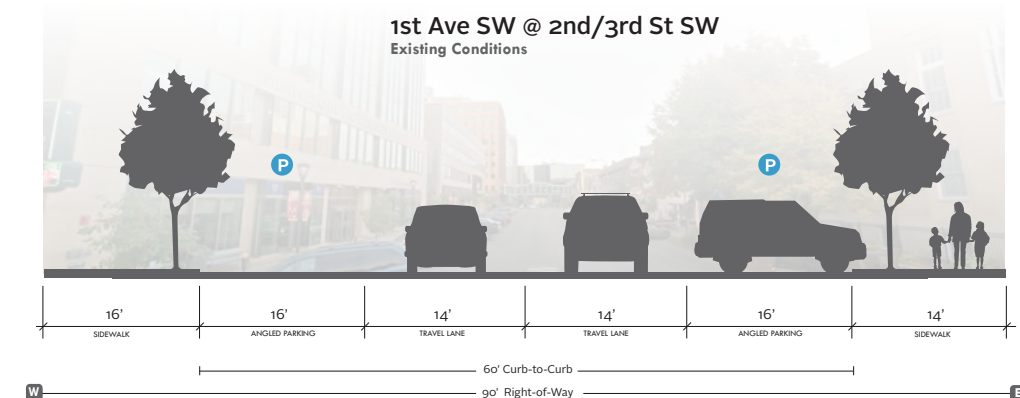
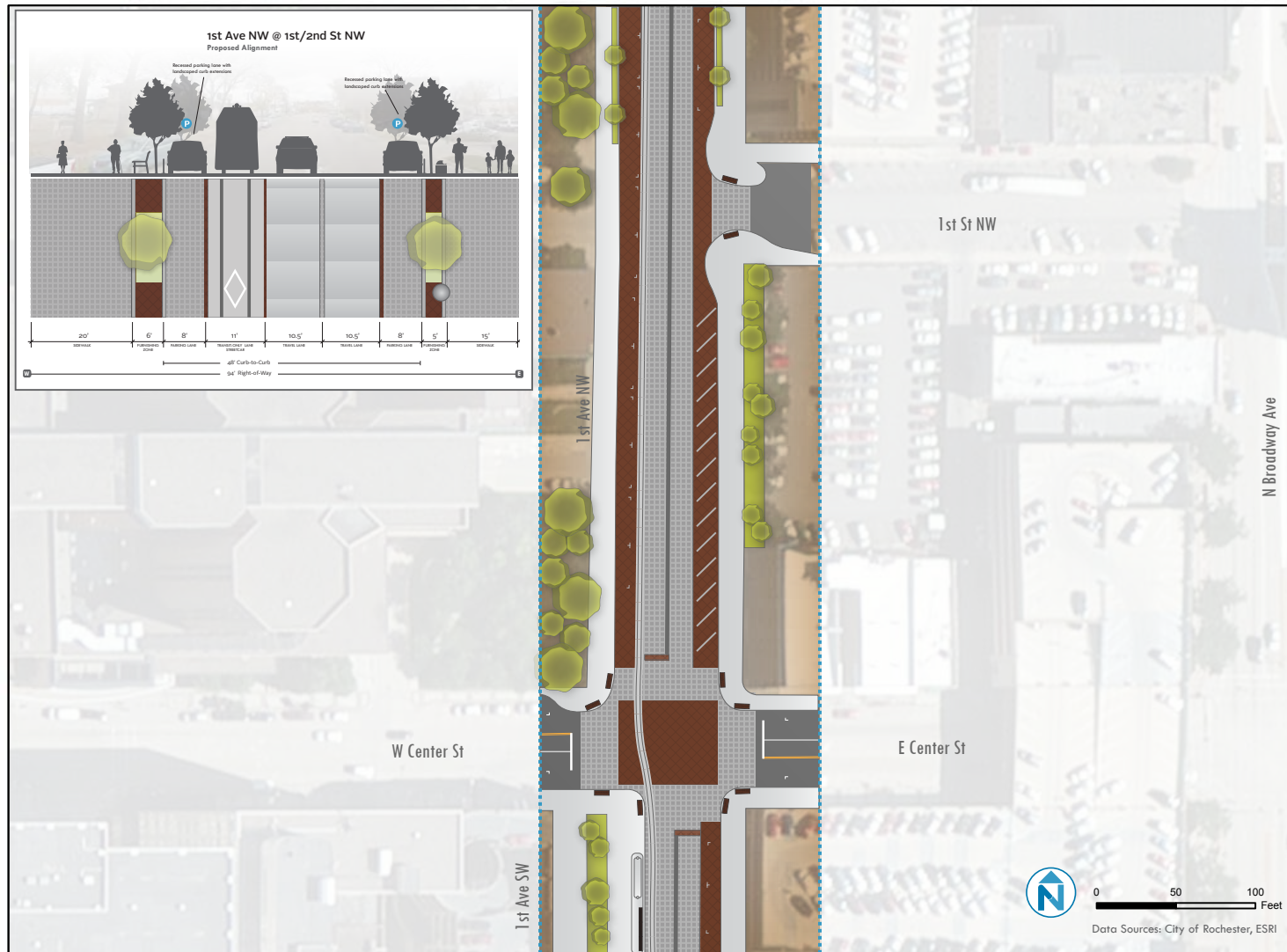
Note: Project cost estimates do not account for transit improvements.

** Cost covered under non-transit streets in Section 9.0.*

SHARED STREET IMPROVEMENTS: 1ST AVENUE NW/SW, 2ND AVENUE SW, 1ST STREET NE, NEW WATERFRONT STREET (CIVIC CENTER NE TO CENTER STREET)

OPERATING CONCEPT AT 7TH/8TH STREET SW

The existing and proposed cross sections of 1st Avenue NW are presented to the left and plan view illustrations of the recommended street investments are shown below. Although this project integrates streetcar in the cross section, the design reflects the aesthetic elements of all shared street projects. Paver materials and the elimination of pavement markings help to reinforce a slow speed environment. Curb extensions will be flush with the travelway, but will be indicated by different paver textures to reinforce dedicated pedestrian spaces. This shared street will create a unique, direct, and highly engaging pedestrian experience connecting people between the Transit Terrace in the Central Station sub-district and the UMR campus to the south.



PROJECT AND PROJECT CODE		Catalytic Investment	Development Integration	Tied to Transit Investment
S1.1	Broadway Enhancements (4th Street SE to Center Street)	●	-	-
S1.2	Broadway Corridor and Gateway Enhancements (12th Street SE to 7th Street NE	◐	-	-
S1.3	1st Street SW Shared Street (Broadway to 1st Ave SE)	●	●HC	-
S2.1	2nd Street SW Transit Street (14th Avenue to Civic Center Drive)	●	-	●
S2.2	3rd Avenue SE bridge reconstruction (at Civic Center Drive)	◐	-	●
S2.3	Saint Marys Place Modified Rotary + 9th/11th Avenue Realignment	●	●SM	●
S2.4	2nd Street SW Plaza at the Heart of the City (3rd Avenue to Broadway)	◐	●HC	◐
S2.5	2nd Avenue SW Shared Street (2nd Street SW to 4th Street SW)	-	●DS	-
S2.6	Civic Center Drive Civic Street and Pedestrian Enhancements (Center Street to 2nd Street SW)	-	●DW	-
S2.7	1st Ave SE/NE (2nd St SE to 2nd Street NE)	-	●DW	-
S2.8	1st St SE (Civic Center Dr to 2nd Ave SE)	-	●DW	-
S2.9	New Waterfront Street (Civic Center NE to Center St)	◐	●DW	-
S3.1	Civic Center N Enhancements and Urban Grid Improvements	●	●CS	-
S3.2	1st Ave NW (3rd St NW to 2nd St SW)	-	●CS	-
S3.3	Cultural Crescent	◐	●DW	-
S4.1	6th Street SE (Zumbro River to 3rd Ave SE)	-	●BC	●
S4.2	6th Street SW Bridge (at Zumbro River)	-	-	●
S4.3	1st Ave NW (3rd St NW to 2nd St SW; Phase 2)	-	-	●
S4.4	1st Ave SW (2nd St SW to 6th St SW)	-	-	●
S4.5	6th Street (Zumbro River to 4th Ave SW)	-	-	●
S4.6	3rd Ave NW/SW Transit Only Lanes (Phase 2)	-	-	●
S4.7	East Shuttle Lot #35/ South Warehouse Property New Street Connection	-	●BC	-

FIGURE 7.5-26 - PROJECT IMPLEMENTATION RATIONALE

Development Integration Legend

- = Fully achieves implementation rationale
- ◐ = Partially achieves implementation rationale
- = Does not achieve the implementation rationale

HC= Heart of City
DS= Discovery Square
SM = Saint Marys Place
CS = Central Station
BC = Barcelona Corner

7.5.3.3 IMPLEMENTING DMC STREET INVESTMENT PRIORITIES

Projects recommended as part of the DMC streets investment framework were developed and prioritized based on the level of support of key investment outcomes, including:

- Is this a catalytic project that supports or spurs broader economic development efforts?
- Does the street project tie into planned development in the DMC sub-districts?
- Does the street project support recommended transit investments and therefore increase access during the peak period to the DMC Development District?

Figure 7.5-26 shows each street investment and to what degree it achieves the various project implementation rationale listed above.

7.5.3.4 INTELLIGENT TRANSPORTATION SYSTEMS AND TRANSPORTATION SYSTEM MANAGEMENT

Transportation system management (TSM) is an approach to congestion management, transportation system efficiency, and travel time optimization that utilizes technology to more effectively move people and their vehicles within existing roadway constraints and through intersections, where most urban congestions occurs. A number of TSM measures are available for use in downtown Rochester and at the DMC Development Districts portals, but three have been identified for DMC investment. These investments tie into the broader DMC access strategy (Section 7.5.1) by better utilizing the entire transportation network (rather than focusing automobile traffic on a small number of work horse arterials like Broadway and 2nd Street SW). This enables street space to be reallocated for person access via transit and for improvements to the public realm.

Several intelligent transportation system (ITS)¹ features are recommended for implementation in the DMC Development District, including:

- **Traffic signal optimization.** Traffic signals will be upgraded to coordinate signal timing throughout the Development District so that green light time can be maximized. Signal optimization will be dynamically managed to use real-time traffic data to adapt signal timing.
- **Dynamic travel time message signs.** Dynamic travel route and time messaging will be displayed at downtown portals on Broadway and at the egress points out of the proposed Central Station parking ramps. Digital message display boards are intended to demonstrate travel time tradeoffs of route alternatives. This is critical to spread through travel demand on Broadway to other north-south alternatives (i.e., W Circle Drive and TH-52) as well as spreading TH-52-bound travel demand away from Civic Center Drive NW to 7th Street NW and Elton Hills Drive NW.
- **Real-time parking wayfinding.** As much as 10-15% of downtown traffic can be attributed to search-for-parking traffic. Vehicular and parking wayfinding that displays real-time parking utilization information is recommended to combat this element of downtown congestion and free additional roadway capacity for transit and pedestrian improvements. This will effectively guide downtown patrons, visitors, and patients to parking facilities, thereby reducing motor vehicle circulation. More information on parking and vehicular wayfinding is provided in Section 7.5.1 and 7.5.5.



Traffic signal optimization at 17 key downtown signals in Portland, OR maximizes green light times and adjusts signal cycle times based on changing demands during peak times. This improves the efficiency of moving people through intersections in downtown Portland.

Image from Flickr user AaronHockley



An example of a dynamic message sign in Salt Lake City, UT.

Image from Daktronics



The various levels of dynamic parking wayfinding: at downtown portals, on downtown streets, and in parking facilities.

Image from Swarco

¹ ITS is a technological approach to traffic management that provides better information to multimodal users and/or effectively senses users to better move traffic. ITS enables safer, more coordinated, and smarter use of the transportation network.

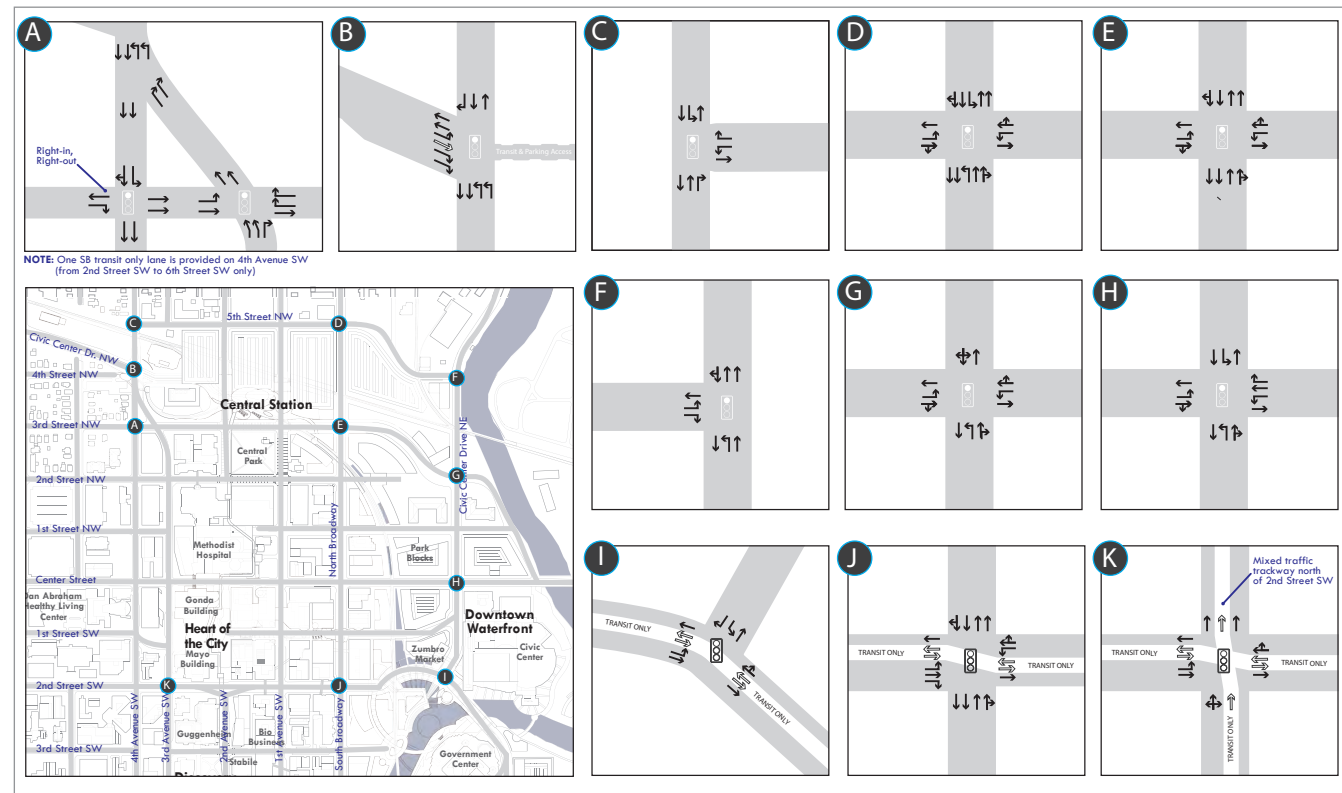


FIGURE 7.5-27 - PROPOSED TURN LANE CONFIGURATIONS

7.5.3.5 DISTRICT TRAFFIC ANALYSIS

The key determinants of automobile traffic are synonymous with the conditions in economically thriving downtowns. In some ways, a congested downtown is a downtown that is economically productive. Employees must travel to work, the goods and services they produce and consume require delivery, and travel for recreation and shopping must occur to ensure a community is active and attractive for sustained growth. In fact, all successful cities have traffic congestion. The most successful downtowns, especially those that are experiencing rapid growth and investment, simply locate their inevitable congestion in places where it has the least impact on local economic development and quality of life. Successful downtowns leverage their congestion in such a way that it actually attracts more growth. For example, traffic is encouraged in business districts because slow moving traffic promotes business visibility and improves pedestrian safety and comfort.

A number of evaluation tools are available to measure the impact of changes to the street network including measuring impacts to person throughput, person delay, and the quality of the pedestrian and bicycle environment as well as transit service. One of the tools employed for the traffic analysis was intersection level of service (LOS) and operational analysis that measures the average delay per vehicle at an intersection, ranging from A (representing almost no delay) to F (representing significant delay). The analysis incorporated all assumptions for growth, peak period commute mode share, future parking supply allocation, and modifications to the street network and its underlying shifts in lane configuration (illustrated previously in Figure 7.5-23 and Figure 7.5-24). The proposed turn lane assumptions are presented in Figure 7.5-27.

While the DMC investments seek to accommodate the immense escalation in travel demand stemming from DMC growth, the Development District will still sustain increased intersection delay during peak travel periods. However, all intersections will operate at acceptable levels for an urban downtown environment. The reconfigured intersection at Civic Center Drive/4th Avenue NW/3rd Avenue NW (and surrounding changes in the Central Station sub-district) will see the greatest impact on average intersection traffic delay. This is largely due to the increase in parking supply in the Central Station sub-district (and its corresponding demand for access). However, even with the increase in delay, the intersection is expected to operate near capacity. A summary of intersection LOS between current year and 2035 network is presented in Figure 7.5-28 and Figure 7.5-29.

Shifting passengers to other modes makes effective use of existing infrastructure and can be much more cost effective than expensive roadway capacity expansion projects designed to mitigate conditions that only occur during one or two hours of the day. The emphasis on shared parking, transit access, residential growth, transportation system management, and a park-once downtown environment all contribute to the viability of the DMC Development District street network. Traffic will continue to move in the Development District, albeit at a pace that is more appropriate for an economically productive and thriving downtown community and medical destination.

The ability of the proposed DMC Development District street network to carry projected traffic levels is validation of the Access and Parking Strategy's efficacy, (see Section 7.5.1 for more information). More detail on the traffic analysis assumptions and results is provided in Appendix 9.



FIGURE 7.5-28 - EXISTING AND FUTURE (2040) AM PEAK INTERSECTION LEVEL OF SERVICE



FIGURE 7.5-29 - EXISTING AND FUTURE (2040) PM PEAK INTERSECTION LEVEL OF SERVICE

PROJECT AND PROJECT CODE		CAPITAL COST ESTIMATE (2014\$)	ESCALATED COSTS
S1.1	Broadway Enhancements (4th Street SE to Center Street) ¹	\$4.0 million	\$4.2 million
S1.2	Broadway Corridor and Gateway Enhancements (12th Street SE to 7th Street NE) ¹	\$3.75 million	\$3.9 million
S1.3	1st Street SW Shared Street (Broadway to 1st Ave SE) ²	\$0.75 million	\$0.79 million
S2.1	2nd Street SW Transit Street (14th Avenue to Civic Center Drive) ¹	\$13.0 million	\$15.5 million
S2.2	3rd Avenue SE bridge reconstruction (at Civic Center Drive) ¹	\$12.0 million	\$14.3 million
S2.3	Saint Marys Place Modified Rotary + 9th/11th Avenue Realignment ¹	\$7.0 million	\$8.3 million
S2.4	2nd Street SW Plaza at the Heart of the City (3rd Avenue to Broadway) ¹	\$6.0 million	\$7.1 million
S2.5	2nd Avenue SW Shared Street (2nd Street SW to 4th Street SW) ²	\$2.25 million	\$2.7 million
S2.6	Civic Center Drive Civic Street and Pedestrian Enhancements (Center Street to 2nd Street SW) ²	\$2.25 million	\$2.7 million
S2.7	1st Ave SE/NE (2nd St SE to 2nd Street NE) ³	\$0.5 million	\$0.6 million
S2.8	1st St SE (Civic Center Dr to 2nd Ave SE) ²	\$0.75 million	\$0.9 million
S2.9	New Waterfront Street (Civic Center NE to Center St) ¹	\$1.5 million	\$1.8 million
S3.1	Civic Center N Enhancements and Urban Grid Improvements ²	\$8.0 million	\$10.8 million
S3.2	1st Ave NW (3rd St NW to 2nd St SW) ¹	\$3.0 million	\$4.0 million
S3.3	Cultural Crescent ⁴	\$34.0 million	\$45.8 million
S4.1	6th Street SE (Zumbro River to 3rd Ave SE) ¹	\$2.25 million	\$3.4 million
S4.2	6th Street SW Bridge (at Zumbro River) ¹	\$6.0 million	\$9.1 million
S4.3	1st Ave NW (3rd St NW to 2nd St SW; Phase 2) ¹	\$0.08 million	\$1.2 million
S4.4	1st Ave SW (2nd St SW to 6th St SW) ¹	\$3.0 million	\$4.6 million
S4.5	6th Street (Zumbro River to 4th Ave SW) ¹	\$3.0 million	\$4.6 million
S4.6	3rd Ave NW/SW Transit Only Lanes (Phase 2) ¹	\$6.75 million	\$10.3 million
S4.7	East Shuttle Lot #35/ South Warehouse Property New Street Connection ¹	\$2.0 million	\$3.1 million
TOTAL		\$121.8 million	\$159.7 million

FIGURE 7.5-30 - ESTIMATED CAPITAL COSTS FOR STREETS INVESTMENTS

¹ Cost covered as a Transit Street and Bridge cost in Section 9.0.

² Cost covered as a Non-Transit Street cost in Section 9.0.

³ Cost covered as a Parcel Development cost in Section 9.0.

⁴ Cost covered as a Public Space cost in Section 9.0.

7.5.3.6 PROJECTED CAPITAL COSTS

Figure 7.5-30 summarizes the estimated capital costs for all streets investments. Total estimated capital costs for DMC streets investments over the next 20 years amount to \$121.8 million in 2014 dollars and \$159.7 million when accounting for cost escalations. While this is a significant investment, it is relatively cost effective compared to a potential costs if roadway capacity was increased through street widening projects. Section 8.3.4 summarizes the recommended phasing for streets investments and the recommended funding source allocation for each project.



This conceptual rendering of 4th Avenue SW illustrates the quality of the public realm that the City Loop promises to create. The proposed Nice Ride bike share system will be woven into the City Loop network, offering on-demand access to bicycles. The City Loop's unique, high quality design and distinctive materials will signal to people walking in downtown that they are in a special linear park. When you are on it, you know it. And when you know you are on the Loop, you know you can secure a bicycle in no time.

Image from Nelson\Nygaard

7.5.4 ACTIVE TRANSPORTATION INVESTMENT STRATEGY

Visualize any great urban place in America: The National Mall in Washington, D.C., Pike Place Market in Seattle, WA, or Times Square in New York City. What does each of these places share in common? They are all great places to walk and linger, experience new sites, and spend money in local shops and eateries. People travel across the world to experience these unique places. Great destinations are inherently great pedestrian places. An essential ingredient to any great urban space is the ability to move around freely and easily on foot. Whether it's a vibrant shopping district or downtown residential area, places designed for walking will thrive. This is why walkability—a catchall term describing the overall comfort of walking and the ability to reach many destinations by foot quickly—is a critical measure of success for the DMC Development District. Likewise, the conditions that make a place walkable are also the conditions that make a place comfortable and easy to ride a bike.

The DMC Active Transportation Investment Strategy recommends strategic investments that will further the walkability of downtown Rochester and support the economic and placemaking objectives of the DMC Development District. As the number of jobs, residents, and visitation increases in the Development District, the preponderance of trips in downtown will be on foot, and demand for pedestrian and bicycle circulation will increase. The Active Transportation Investment Strategy responds to these growth pressures with investment and policy recommendations that are critical to ensure downtown is supported by attractive mobility and recreation amenities. This strategy recommends:

- The City Loop—a world-class urban trail
- A Nice Ride MN bike share system
- Requirements for end-of-trip facilities in newly constructed or renovated buildings

The Active Transportation Investment Strategy supports the City's planned bicycle network, including the bikeway network proposed in the Rochester Downtown Master Plan. Street investments recommended in Section 7.5.2 will emphasize street designs that place pedestrians first, ensuring walking on the street is safe, comfortable, and interesting. This strategy focuses on a few highly beneficial active transportation investments that will provide a unique visual, cultural, social, and environmental experience for residents and visitors alike—strengthening the local economy and giving Rochester a competitive advantage over other cities throughout the nation. These investments can also attract a highly talented workforce, making the area a more desirable place for employers to locate.

WHY INVEST IN ACTIVE TRANSPORTATION?

While myriad community benefits will be yielded from active transportation investments (including health, environmental, and social benefits), key reasons DMC proposes investment in active transportation and walkability include:

CHANGING DEMOGRAPHICS AND TRAVEL PREFERENCES

Transportation preferences are changing among Americans: older Americans are seeking to age in place in amenity-filled neighborhoods, while a new generation of young Americans are less attracted to cars. Marketing

the shift in transportation preferences to the workforce of the future will be critical to attract top talent to fill the massive increase in jobs in the DMC District. Rochester will need to provide amenities that the new generation is coming to expect in other cities—walkable environments, on- and off-street. Millennials make up a sizeable portion of this new paradigm. This generation expects new and diverse shared mobility options. Mobile technologies have changed how people connect with their peers, how and where they choose to live, how they work, and consequently how they travel. “Staying connected” with online communities often outweighs the personal mobility of a private automobile. Millennials – and other generations – value transportation options because it allows them the luxury of working while in transit, staying connected with peers, relaxing, or exercising.

Compared to their parents’ generation, Millennials are:

- **Purchasing fewer cars.** From 2007 to 2011, the number of cars purchased by 18 to 34- year-olds fell almost 30 percent.¹
- **Driving less.** People aged 18 to 34 drove 23 percent fewer miles in 2009 than in 2001.²
- **Not obtaining their driver’s licenses.** The number of young people with a driver’s license is on the decline. According to the Federal Highway Administration, from 2000 to 2010, the share of 14 to 34-year-olds without a driver’s license increased from 21 percent to 26 percent.³
- **Biking, walking, and taking transit more.** Millennials use transit, bicycling, and walking more than young people have in the past two decades.⁴ From 2001-2006 bike trips increased by 24 percent among 16-34 year olds.⁵

There is a significant opportunity to ensure that the Millennial generation continues to use transportation options through all stages of life – as they raise their families, need more space, change jobs, and grow older. Maintaining the use of transportation options will require diverse transportation offerings and innovation in safety measures for non-motorized transportation to continue supporting these activities.

ACTIVE, WALKABLE AND BIKEABLE URBAN NEIGHBORHOODS ATTRACT A TALENTED WORKFORCE

The DMC is challenged by a growing workforce. DMC-related growth will generate roughly 35,000 new jobs. Filling this labor surplus while backfilling the outflow of retiring Baby Boomers will require an attractive marketing pitch that speaks to the next generation of workforce talent. Cities around North America and worldwide recognize that a strong economy attracting a young, diverse, and well-educated workforce requires walkable urban neighborhoods. Cities with appealing non-motorized transportation options and urban recreation amenities are especially attractive to Millennials (the 18 to 30 age cohort), who prize access to a variety of mobility options. It is logical that innovative businesses should want to be located in areas where

¹ American Public Transportation Association. “Millennials & Mobility: Understanding the Millennial Mindset.” <http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>

² Ibid.

³ Federal Highway Administration, Highway Statistics 2010—Table DL-20, September 2011.

⁴ American Public Transportation Association. “Millennials & Mobility: Understanding the Millennial Mindset.” <http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>

⁵ U.S. PIRG. “A New Direction.” 2013. <http://uspig.org/sites/pirg/files/reports/A%20New%20Direction%20vUS.pdf>.

THE MILLENNIALS ARE TRAVELING DIFFERENTLY

From 2001-2009 those aged 16 to 34 took:

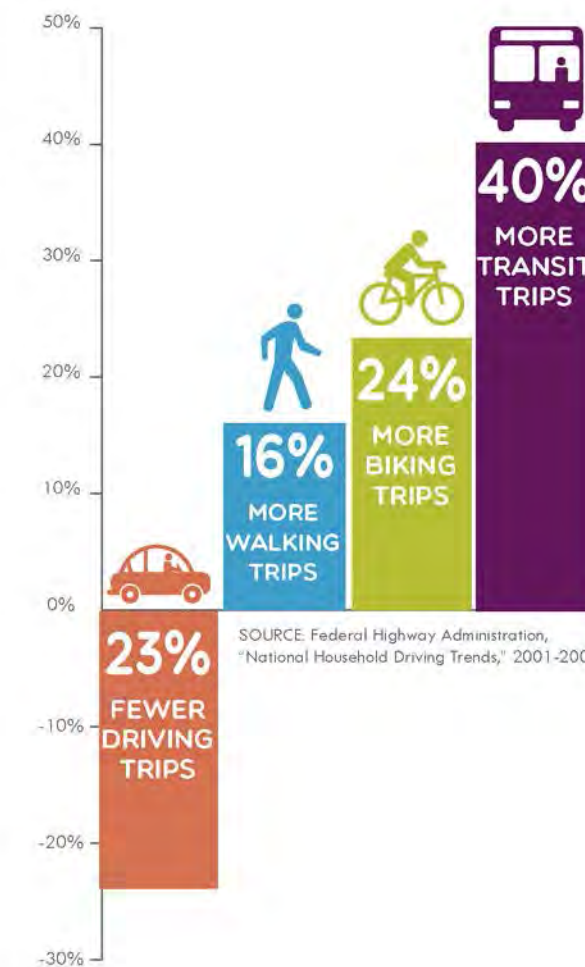


FIGURE 7.5-31 - MILLENNIAL GENERATION’S TRAVEL PREFERENCES



Washington, DC's Barracks Row was experiencing a steady decline of commercial activity due to uninviting sidewalks, lack of streetlights, and speeding traffic. Design improvements along the three-quarter mile corridor, including new patterned sidewalks and traffic signals, helped attract 44 new businesses and 200 new jobs, along with increases in sales and foot traffic. Economic activity on the strip (measured by sales, employees, and number of pedestrians) has more than tripled since the project was completed.

Image from Ser Amantio di Nicolao

people want to live. As an example, Amazon's decision to locate in downtown Seattle is indicative of a changing paradigm in business strategy. Amazon realized that unique urban areas, connected with infrastructure to support walking, biking and transit, help attract the best talent. The success of the company is owed not merely to the services they deliver, but also to their sound strategy to locate themselves in a place where people want to live and work without having to commute long distances in a private car.

Millennials currently comprise nearly a quarter of the US workforce and this figure is expected to rise to approximately 75 percent by 2025. Sixty-two percent of Millennials want to live in creative urban areas and mixed-use communities.⁶ If businesses want to continue to attract talented young professionals, they must compete for them. By creating an environment that young professionals will gravitate toward—a downtown with a variety of mobility options—the city of Rochester will be poised to capitalize on new business ventures that will locate there. For DMC, the challenge is attracting employees in a competitive global market. The City Loop, proposed below, is one important tool to help the city prepare to meet the latent and future demand for active transportation options in response to changing demographics and travel preferences.

ACTIVE DOWNTOWN ENVIRONMENTS ARE ECONOMICALLY PRODUCTIVE

Savvy commercial business owners and developers recognize that being located on a street that people enjoy walking on yields higher sales and rental income. A study of various places in Washington DC conducted by the Brookings Institute found an 80 percent increase in retail sales in walkable commercial areas.⁷ In Brooklyn, NY a recent overhaul of the pedestrian environment to be more comfortable for pedestrians resulted in a 172% increase in sales—a 14 percent increase for providing sidewalk seating alone.⁸

People traveling by active transportation modes such as walking and biking tend to spend more than people arriving by car. A 2012 study found that Portland, OR residents who travel regularly by bicycle, transit, or walking visit restaurants, drinking establishments, and convenience stores more frequently.⁹ These consumers spend more per month on average than their counterparts who drive. These findings support previously stated research that found that those who bike, walk, and take transit are likely to reinvest the money saved into the local economy. The proximity of the business to transit, the presence of bike infrastructure, and the amount of parking (for both automobiles and bikes) are important for determining how their customers arrived.

As a result of their findings on the positive benefits of walkability, the Brookings Institute provided the following recommendations:

- Lenders should find cause to integrate walkability into their underwriting standards.
- Developers and investors should consider walkability when assessing prospects for the region and acquiring property.

⁶ The Nielsen Company, "Millennials-Breaking the Myths" 2014.

⁷ Christopher B. Leinberger and Mariela Alfonzo, "Walk this Way: The Economic Promise of Walkable Places in Metropolitan Washington, D.C." Brookings Institute Metropolitan Policy Program, May 2012.

⁸ Todd Alexander Litman, "Economic Value of Walkability" Victoria Transport Policy Institute (VTPI), March 2014.

⁹ Clifton, Kelly J., et al. "Consumer Behavior and Travel Mode Choices." Oregon Transportation Research Consortium (OTREC), November 2012.

- Local and regional planning agencies should incorporate assessments of walkability into their strategic economic development plans and eliminate barriers to walkable development.
- Private foundations and government agencies that provide funding to further sustainability practices should consider walkability (especially as it relates to social equity) when allocating funds and incorporate such measures into their accountability standards.

ACTIVETRANSPORTATION IS A CRITICAL ELEMENT OF THE DMC'S DOWNTOWN RESIDENTIAL STRATEGY

The DMC development program envisions a well-established residential neighborhood in the Downtown Waterfront sub-district. Supplementing this residential growth with additional residential development in the Heart of the City, Saint Marys Place, and Central Station sub-districts, the DMC is projected to create almost 3,000 units in new residential supply. These new neighborhoods will need to be furnished with downtown living infrastructure like great streets and recreational amenities that tie residents to jobs, retail, services, entertainment, and parks and open space.

The DMC Development Plan recognizes the importance of Rochester's three-level pedestrian system, including streets, skyways, and subways. Walking on all three levels will continue to play an important role in moving people within the DMC Development District. Linking the levels with on-street pedestrian and bicycle improvements will further enhance the above and below grade connections.

Research over the past decade strongly indicates an increasing preference for living in walkable urban neighborhoods. These places provide residents with many amenities and services right outside the front door. As a result, residential areas within close walking and biking distance of daily goods and services have higher home values, a 1-11% premium on average,¹⁰ or an \$82 per square foot premium in housing values.¹¹

Currently, 62% of Americans prefer developments offering a mix of shopping, dining, and office space, while 76% place high value on walkability in communities and 51% prefer having public transportation options.¹² Two-thirds of new home buyers factor in the level of walkability into their potential home purchase.¹³

Designing a highly walkable downtown core will offer housing where there is currently high demand and low supply. Developers understand the relationship between walkability and development potential and are looking for opportunities to capitalize on individual's desire to live in denser urban neighborhoods. Statements such as, "There is a growing awareness that walking and cycling, whether for recreation or commuting, forms a vital part of a healthy lifestyle" and "Walkability is everything for us. A great apartment site has to be in a walkable neighborhood and near good mass transit" are increasingly common to hear from developers.¹⁴

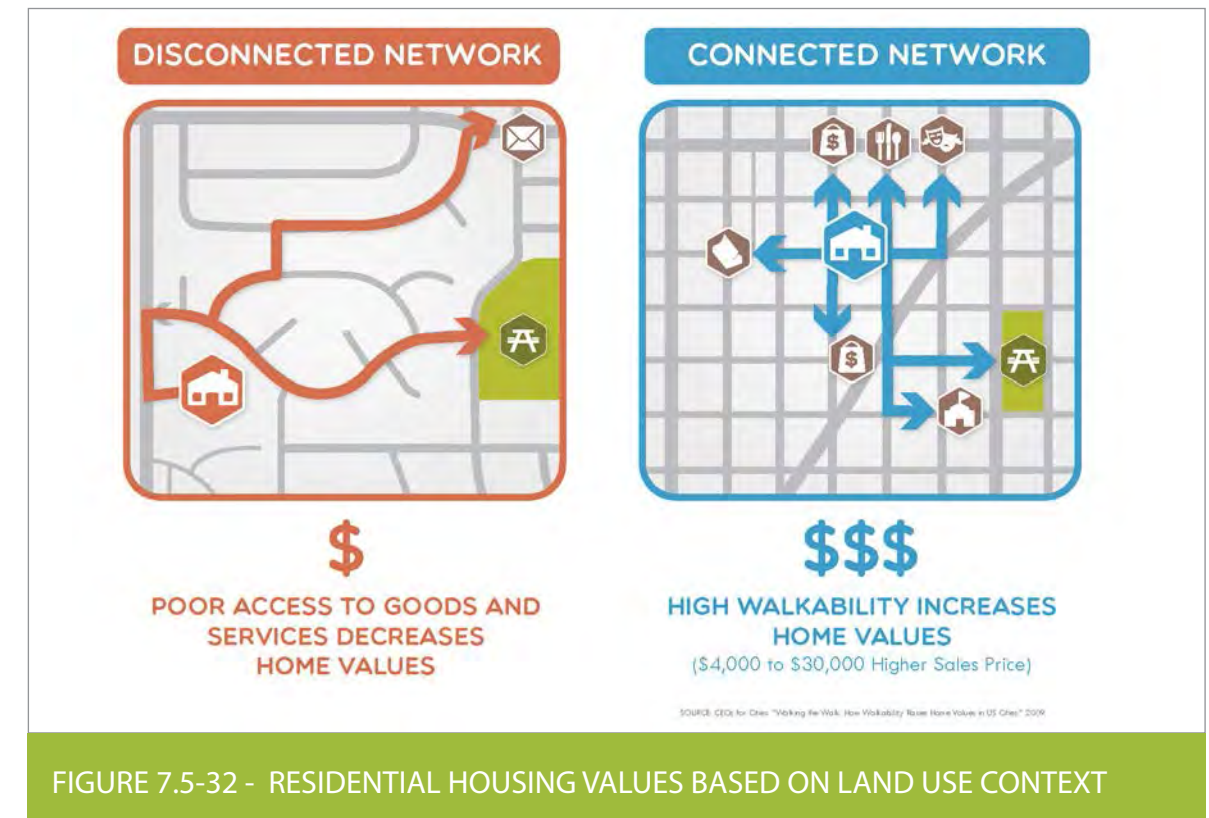
¹⁰ CEOs for Cities. Walking the Walk: How Walkability Raises Home Values in US Cities (2009).

¹¹ Christopher B. Leinberger and Mariela Alfonzo, "Walk this Way: The Economic Promise of Walkable Places in Metropolitan Washington, D.C." Brookings Institute Metropolitan Policy Program, May 2012.

¹² Belden Russonello Strategists LLC and the Urban Land Institute, "America in 2013: A ULI Survey of Views on Housing, Transportation and Community" Urban Land Institute, March 2013.

¹³ National Association of Realtors, "The 2011 Community Preference Survey: What Americans are Looking for When Deciding Where to Live," Washington, 2011. Available at <http://www.realtor.org/research>.

¹⁴ Sarah Jo Peterson, "Dialogue: How are Developers Accommodating Walking and Bicycling" Urban Land Institute, March 2014. Available at <http://urbanland.uli.org/infrastructure-transit/dialogue-developers-responding-increased-demand-walking-cycling>





ROCOG Population and Employment Projections (2014) estimate that aging populations will increase by 189% between 2010 and 2040. The Development District should accommodate the mobility needs of this user group and ensure they can continue to live active, healthy and engaging lives.

Image from Nelson\Nygaard

The desire to create these opportunities is so great that the City of Indianapolis experienced “Developers purchasing and developing land adjacent to the greenway [Indianapolis Cultural Trail] long before its completion, both in stable

neighborhoods as well as those with multiple abandoned or vacant properties.” Over the course of three years the city saw \$36.4 million in residential building permits and half that amount in commercial building permits—all within a half-mile of the Cultural Trail.¹⁵ To be successful, the DMC’s residential development requires streets and public spaces that attract walking and bicycling activity.

DOWNTOWN ROCHESTER WILL CONTINUE TO AGE AND ATTRACT PEOPLE WITH MOBILITY IMPAIRMENTS

Accommodating the needs of Mayo patients who have special mobility needs and seniors who live in downtown now and in the future will be critical to ensure all people moving in the Development District are accommodated. Developing streets, subways, and skyways that are fully accessible will be an important marketing element that contributes to the positive experience of the Integrated Care model. As visitation increases threefold over the next 20 years, a significant portion of these visitors will arrive in the DMC Development District with some physical, visual, or cognitive impairment that may challenge their ability to move within the District. It is critical that the transportation system is not only walkable, but also rollable and traversable by people of all abilities. The basic need for universal accessibility is inherent in every recommended DMC street design and transit improvement.

HOW WILL DMC ACTIVE TRANSPORTATION INVESTMENTS SUPPORT THE CITYWIDE VISION FOR BICYCLE TRAVEL?

Establishing a dense network of bikeways that connects people to the places they need to access is a critical element of a multimodal transportation network. Active transportation investments are increasingly becoming an essential element to creating vibrant neighborhoods, attracting and retaining a talented workforce, and diversifying local economies. Recent media attention between Rahm Emanuel, Mayor of Chicago, and Mike McGinn, former Mayor of Seattle, expounding on their intent to build protected bikeways to steal the best and brightest workers in America showcases how valuable bikeway investments have become.

The DMC Transportation Plan identifies the investments that will both meet the DMC’s economic development goals and achieve the eight Core Areas of the DMC. As such, the Active Transportation Investment Strategy recommends strategic investments that will both spur economic development and create comfortable spaces for people to walk and bike. Furthermore, the Active Transportation Investment Strategy is consistent with the the adopted 2012 ROCOG Bicycle Master Plan, and, while the planned location for improvements and investments have advanced under the DMC strategy, the principals are the same which envision bikeway connectivity and increased bicycle travel in Rochester. In many cases, the recommended DMC active transportation investments serve as backbone facilities that will spur greater interest in bicycle travel and generate the demand to build out the planned citywide bikeway network. In fact, the City Loop urban trail proposed in Section 7.5.4.1 is an

¹⁵ Partnership for Sustainable Communities, “Indianapolis Cultural Trail: Improving Livability in Central Indiana” June 103.

upgraded vision of downtown bicycle connectivity that will help realize the ROCOG Bicycle Master Plan's goals. The linkages between the DMC's active transportation investments and ROCOG planned bikeway improvements will be further refined and integrated during Rochester's Comprehensive Plan Update process. The result will be a citywide bikeway network that provides comfortable and safe bicycle access to downtown Rochester and facilities that ensure continued comfort while bicycling in the DMC Development District.

7.5.4.1 ACTIVE TRANSPORTATION PRINCIPLES TO SERVE DOWNTOWN

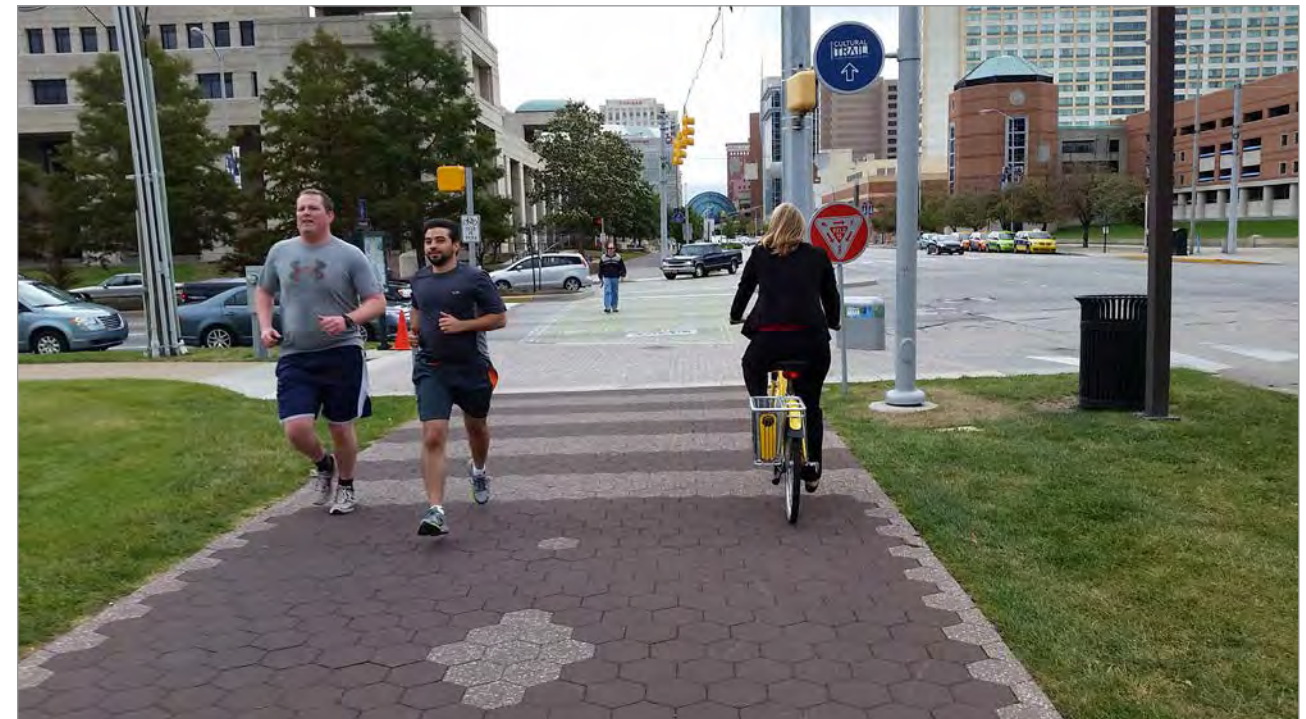
A set of core principles can help guide the efficient planning and design of downtown's roadways with the active transportation user in mind. These principles, first addressed in the Destination Medical Center Transportation Framework, enable streets to continue providing an access and circulation function for motorized traffic efficiently, but at speeds that are appropriate for a walkable and thriving downtown. The basic principles for active transportation street investments recommended in the DMC include:

- **Focus design on movement and access for people.** Thriving cities focus design on moving people efficiently using a balanced system of modes.
- **Create places for people to linger, relax, and enjoy a rich civic life.** The downtown street system forms the city's largest and most economically productive public space. Street designs should create opportunities for spontaneous connections, street side commerce, and vibrant retail places.
- **Design streets, skyways, and subways to accommodate users of all ages and abilities.** More than most U.S. cities, downtown Rochester has visitors with a wide range of mobility needs, disabilities, and mobility challenges.
- **Connect Rochester's three-level pedestrian system.** Each element of Rochester's subway, skyway, and sidewalk system serve an important function, but each could become more valuable and successful if they are connected using simple, visible, and interesting grade transitions.
- **Feature active transportation and recreation as a core element of the visitor/patient experience.** Active transportation investments are supportive of the strategic expansion of Mayo Clinic's healthy living programs and offer a significant amenity to those non-critical care patients, their companions, and other visitors to the city.

7.5.4.2 DEVELOP A WORLD-CLASS URBAN TRAIL AMENITY IN DOWNTOWN ROCHESTER—THE CITY LOOP TRAIL

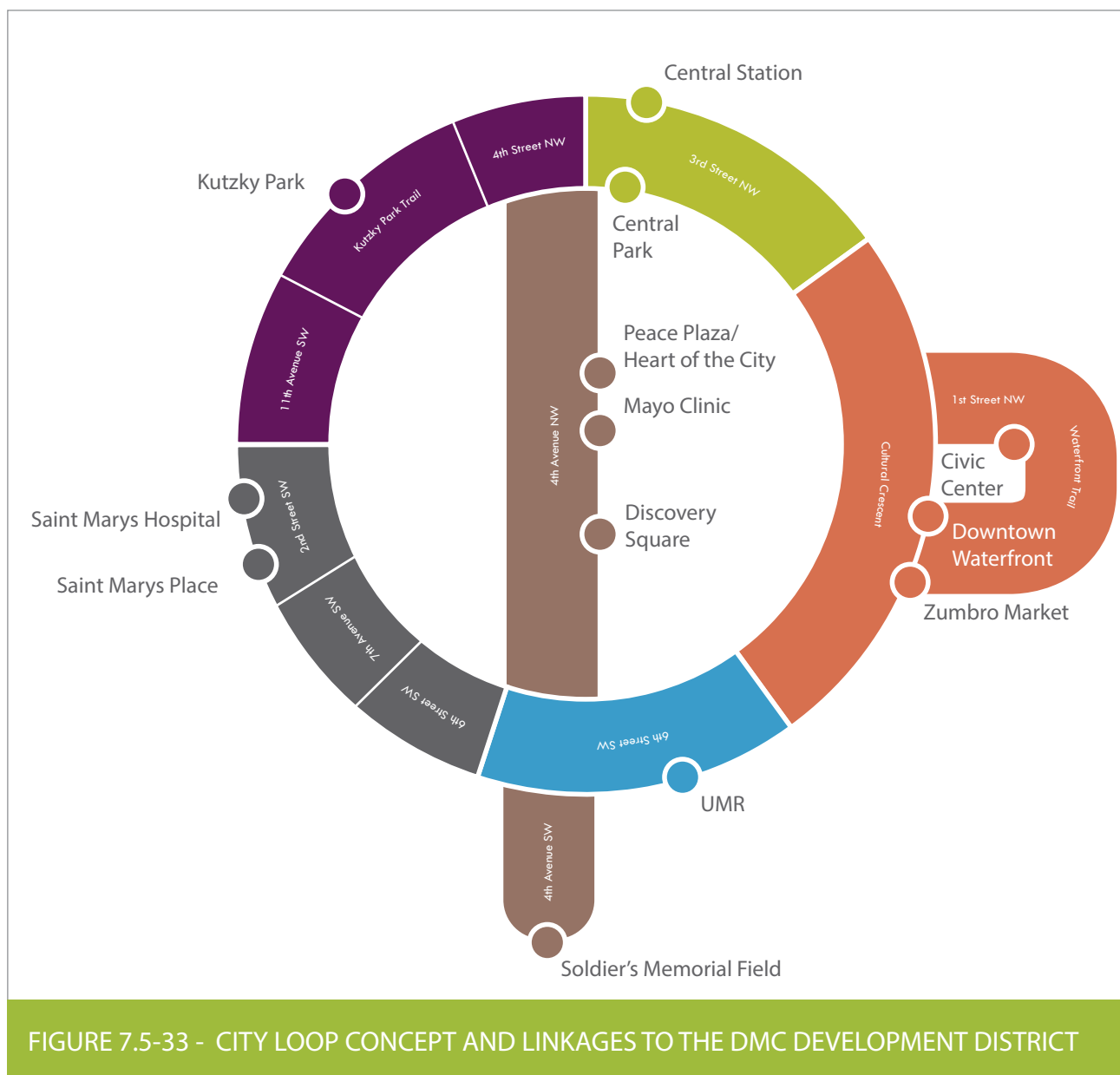
To better meet the transportation needs of current and future residents of Rochester, the DMC Transportation Plan recommends a world-class pedestrian and bicycle urban trail—the City Loop. Designed to put Rochester on the map for visitors from around the world, this facility will be a reason people want come to Rochester and help catalyze and organize land use development. The City Loop will create a safe, enjoyable, healthy way to move about the Development District to experience the sites, visit local shops, and dine in local restaurants and eateries. The City Loop will:

- Directly satisfy six of the eight DMC Core Areas, including Livable City, Retail & Dining; Sports, Recreation & Nature; Hotel & Hospitality; Health & Wellness; Entertainment, Arts and Culture, & Civic; and Transportation.
- Improve both the physical and mental health of employees, visitors, patients, and patient companions because people will want to travel the City Loop frequently and spend more time in the places it connects.



The Indianapolis Cultural Trail has revolutionized the way people move around Indianapolis, peaked interest in active recreation, and catalyzed a resurgent downtown real estate market.

Image from Nelson\Nygaard



- Act as a physical extension of the regional trail and open space system, seamlessly linking those resources with the core of downtown Rochester.
- Support Mayo Clinic strategic initiatives including the expansion of Sports Medicine, Executive Health, and the Healthy Living Program.
- Offer year-round transportation and recreation utility. During winter months, the City Loop could be maintained to allow for snow shoeing and cross country skiing.
- Provide pedestrian and bicycle connections to each DMC sub-district, linking visitors, residents, and workers to nature, culture, and entertainment—offering visitors of all ages, interests, and abilities the opportunity to recreate within steps of their hotel. Figure 7.5-33 illustrates how the City Loop connects to these areas.

The City Loop is one of the defining iconic investments that will prove its value long after DMC funding is fully expended. Not only will the City Loop provide an opportunity to better connect downtown’s amenities, destinations, and primary nodes, it will catalyze development along its alignment, offer visitors an attractive recreational and mobility option, and extend the City’s existing trail and open space systems into the downtown core. The City Loop will serve as a lasting legacy of the DMC initiative.

The City Loop will be the sum of three component parts. The main City Loop alignment will meander through the Downtown Waterfront, Central Station, Saint Marys Place, UMR and Recreation, and Heart of the City sub-districts using portions of the Cultural Crescent, 3rd/4th Street NW, the Kutzky Park Trail, 11th Avenue NW, 2nd Street SW, 7th Avenue SW, and 6th Street SW. This alignment will be supplemented by a short loop extension in the Downtown Waterfront sub-district called the Zumbro Passage, and a north-south City Loop Connector alignment on 4th Avenue NW/SW that links users between the Transit Terrace, Heart of the City, Discovery Square, and Soldier’s Memorial Field.¹⁶ Each of these segments will separate people walking and bicycling from people driving. This will distinctly benefit drivers as well, particularly given the number of people who are new to driving in the Development District.

When people travel along the City Loop it will feel different from other streets in Rochester. Unique textured pavement materials, landscaping, branding/wayfinding, and intersection treatments will all contribute to an exceptional walking and biking experience. This is an experience that has been established in some of the world’s great urban trails. The most successful model for this type of facility is the Indianapolis Cultural Trail which has been an unprecedented success. The economic impact of the Cultural Trail is presented in the call out box.

A CONNECTED URBAN TRAIL NETWORK WITH UNIQUE EXPERIENCES

The City Loop will act as a sidewalk circulator, providing six distinct user experiences as people walk, bike, and roll between each sub-district. It is the only investment that links each of the DMC sub-districts and ties them to the rest of the community. It will ensure DMC investments will benefit visitors, downtown employees, and the broader community. Imagine families, seniors, and individuals alike traveling sustainably and healthfully downtown to experience Thursday’s on First, go to the library, dine, shop, and enjoy programming in the Heart

¹⁶ Each of these segments would be designed in detail as part of a corridor plan, district refinement plan, or trail concept plan. Each could change based on that further stage of refinement.

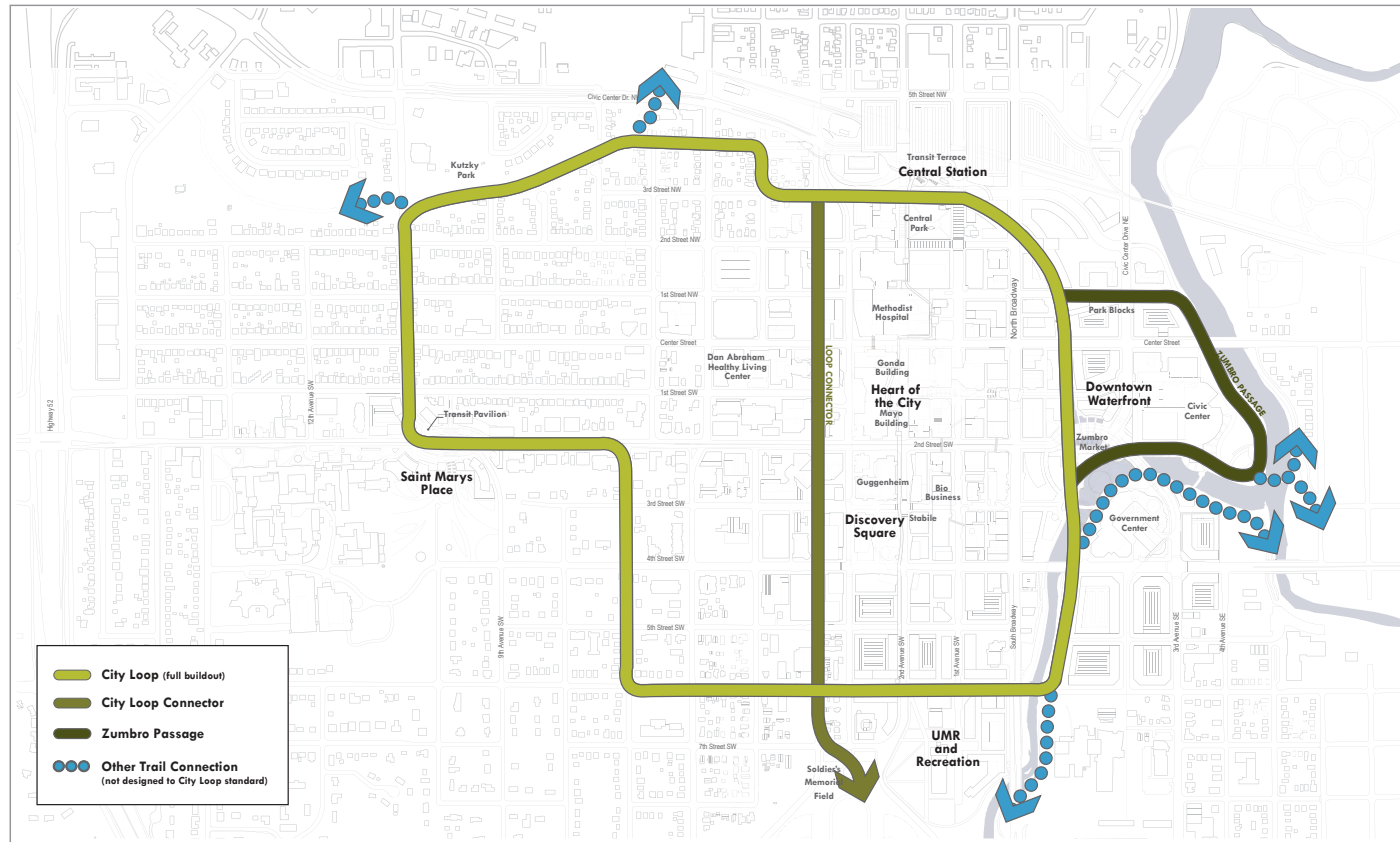


FIGURE 7.5-34 - CITY LOOP ALIGNMENT AT FINAL BUILDOUT

of the City. This is the vision the City Loop investment is poised to realize.

Each route on the City Loop concept map displayed in Figure 7.5-35 has a different color to signify the unique land use and destination context that will be experienced on that section of the Loop. Regardless of the City Loop segment, separation from the roadway will give people traveling on the facility a high level of comfort that will appeal to individuals of all ages and skill levels. Care will be taken to minimize conflicts at all intersections and driveways with proper signage, markings, and unique paver materials. The six City Loop experiences are described below.

What is the Economic Value of Urban Trails?: The Case of the Indianapolis Cultural Trail

Built in 2013, the Indianapolis Cultural Trail is an 8-mile, physically separated pedestrian and bicycle path and linear park connecting downtown Indianapolis' six cultural districts. This \$62.5 million interconnected trail network provides access to every major art, cultural, sporting, and entertainment destination in downtown, offering unprecedented access throughout the central city for those traveling on foot or by bicycle. Of the total capital investment, \$27.5 million was funded through private sources. No local funding was provided for the facility.

In just one year, more than 25 new businesses opened within five blocks of trail. The investment has been linked to 11,372 new jobs and \$864.5 million in estimated economic impact. Several mixed-use development projects have been completed along the trail, signaling a best practice in bicycle-oriented development. In 2013, the Project for Public Spaces recognized the Cultural Trail as the most transformative placemaking project in all of North America; the project garnered national and international recognition as one of the boldest urban trail projects.



The Indianapolis Cultrual Trail became a catalytic force that developers and employers seek to locate along. Locating along the "Trail" comes at a premium similar to other cities with development along waterfronts or iconic urban boulevards.

Image from Nelson\Nygaard

CENTRAL PARK AND TRANSIT TERRACE

The Central Park and Transit Terrace section of the City Loop is both a key linkage to the Central Station sub-district and a connection to Central Park. People using the trail will enjoy the sights of Central Park and the bustling activity of the Transit Terrace. Users will walk and bike on the south side of 3rd Street NW and can connect to the east-west segment of the streetcar, which will operate on a single track on the north side of the street.

CULTURAL CRESCENT/WATERFRONT

Traveling south from Central Park and the Transit Terrace, the route will provide a link to many key destinations, including new development in the Downtown Waterfront sub-district, the Mayo Civic Center, the Zumbro River, Mayo Memorial Park, Government Center, and Barcelona Corner.

A multi-use trail will be developed along the former Canadian Pacific rail right-of-way, offering an unmatched visual connection to the Zumbro River. Known as the Cultural Crescent, this trail, pedestrian way, and urban open space will serve both a transportation and recreation function. The trail will be fully grade separated from the adjacent roadway and will provide maximum safety and comfort for people walking, biking, rolling, and skating. The Cultural Crescent alignment will also offer an improved connection to Downtown Waterfront residential buildings and retail, as well as the Zumbro Market.

A separate experience is offered on the Zumbro Passage portion of the City Loop alignment. This offshoot to the west of the Cultural Crescent connects users to the Park Blocks residential neighborhood using 1st Street NE, a new waterfront street connection, and the existing portion of the Zumbro River Trail loop that circumvents the Mayo Civic Center. Users can enjoy the park-like setting and reconnect with Rochester's natural offerings. If they are looking to explore more recreational opportunities, users can use the pedestrian bridge to access the Zumbro North Trail, Bear Creek Trail, or the Silver Lake Trail to the north.

SOLDIER'S MEMORIAL FIELD AND THE UNIVERSITY

The Soldier's Memorial Field and University segment of the City Loop will consist of a grade-separated two-way bikeway with adjacent pedestrian walkway on 6th Street SW and on 4th Avenue SW, immediately south of 6th Street SW. Figure 7.5-36 illustrates the proposed cross section on 6th Street SW. People walking, rolling, and bicycling on this segment will experience a low-volume, low-stress street and have a direct link to one of Rochester's most iconic open spaces—Soldier's Memorial Field. Public art and interpretive design will signal to users that they are approaching one of Rochester's key cultural and historic landmarks. Users will also experience Rochester's new urban campus at the north end of the University of Minnesota-Rochester's (UMR) planned campus expansion.

City Loop will be accommodated on the south side of 6th Street SW. With the construction of a new bridge across the Zumbro River at 6th Street SW and Broadway, the City Loop facility will provide a direct connection to the South Zumbro Trail on the east side of the river. The western terminus of this segment will be at 4th Avenue NW where it will transition into the Saint Marys Place/Historic Pill Hill experience and the City Loop Connector.

SAINT MARYS PLACE AND HISTORIC PILL HILL

The Saint Marys Place and Historic Pill Hill segment of the City Loop transitions the trail user out of the commercial/urban environment into the slower paced residential neighborhood streets west of downtown. The facility is continued along 6th Street SW past 4th Avenue SW and veers right onto 7th Avenue SW before connecting with 2nd Street SW and Saint Marys Place. People begin to explore some of Rochester's most historic residential homes and are offered a unique walking route to Saint Marys Hospital, Saint Marys Park, the retail shops at the new Saint Marys Place development, and breathtaking public art and gateway features in the center of the Saint Marys Place modified rotary. Large footprint elevators at Saint Marys Place will allow trail users on bicycles or in wheelchairs to reach the park and enjoy the vista.

KUTZKY PARK

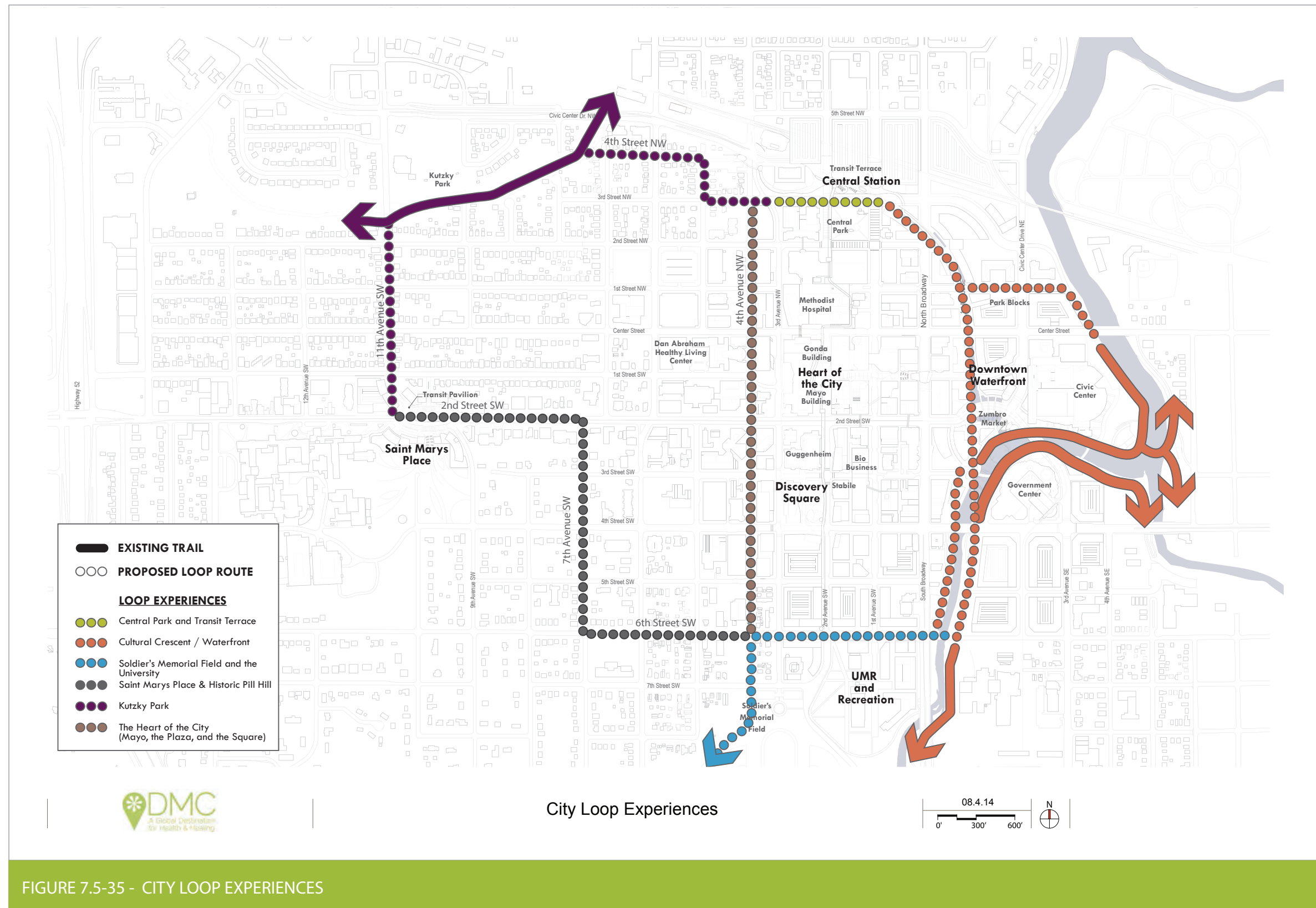
The Kutzky Park segment of the City Loop provides a connection to the popular Kutzky Park Trail that hugs the banks of Cascade Creek. This is the second major water feature presented to users along the City Loop alignment, which offers access to Rochester's natural beauty, verdant flora, and wildlife. People explore the Kutzky Park neighborhood and its distinguished variety of architectural styles, including Victorian, Bungalow, Four Square, Craftsman, Cape Cod, and Colonial homes. Traveling north from Saint Marys Place, users are guided along 11th Avenue SW (cross section illustrated in Figure 7.5-38). City Loop users experience uninterrupted views of Kutzky Park before they access the Kutzky Park Trail and head east toward downtown. This portion of the trail will be redesigned to match the City Loop design aesthetic and materials.

Exiting the Kutzky Park Trail at 4th Street NW, the trail user is directed onto a branded bicycle boulevard, which continues onto 5th Avenue NW and again onto 3rd Street NW before it meets up with the Mayo, the Plaza, and the Square experience at 4th Avenue NW segment of the route, as well as the Central Park and Transit Terrace segment. Though the City Loop's facility type changes in three places along this route segment (separated bikeway and walkway, multi-use path, and branded bike boulevard), trail users will enjoy seamless transitions and experience residential neighborhood and park settings.

THE HEART OF THE CITY (MAYO CLINIC, PEACE PLAZA, AND DISCOVERY SQUARE)

The final leg of the City Loop takes people walking, rolling, and biking straight through the heart of the DMC Development District. The planned grade separated pedestrian walkway and bikeway on 4th Avenue NW/SW connects to multiple destinations, including: the Gonda Building, Peace Plaza, Mayo Clinic, and Discovery Square. The proposed cross section and plan view concept of 4th Avenue NW is shown in Figure 7.5-37 and illustrates how pedestrians and people on bicycles will be integrated with bus traffic and transit passengers on the new priority transit street.

Trail users will comfortably experience traveling in the commercial/urban environment grade-separated and buffered from the adjacent roadway between the Central Station connection to the north and the Soldier's Memorial Field and UMR connection to the south. This connection bisects the larger City Loop into two halves, effectively creating two smaller trail loops offering different experiences and contexts. The eastern loop offers a more urban commercial focus, while the western loop connects people with Historic Pill Hill and Kutzky Park.



6th Street SW between 1st Avenue SW and 4th Avenue SW

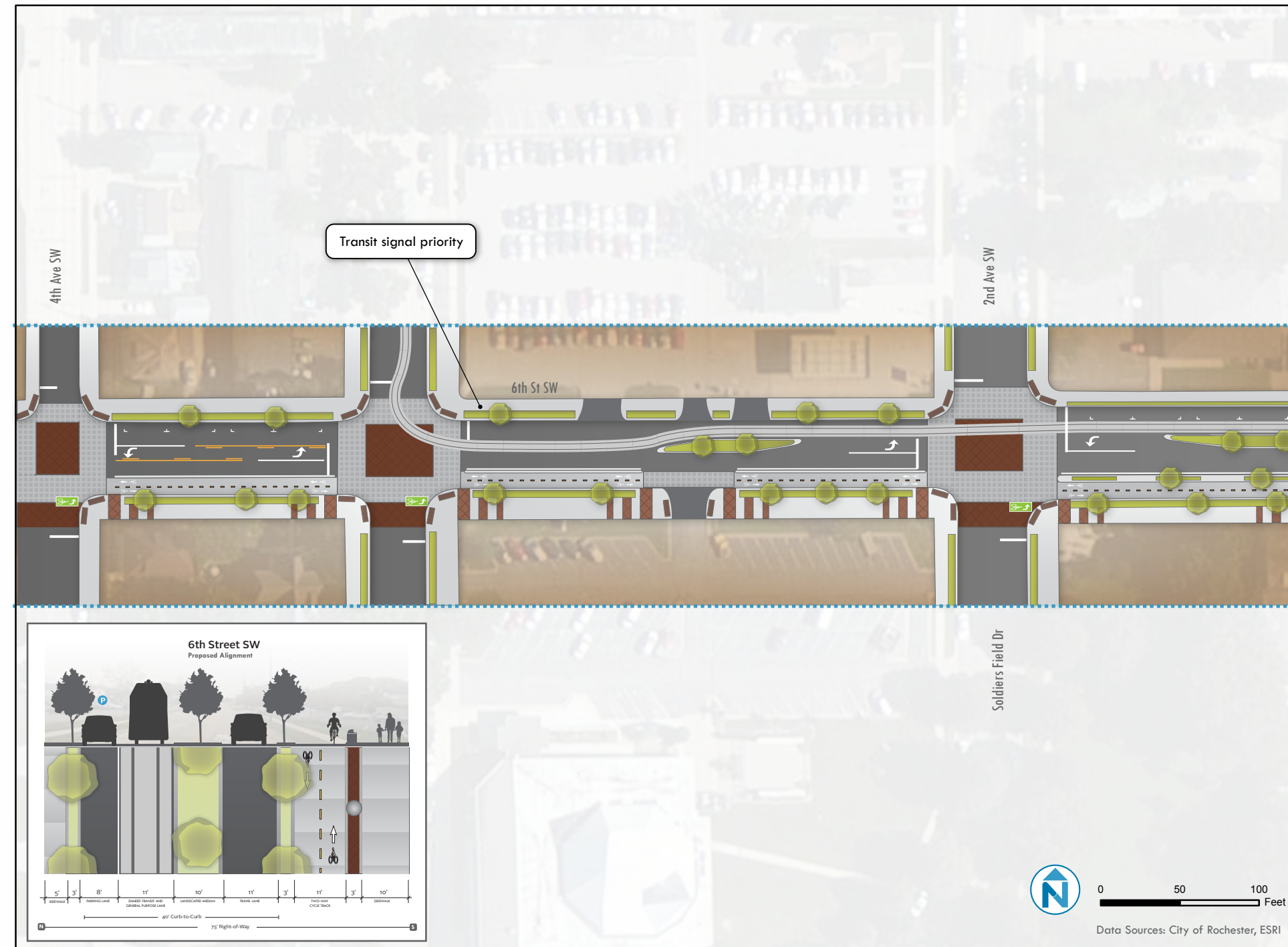


FIGURE 7.5-36 - CITY LOOP ON THE SOUTHSIDE OF 6TH STREET SW

4th Ave between 1st ST NW and W Center St

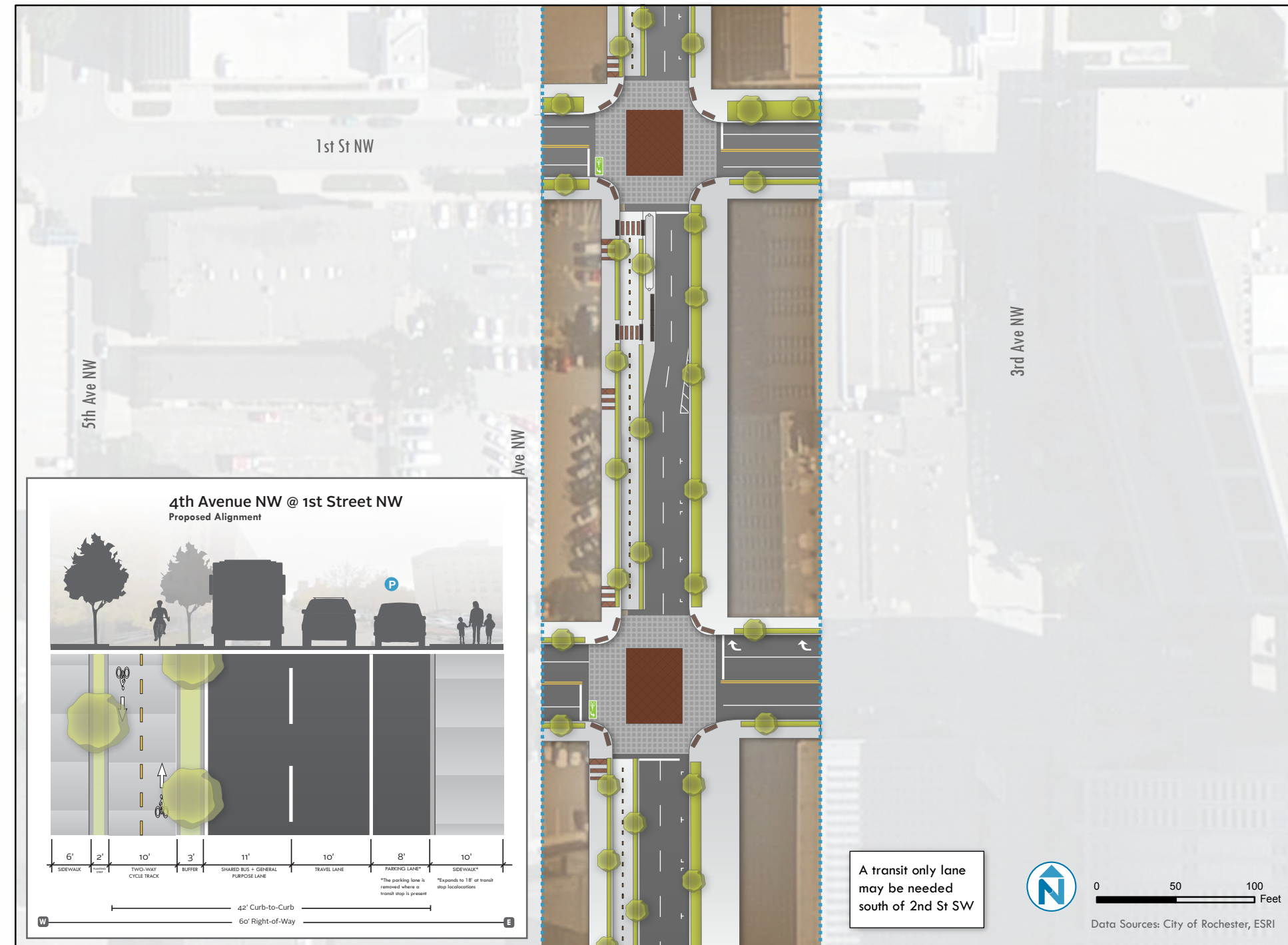
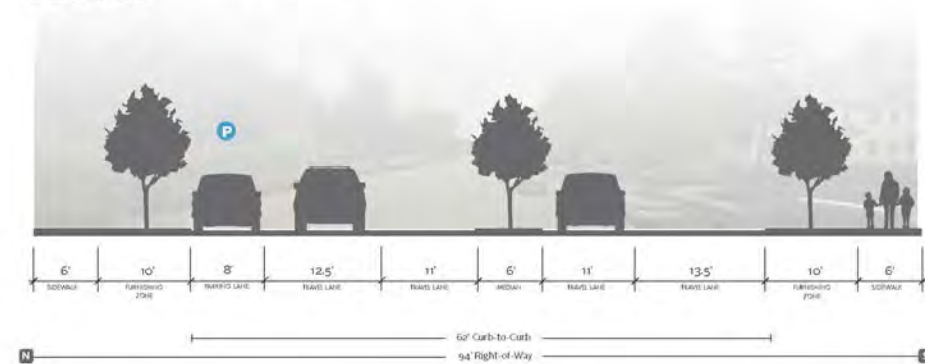


FIGURE 7.5-37 - TRANSIT INTEGRATION WITH THE CITY LOOP ON 4TH AVENUE NW

2nd St SW between 7th/8th Ave SW
Existing Conditions



2nd St SW between 7th/8th Ave SW
Proposed Alignment



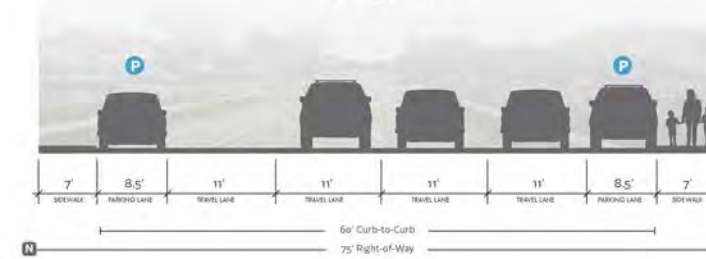
11th Ave SW @ 1st NW/ W Center St
Existing Conditions



11th Ave SW @ 1st NW/ W Center St
Proposed Alignment



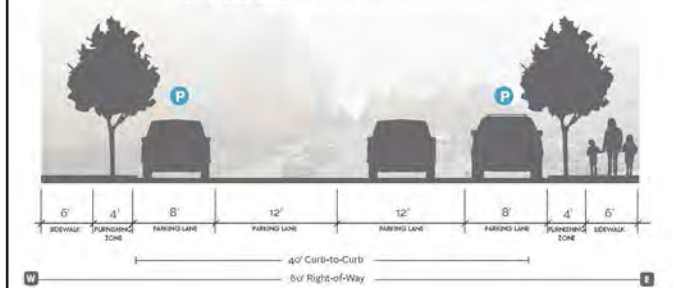
6th Street SW
Existing Conditions



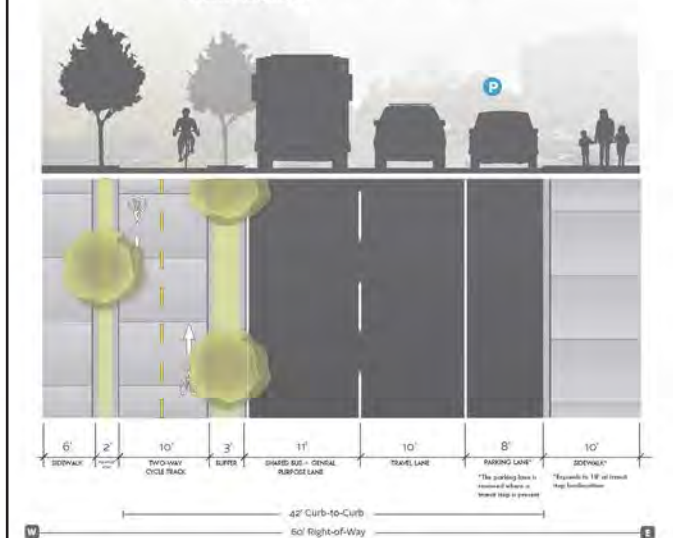
6th Street SW
Proposed Alignment



4th Avenue NW @ 1st Street NW
Existing Conditions



4th Avenue NW @ 1st Street NW
Proposed Alignment



On all streets along the City Loop alignment, the active transportation facility will be accommodated within the existing right-of-way. Accommodating the City Loop will require a variety of design options, including converting the existing planting strip and parking lane (2nd Street SW, 4th Avenue SW/NW, and 11th Avenue SW,) and pursuing 4- to 3-lane lane reallocations (6th Street SW).

Images from Nelson\Nygaard

FIGURE 7.5-38 - CITY LOOP ON 2ND STREET SW, 6TH STREET SW, AND 11TH AVENUE SW

CITY LOOP TYPOLOGY AND DESIGN ELEMENTS

As a world-class urban trail, the City Loop will go beyond current best practices related to pedestrian, bicycle, and universal accessible design. The following section outlines various City Loop design typologies that could be employed along the alignment and key design elements that will be present on the City Loop.

ONE CONTINUOUS FACILITY, SEVERAL CITY LOOP DESIGN TYPES

Though efforts will be made to create a facility with a consistent look and feel, certain sections of the trail will employ varied design, matching the design features or queues of the neighborhood. Changes in facility type respond to changing roadway conditions, land use conditions (e.g., residential, commercial, and open space sections of the City Loop), and unique strengths and weaknesses found along the alignment. In all instances, the facility will be safe and comfortable for people of all ages and abilities—even those with lower levels of mobility. Transitions between facilities will be seamless because the same unique paver materials, streetscape and stormwater bioswales, intersection treatments, coloring, and branding/wayfinding signage will be used throughout the City Loop—regardless of location. Detailed descriptions of these design types and their likely application is explained in Figure 7.5-39.

COMMON DESIGN ELEMENTS AND DESIGN GUIDANCE

The City Loop will provide a unique pedestrian experience that will be unmatched by any other street or trail in Rochester. Unique design features are used to contribute to the pedestrian experience and attract private development. When a user sees these design elements on a street, they know they are on or have access to the City Loop. The City Loop will act as wayfinding by design. Figure 7.5-40 summarizes these common design elements. Design guidance for various City Loop design elements are presented in Appendix 10. Design guidance will support future detailed corridor design, preliminary engineering, and eventual construction.




DESIGN TYPE	SEPARATED FACILITIES	MULTI-USE PATH	SHARED STREET
			
CONSISTENT FEATURES	Paver materials, intersection and driveway paving techniques, LED lighting, branding, stormwater bioswales, drainage		
UNIQUE DESIGN	<ul style="list-style-type: none"> Two-way grade separated bikeway (minimum 10' width) Separated pedestrian walkway (minimum 5' width; 10' preferred) Buffer between travel lane/ parking stall and the bikeway Buffer between the bikeway and pedestrian zone 	<ul style="list-style-type: none"> Shared spaces between people walking, bicycling, and rolling, but grade-separated from motorized traffic (minimum 12' width) Buffer between travel lane/parking stall and the multi-use facility Applied in constrained corridors, existing trail linkages, and residential streets 	<ul style="list-style-type: none"> Minimum 18' wide shared space that can accommodate pedestrians, people on bicycles, and motor vehicles Additional design features line chicanes help maintain slow speed environment Uses same paver materials to indicate the shared street is part of the City Loop (would be designed differently than other shared streets recommended in the Streets Investment Strategy)
LIKELY APPLICATION	<ul style="list-style-type: none"> 6th Street SW, 11th Avenue SW, 2nd Street SW, 4th Avenue NW/ SW 	<ul style="list-style-type: none"> 7th Avenue SW, 5th Avenue NW, 4th Street SW, 3rd Street NW, Cultural Crescent, Kutzky Park Trail segments, South Zumbro Trail segments 	<ul style="list-style-type: none"> New waterfront street connection (from the Cultural Crescent to Center Street)

FIGURE 7.5-39 - CITY LOOP DESIGN TYPOLOGY

Design Elements of the **CITY LOOP**



Place | Sights | Experiences



Walkable | Bikeable | Rollable



Fully Accessible | Patient-Friendly



- 1 Widened sidewalk space with decorative pavers
- 2 Two-way separated bikeway with decorative pavers
Portions of the City Loop will be designed as a multi-use path shared between people walking and bicycles.
- 3 Nice Ride bike share stations
- 4 Maintained two travel lanes
- 5 Stormwater bioswales with lush landscaping
- 6 Dense coverage of street trees
- 7 Clearly marked conflict zones at driveways, intersections, and transit stops
- 8 Clear wayfinding and advisory signs
- 9 New drainage systems with sleek design
- 10 Decorative and City Loop-branded pedestrian lighting

FIGURE 7.5-40 - CITY LOOP EXPERIENCES

7.5.4.2 ESTABLISH A DOWNTOWN BIKE SHARE SYSTEM ANCHORED TO THE CITY LOOP

Bike share is a flexible public transportation service that provides on-demand access to a network of public rentable bicycles. Nice Ride MN, operating in Minneapolis, St. Paul, and Bemidji currently offers heavy-duty 3-speed bicycles able to withstand substantial wear and tear. Most urban bike share systems distribute bicycles across a service area at fixed docking station locations. Users can gain access to the system at payment kiosks, using either 24-hour subscriptions (credit card-based payment), multi-day passes, or annual subscriptions, which use fobs to unlock bicycles. In addition, users can track bicycle availability and docking station capacity and utilization via the web or smart phone app, which ensures system reliability and trip planning capabilities. Urban bike share is designed for relatively short trip-making (trips are generally between one and three miles); long trips incur higher trip fees (trips under 30 minutes are free).¹

The DMC Transportation Plan recommends investment in a dense network of bike share stations woven into the City Loop trail facility and beyond to serve major destinations in the DMC Development District. This is a similar integrated bike share and trail model employed in Indianapolis between the Indianapolis Cultural Trail and the Pacers Bikeshare system. Other precedent cold weather systems include Nice Ride MN in Minneapolis/St. Paul, Madison B-Cycle, Chicago Divvy Bikes, Boston Hubway, ArborBike in Ann Arbor, bublr bikes in Milwaukee, Buffalo Bike Share, and GREENBike B-cycle in Salt Lake City, among others. These precedent systems are set up as either non-profit managed and operated, non-profit managed with a private operator, or city managed with a private operator.

The proposed station-based bike share system, shown in Figure 7.5-41 within the framework of the City Loop, consists of 23 stations and 243 bicycles. Stations will be placed between 900 and 1,200 feet apart, which is intended to ensure bicycles are accessible within a brief walk anywhere in the Development District. Nineteen of the system's proposed 23 stations will be located within a block of the City Loop trail network; 13 will be located directly on the City Loop. Details related to feasibility of bike share in the Development District and projected ridership are presented in Appendix 10.

The bike share system would cater to short-term circulation for employees, residents, patients/companions, and visitors. This system will offer visitors and patients the ability to explore the City Loop trail and its various experiences and landmarks described in Section 7.5.3. Combined with the City Loop, it will provide opportunity for visitors to travel between downtown districts and reach the City's plethora of open spaces. Bike share will also provide "last-mile" connections from transit facilities (streetcar circulator, 3rd and 4th Avenue transit priority streets) and downtown parking facilities to job sites and other final destinations in the Development District. More detail on the utility of bike share and how different user markets will utilize the system is provided in subsequent sections.



With 19 of the system's 25 bike share stations being located on the Indianapolis Cultural Trail, the Pacers Bikeshare system serve as a bellwether trend of tying bike share to key bikeway and trail investments. Linking bike share system to the comfortable and beautifully designed Cultural Trail amenity has helped drive greater than anticipated bike share ridership and widespread support for both active transportation amenities.

Image from Nelson\Nygaard



¹ For more information on Nice Ride MN's fee structure visit https://www.niceridemn.org/how_it_works/

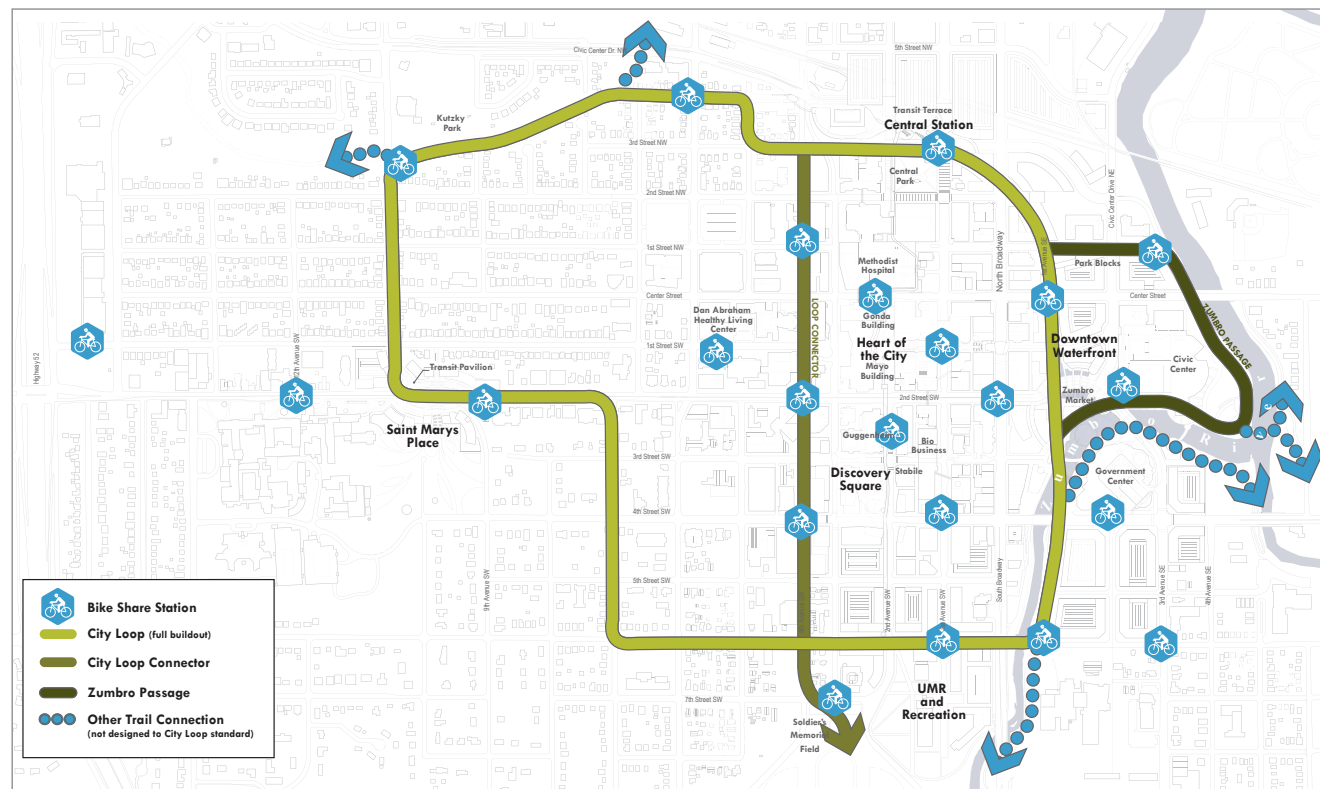


FIGURE 7.5-41 - RECOMMENDED BIKE SHARE SYSTEM INTEGRATED WITH CITY LOOP



Pictured above is the design of the Nice Ride Bemidji bike share bicycles that were rolled out in 2014. The Bemidji bike share application is similar to the Nice Ride Centers concept recommended for the DMC Development District. These bicycles would be lighter than station-based bike share bicycles provided by Nice Ride.

Image from Nice Ride MN

NICE RIDE CENTERS: A SUPPORTIVE DMC INVESTMENT

As a supplement to the fixed station based bike share system, the DMC Transportation Plan recommends the development of Nice Ride Centers simultaneously with a station-based bike share system. The Nice Ride Center concept would offer a lighter-duty, high-quality bike with lights, fenders, and cargo-space intended for daily transportation, but versatile for mid-distance recreational use. This would operate as a concierge service catered toward visitors. The EDA could partner with Mayo Clinic to develop programs/activities for the sports practice and healthy living program participants. The system would allow reservations for groups of business people or tourists, but could go beyond recreational rental. Nice Ride Centers would offer long-term rentals at low prices on a trial basis, intended to introduce people who are not cyclists to the experience of getting around on a high-quality bike for everyday transportation.

This model would be more fitting for visitors interested in exploring Olmsted County's regional trail network since it would allow longer-term rentals without overtime penalties and provide users a lighter bike better fitted for traveling longer distances. However, the service would likely attract significant use of the City Loop urban trail. The service could be delivered cost effectively using existing staff as rental agents at locations such as the planned visitor center, hotel concierges, or local bike shops. This bike share element has merit in Rochester, regardless of whether urban, station-based bike sharing is funded and implemented.

WHY INVEST IN BIKE SHARE FOR THE DMC?

Bike share is transforming urban mobility, while demonstrating the ability to improve local environmental conditions, quality of life, public health, and economic activity. Further, bike share systems have proven to be popular among residents, visitors, and businesses seeking walkable, vibrant, and urban neighborhoods—key elements that the DMC seeks to achieve. While many DMC investments are recommended in this Transportation Plan, no other form of public transportation is able to unlock such wide ranging benefits for such a modest level of capital and operating investment. As such, bike share helps meet the DMC's Core Areas related to transportation, health and wellness, and livability and matches many of the healthy and active living initiatives promoted by Mayo Clinic.

With over 30 systems operating to date in the United States—including the Twin Cities' successful bike share system, Nice Ride MN—and over one hundred more in planning or pre-implementation stages, bike sharing is the fastest growing form of public transportation in the United States. Providing quick, easy, and healthy mobility, bike share is quickly becoming a form of public transit that is sought after by residents, employees, and visitors. It is not a mobility tool applicable to big cities only. Many small- to mid-sized cities have implemented bike share, including Madison, WI, Boulder, CO, and Chattanooga, TN.

WHO COULD OPERATE BIKE SHARE IN ROCHESTER?

The bike share system is recommended to be a satellite operation of Nice Ride MN—a Minneapolis-based non-profit bike share operator with the mission to spread the benefits of bike share, bicycle transportation, and recreation across the state. This organizational recommendation is based on the non-profit's expertise in bike share operations, their known and well-liked brand in Minnesota, and their funding backing from Blue Cross Blue Shield. Nice Ride MN has identified Rochester as an opportunity city for its Greater Minnesota Strategy—an effort to extend the benefits of bike sharing to communities beyond the Twin Cities and explore new bike share technologies and operating structures necessary to meet a variety of user markets.

WHO WILL USE BIKE SHARE IN THE DMC DISTRICT?

The primary bike share user groups would be employees, visitors, downtown residents, and to a lesser extent, residents in Rochester neighborhoods outside downtown. Visitors to Rochester, downtown employees, and local residents exhibit a very different set of mobility needs in the DMC. These three primary DMC Development District bike share markets and their likely use of the bike share system are presented below:

- **Residents and employees:** This market includes downtown neighborhood residents living in the Heart of the City, Downtown Waterfront, Central Station, and Saint Marys Place sub-districts as well as downtown employees seeking to make short trips between key downtown destinations. Employees will likely use bike share for trips between major Mayo Clinic facilities, from transit and parking trip ends to employment sites (“last-mile” connections), and for mid-day retail errands. This market is best served by an urban, station-based bike share system.
- **Visitors and tourists:** Rochester attracts a substantial and growing visitor base each year. While the critical care patient base is not served by this system, it would provide a significant amenity for other patients, families/companions, and visitors to the city. Furthermore, this could be a valued improvement to the growth of Mayo Clinic’s strategic initiatives around wellness activities including sports medicine, the Healthy Living program, and the Executive Health Program. Using bicycles for active recreation along the City Loop and for short trips on the regional trail network could also be a significant market opportunity and could be supported by both the station-based bike share (shorter-term active recreation) and Nice Ride Center bike share models (allowing longer-term rental).
- **Outside residents:** Rochester’s wealth of trail connections are well used assets by residents. This trend will only increase with the development of the City Loop—offering immediate access to a world-class urban trail and an alternative to vehicular transportation into the downtown. Like the visitor/tourist market, this market may make limited use of a station-based, short trip-oriented bike share system, but would attract many more recreational, long-term touring bike trips. Those trips would be best served by the Nice Ride Center bike share model.

WHAT WOULD THE SYSTEM COST?

The initial system launch and a Nice Ride Bike Center system based at two sites is estimated to cost between \$0.9 and \$1.2 million with an additional \$478,000 per year required to operate it.¹ Operating costs could be significantly cut with in-kind office siting, logistical support from Mayo Clinic related to rebalancing bicycles,² and/or customer service support. Operating costs would be funded through user fee revenue, annual user memberships, title and major system sponsorships, station sponsorships for local business, and employee pass programs,³ among others. Nice Ride MN operates at a profit in Minneapolis and St. Paul using this funding mix, using profits for programs, education, and capital reinvestment into the system.

¹ Cost estimates for the proposed system are based on Nice Ride MN’s current operation and economies of scale.

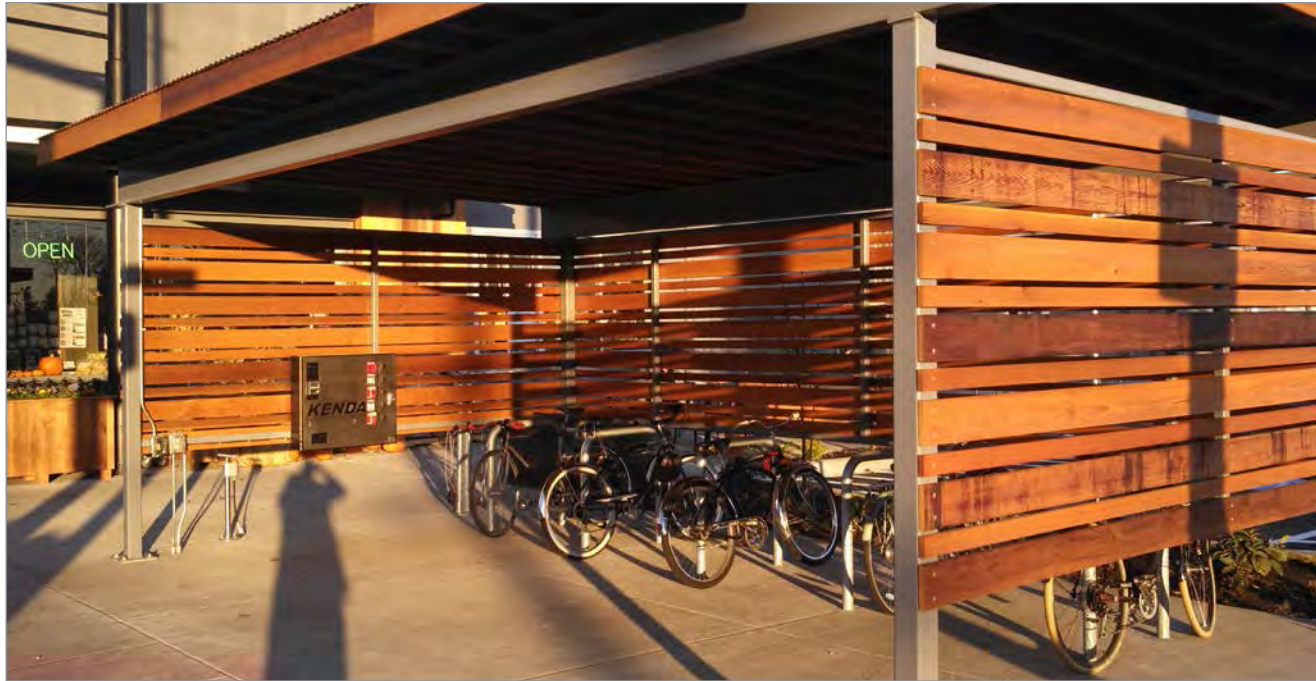
² Mayo Clinic employs a sophisticated wheelchair/mobility device retrieval system that could be coupled to rebalanced bike share bicycles.

³ Mayo Clinic has expressed interest in a subsidized employee pass program. This could be extended as an incentive program to encourage new employees to reside in downtown Rochester (i.e., Mayo employees that choose to live downtown are offered a free annual bike share membership).



Nice Ride MN provides publicly available bicycles at major destination nodes offering just another option to move around the City.

Image from Nelson\Nygaard



A covered bike parking structure, repair tools, and bike tire vending machine outside a grocery store.

Image from Nelson\Nygaard

Blue Cross Blue Shield of Minnesota's Prevention Center, a major contributor to the Twin Cities' program, has budgeted \$650,000 for Nice Ride MN's Greater Minnesota Strategy. A share of this funding could be allocated to help fund the initial capital costs of the Rochester system (amount to be determined). Other local sources, grants, and sponsorship would be needed to cover the remaining capital cost. Blue Cross Blue Shield is supportive of a local title sponsor or a shared title sponsorship.

7.5.4.3 CODIFY DEVELOPER REQUIREMENTS FOR END-OF-TRIP FACILITIES

Downtown bicycle and walk access is projected to make up approximately 13% all peak period commute trips by 2035. The concentration of cultural, retail, and recreational amenities will generate even more active transportation trips outside of the commute period. For the DMC Development Plan to succeed, future development will need to provide amenities that support trips being made on foot and by bicycle. These are investments that will help attract the next generation of urban workforce seeking to fill DMC-generated jobs.

A "complete" active transportation network not only includes investments like bike share and the iconic City Loop trail, but is supported by facilities and amenities that allow people walking and bicycling to comfortably complete their trip. Sometimes termed "end-of-trip facilities," bike parking for short-term (less than two hours) and long-term trips (between two and eight hours), locker and shower facilities, and maintenance support are critical to making urban bicycle transportation attractive for a broad segment of the population. The DMC Transportation Plan recommends encouraging end-of-trip facilities and supporting such with DMC funds. The following amenities should be considered for integration into future residential and commercial development:

- **Short-term bike parking:** Bicycle racks with two points of contact to bike frames that are located in well-lit, preferably covered locations. These facilities are intended to serve short duration trips (i.e., less than two hours).
- **Long-term bike parking:** Indoor, key-access bike parking rooms with vertical racks that are generally intended for residents or employees accessing buildings for more than eight hours. These enclosed, pooled bike parking resources could include rooms, compounds, and outdoor built areas that can be fitted with a roof for added security and weather protection. These are most applicable for worksites, UMR campus buildings and student residences, the Transit Terrace (see the Bike Center discussion below), and apartment buildings/residential complexes.
- **Showers, lockers, and changing rooms:** Basic shower facilities for both genders available in the early AM and late PM. Likely tied to the shower facility, locker rooms should be key or code accessed and provide the opportunity to clean up or change into or out of work attire. We recommend the EDA works to build partnerships with the YMCA, Dan Abraham Healthy Living Center, UMR, and other downtown facilities to provide a membership that caters to these end users.
- **Maintenance facilities:** Either located in long-term bike parking locations or near short-term bike racks, basic bicycle repair tools should be provided to ensure safe operation of bicycles. These could include a floor pump, puncture repair kit, spare tubes and set of Allen keys, spanners, and screwdrivers. Tool resources could be located at bike parking areas.



The Santa Monica Bike Station features hundreds of secure, indoor parking spots for riders, is located adjacent to transit, and offers commuters a host of important services like showers, locker rooms, and bike maintenance.

Image from Nelson\Nygaard

Figure 7.5-42 summarizes the end-of-trip amenities that would be required by type of development and

offers basic guidance that could be modeled for future DMC development code language for DMC-funded development. We recommend that short-term bike parking become the only minimum requirement for developments in the DMC Development District. Long-term bike parking, showers, lockers, changing rooms, and maintenance facilities are recommended to be encouraged for implementation, but are not a development requirement. We recommend that these latter amenities become a requirement only to obtain development bonuses including density bonus or reduction in parking requirements per the shared parking and TDM strategies in Section 7.5.1.

CENTRAL BIKE PARKING AND FULL SERVICE BIKE CENTERS

The DMC Development Plan recommends integrating a full service bike center or bike station as part of the Transit Terrace and potentially as part of the Heart of the City development. This type of amenity could even co-locate with the Dan Abraham Healthy Living Center. While bike centers are not recommended for DMC funding, they could be funded by a turnkey private owner-operator or a federal grant. Secure and covered bike parking is an essential component of linking bikes to transit in the DMC Development District because it allows transit riders and people making bicycle trips to confidently store their bikes and manage maintenance issues. Covered bike parking that is key-accessed and video monitored improves confidence of cyclists that their bicycles are securely stored. Large-scale bike centers feature bike shops, storage facilities, showers, lockers, and bike valet parking.

In addition to installing a variety of bicycle parking types for different time demands, several major U.S. cities have located full service bike stations at employment or transit hubs. Full service bike stations include bike parking, maintenance and repairs, retail shops vending bicycle commute related goods, showers, lockers, and changing rooms. According to before-after evaluations, bike stations have proven to be effective at shifting motorists to bicycling. An average of 33%, and up to 65%, of bike station members who previously drove are now using the facility for the same trip. Instead of simply creating a bike storage room, bike cage, or short-term bike rack, these facilities are successful because they also provide value-added services, such as tire repair and tune-ups geared toward new riders.

The largest bike center in the United States is the Santa Monica Bike Center located at 2nd Street and Colorado. Opened in 2011, Bike and Park retrofitted an old garage to accommodate 360 secure bike parking spots, locker rooms, repair, and retail services. Membership dues help cover operating costs. Construction of the facility was funded with a \$1.6 million grant from local transportation authority Metro and a \$950,000 contribution from the City. In most communities, bike stations have been built through a partnership between local governments, private operators, and corporate sponsorships. Federal funding has also been granted through FHWA and FTA grants focusing on congestion and air quality mitigation.

TYPE OF DEVELOPMENT	SHORT-TERM BIKE PARKING	LONG-TERM BIKE PARKING	SHOWERS	LOCKERS	CHANGING ROOMS	MAINTENANCE FACILITIES (e.g., tools and bench)
GUIDANCE	At least 1 space for every 50 short-term users; easily accessible, close to building entry	At least 1 space for every 10-20 long-term user (5-10% of employees); easily accessible, close to building entry	At least 1 for the first 5 long-term parking spaces, then 1 per 10 subsequent spaces; located close to bike parking	At least 1 for the first 5 long-term parking spaces, then 1 per 10 subsequent spaces; located close to bike parking and collocated with showers	At least 1 for the first 5 long-term parking spaces, then 1 per 10 subsequent spaces; located close to bike parking	1 for each long-term bike storage area; located in bike storage areas or outside a pool of commercial businesses
NEW COMMERCIAL/ OFFICE	+	+	+	+	+	+
MAJOR COMMERCIAL/ OFFICE RENOVATION	+		+	+	+	+
NEW MIXED USE RESIDENTIAL	+	+		+	+	+
NEW MULTI-FAMILY RESIDENTIAL	+	+				+

FIGURE 7.5-42 - END-OF-TRIP FACILITY REQUIREMENTS BY TYPE OF DEVELOPMENT

Note: It may not always be possible for an existing site to add state-of-the-art end-of-trip facilities; however the provision of storage and lockers or negotiating with adjoining or nearby buildings to use their facilities may be an alternative approach. A Bike Center, shown in this section could pool resources and take the place of end-of-trip facilities in major renovation sites.

7.5.4.4 PROJECTED CAPITAL COSTS

The role of the private sector in funding active transportation amenities in cities has been critical to meet growing demand for investments in placemaking and walkable downtown communities nationwide. This is because active and healthy built environments are the conditions that help drive talent attraction and retention. To that end, this Plan assumes zero capital funding contribution from the City of Rochester.

Figure 7.5-43 summarizes the estimated DMC-related capital costs for all active transportation investments. Total estimated capital costs for DMC streets investments over the next 20 years add up to over \$27 million when accounting for inflation. Section 8.3 summarizes the recommended phasing for active transportation investments and the recommended funding source allocation for each project.

PROJECT		CAPITAL COST ESTIMATE	ESCALATED COST
A.1, A2.1, and A3.1	City Loop	\$19.6 to \$24.5 million	\$26.0 million
A1.2	Bike share system (23 station with 243 bicycles) and two Nice Ride Centers	\$0.9 to \$1.2 million	\$1.1 million
TOTAL		\$20.5 to \$25.7 million	\$27.1 million

FIGURE 7.5-43 - ESTIMATED CAPITAL COSTS FOR ACTIVE TRANSPORTATION INVESTMENTS



Wayfinding signs and branding elements, such as this wayfinding totem in Parramatta, Australia, will increase user understanding of downtown Rochester - particularly for those that are new to the city.

Image from Nelson\Nygaard

7.5.5 WAYFINDING INVESTMENT STRATEGY

Every great destination city has a unique identity, supported by many walkable neighborhoods with their own unique character. Like many cities that seek continual improvement to maintain competitiveness, Rochester must consider the identity and brand intent of the DMC Development District. The DMC Wayfinding Investment Strategy defines the physical and virtual methods the Development District will utilize to present itself to current and future employees, residents, and visitors. It enables people of all walks of life and abilities to successfully self-navigate the overlapping and complex exterior and interior transportation networks of downtown Rochester.

The components of this system include a variety of wayfinding, directional, and user information signs, tools and applications. These range from recognizable identity signs and standards to coordinated web-based, GPS information programs and interactive applications for mobile devices. A comprehensive static and dynamic signage system is needed to weave together a complete vehicular, transit, and pedestrian experience. The goal is a network of streets, subways, skyways, transit facilities, trails, parks and plazas functioning as a cohesive public space.

A wayfinding system acts as the first line of customer service when visitors and patients arrive in the Development District. It sets the tone for their experience by establishing a relatable and intuitive downtown. Through a wayfinding program active at many points across the Development District, visitors and residents more effectively connect to, explore, and enjoy experiences available in the city. Wayfinding makes the three-tiered pedestrian system more accessible, understandable, and functional. The Wayfinding Investment Strategy also ties into broader state, regional, national and global marketing communication efforts to bring the Rochester experience to people around the world.

The Wayfinding Investment Strategy establishes an interactive information system that simplifies and enhances the user experience within buildings, subways, and skyways. It is an essential component of public space planning, knitting together streets, subways, skyways, trails, parks and plazas into a cohesive public space. Beyond establishing pedestrian wayfinding and district identities, the recommended wayfinding system guides people arriving and travelling through the Development District by automobile, streetcar, bus, and bicycle.

The Wayfinding Investment Strategy seeks to achieve several core objectives related to identity awareness and navigation assistance, including:

- Establishing clear and consistent **district identities**. The Development District and the sub-district identities are to be clearly and consistently communicated in all physical and digital mediums. These identities should be distinctive and recognizable through color-coding, iconography or other visual methods.
- Building a **strong mental map** that reflects the geographic reality of the city. Navigation within the downtown should be easy, allowing people to quickly orient themselves within sub-districts and relative to their needs using digital applications and physical graphics. A good system allows people to begin to orient themselves before they arrive.
- Eliminating **unneeded visual clutter**. Ensure that duplicated, confusing, and unnecessary wayfinding

signs are removed throughout the Development District. The implementation of a single program achieves system-wide understanding and reduces conflicting, confusing or redundant information. A single system is an opportunity to make people feel like they are in an inviting urban environment, not a hospital.

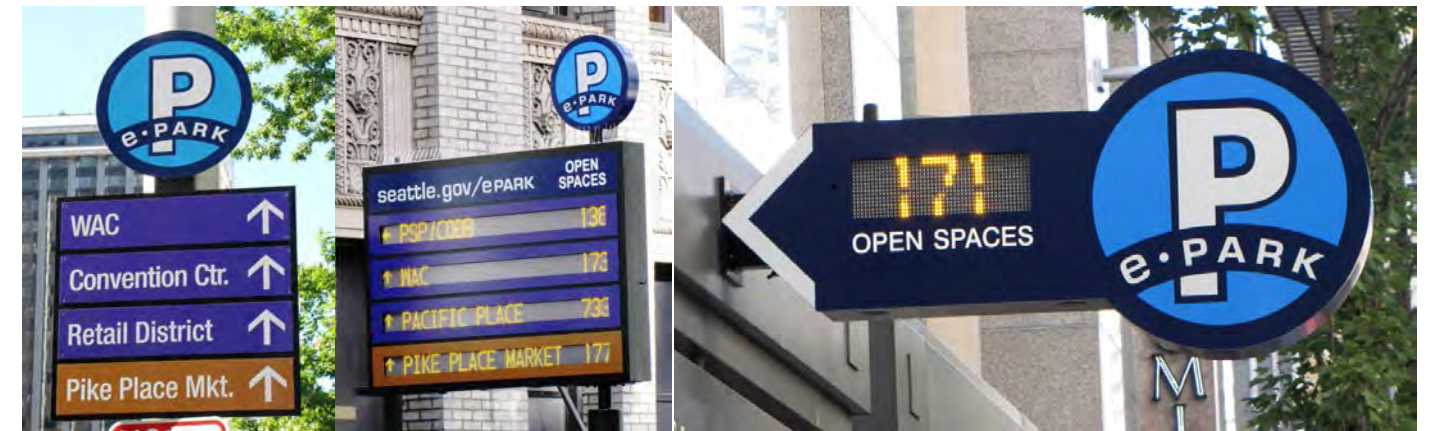
- Implementing a **vehicular wayfinding routing program**. Emphasize routings that direct drivers first to sub-districts, and then to specific destinations, typically the nearest parking opportunity. This provides a streamlined circulation approach that reduces the amount of information presented on signs and eliminates unnecessary confusion.
- Reducing **search-for-parking** related congestion. In an integrated and multimodal wayfinding system, the primary automobile-related objective is to quickly move people driving cars from the street to an open parking space. Roughly 10-15% of traffic in urban downtowns is attributed to people circling streets attempting to find a parking space. Digital dynamic signs indicate parking structures and the number of available spaces to drivers once they have entered the sub-district.¹
- Improving functionality of the **subway and skyway system** (including understanding of the amenities within these networks). For a visitor arriving in Rochester for the first time, navigating the web of subways and skyways is intimidating. A wayfinding system directs people to destinations through the conduit of climate-controlled pathways, but also connects people to resources and amenities located in the subways and skyways.²
- Reducing **walk times and distances**. The Development District should promote exploration through the sub-districts, the City Loop and other recreational opportunities outside of downtown. It is important to offer a path of least resistance which allows people to move between destinations quicker.
- Connecting the static Wayfinding design and navigational approaches into **digital applications**. Approaches should include, but not be limited to: affixed touch screens, sentient design and mobile application technologies. Technology is rapidly changing to meet the needs of an increasingly mobile and connected society; embracing and coordinating between multiple platforms ensures a continuity that strengthens a wayfinding program.
- Revealing **Rochester's offerings**. The scope of the wayfinding system should not end at communicating directionality and identity. Integrated digital applications and semi-permanent sign applications provide opportunities to promote local events (Thursdays on First & Third Summer Market & Music Festival) and time specific content (related to conventions, conferences, Mayo Clinic events and transportation services).

7.5.5.1 COMPREHENSIVE MULTIMODAL WAYFINDING SYSTEM PRINCIPLES

The development of a multimodal wayfinding system in the Development District provides a highly visible and cost effective opportunity to improve the quality of the Downtown experience for employees, residents

¹ The Rochester Downtown Alliance recently implemented a parking signage program. It is recommended that the the DMC wayfinding coordinates with program and design aesthetic if dynamic signs with parking space availability are to be added to ramps and floor decks.

² The Rochester Downtown Alliance recently implemented a comprehensive wayfinding signage program for the subway and skyway system. In order to better coordinate this with the messaging approach highlighting Sub-Districts, it is recommended that the current messaging approach is adjusted (as the current fabrication is applied vinyl which can be removed and reapplied, maps are inserts).



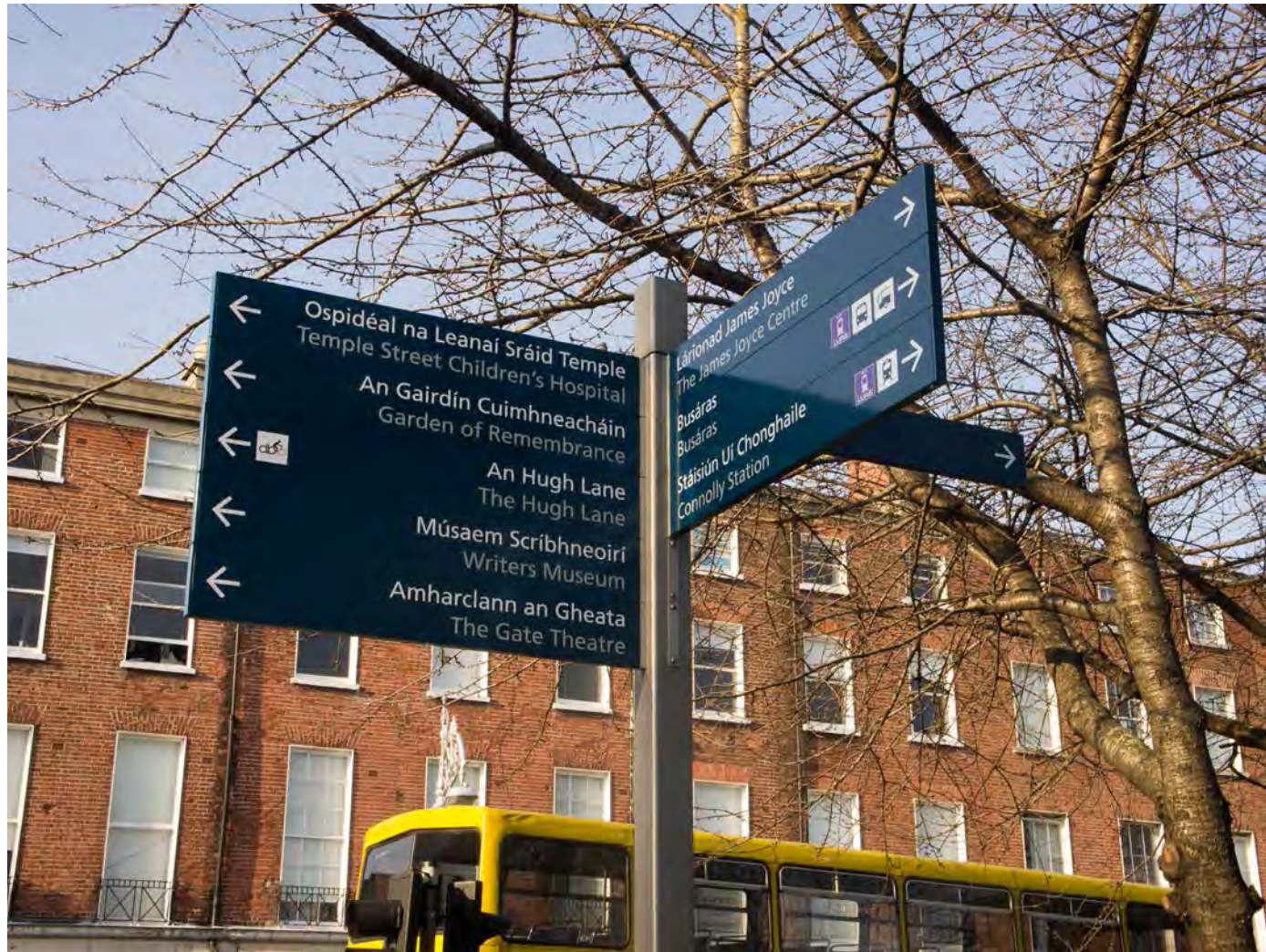
Parking wayfinding in the DMC will use a similar brand to the broader multimodal wayfinding system. Additional features will include directional wayfinding and utilization indicators to show which ramps have remaining capacity.

Images from Seattle DOT



Map kiosks as part of the Liverpool Legible City wayfinding program include detailed 3D representations of key landmarks to better orient people to their final destination.

Image from Fitch



Directional signage in Dublin, Ireland.

Image from Flickr user William Murphy

and uses. A comprehensive and effective system should be constructed around identity, efficiency, messaging, technological integration and functionality. The following principles mirror broader development objectives and will inform the design and operations of the comprehensive multimodal wayfinding system.

The principles for the DMC Development District multimodal wayfinding system are:

- Develop a wayfinding program that reflects the future driven character of the Development District
- Focus on maximizing functionality for all types of users
- Create a recognizable family of multimodal wayfinding signs
- Establish distinct sub-district identities
- Simplify navigation approaches
- Integrate digital and marketing technologies

DEVELOP A WAYFINDING PROGRAM THAT REFLECTS THE FUTURE DRIVEN CHARACTER OF THE DEVELOPMENT DISTRICT

As a forward looking community rooted in the advancement of healthcare practices, the aesthetics of the DMC Development District's wayfinding program should embody a clean, modern, utilitarian, contemporary expression of form and graphic layout. The design of the wayfinding elements should reflect the business, development and cultural aspirations of the City, rather than mimicking the physical attributes of the existing built environment.

The wayfinding system should evolve and grow in scope as transportation investments are constructed and as sub-district development is realized. The first phase of development should focus on the design of an ownable and comprehensive identity, signage and wayfinding program. The initial physical implementation will focus on the existing street network, the City Loop, parking systems, and initial DMC developments. Subsequent expansion will occur as the DMC further develops and new transportation infrastructure is constructed and expanded (e.g., streetcar, Transit Terrace, and City Loop).

FOCUS ON MAXIMIZING FUNCTIONALITY FOR ALL TYPES OF USERS

The Development District wayfinding system will serve a range of functions for different types of users. The strategy envisions 16 users markets actively utilizing the wayfinding system, each with varying needs for circulation and navigational support. Figure 7.5-44 summarizes the utility of the wayfinding system to each user market by mode of transportation.

CREATE A RECOGNIZABLE FAMILY OF MULTIMODAL WAYFINDING SIGNS

The complexity of the contemporary city requires that streetscape wayfinding programs be more than a series of static directional signs. The wayfinding approach in the Development District should be holistic in nature—from a coordinated pre-arrival plan, facilitated by mapping or web-based applications to physical signage that assists with navigation for multiple modes of transportation including automobile, transit, walking, and bicycle. A successful program will get people out of their cars and allow them to easily utilize the network of transit, pedestrian and cycle networks being created within the Development District.

The following components, organized by their associated user groups, should be included in the multimodal

wayfinding sign family for the Development District.

Digital & Marketing Communications

A single recognizable aesthetic program across all visual touchpoints is critical. Considering the amount of existing and proposed content delivered using numerous media formats, it is important to coordinate with the variety of originating organizations to ensure a consistent visioning and messaging approach for navigation throughout the Development District. Digital and marketing elements should include:

- **DMC and Partner Mobile Apps:** Create a mobile app that compiles all relevant District and sub-district content regarding current events, amenities, navigation approaches, etc.
- **Online and GPS Mapping:** Ensure that all destination language is consistent on maps and directions, including sub-district boundaries and trails, etc.
- **DMC and Related Rochester Agency and Partner Web Content:** Ensure all language, visuals are consistent across all descriptive or navigational content.
- **Interactive Flatscreens, Environmental Projections (sentient design) Content:** Ensure all language and visuals are consistent across all descriptive or navigational content.
- **Semi-Permanent Banners:** Use as long-term supplemental identification as well as provide a variety of branded experiences for events on the exterior, within an extended time frame. These banners should establish a sense of place or convey celebratory announcements.
- **Temporary Promotional Banners:** Use as a short term branded experience for events with a limited time frame. To be positioned along heavily travelled pedestrian routes as well as within key locations.
- **Printed Maps and Publications:** Ensure all language and visuals are consistent across all descriptive or navigational content.

Vehicular Specific Elements

- **Vehicular District and Sub-district Gateways:** Position at entry points to the Development District and associated sub-districts to confirm arrival. Signs are to carry identity specific visual content.
- **Directionals:** Provide navigational 'breadcrumbs' to assist motorists as they find their way to their intended destination, ideally parking. Located within the street grid and positioned with adequate distance to ensure timing to navigate, signs will direct drivers towards sub-districts, parking lots, landmark destinations and park-and-ride facilities. Directionals should be designed for multiple needs based on site-specific requirements, from sizing (small, medium or large) to attachment methods (freestanding or overhead post mounted).
- **Sub-district Identity Medallions:** Position these additional graphic gestures within the streetscape to confirm the identity and physical boundaries of each sub-district.
- **Variable Messaging Parking Directional and Availability Indicators:** Integrate signs with digital content to convey parking utilization information and directions to adjacent parking lots to drivers.

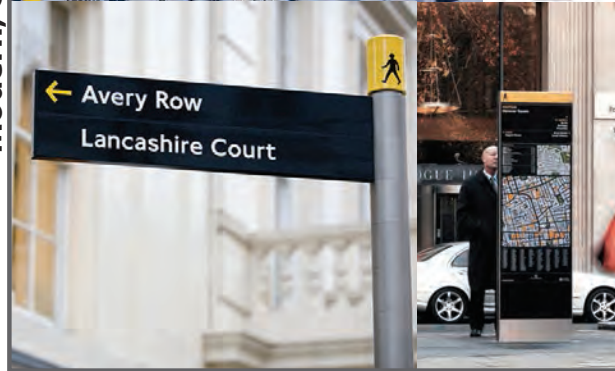
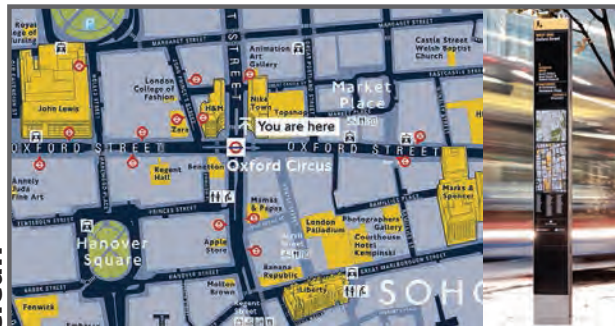
Active Transportation and Transit Specific Elements

- **City Loop Directionals/Identification:** Place City Loop branded signs with directional information, time and distance at key locations to direct people walking and biking along the City Loop to adjacent landmarks. Directionals should be designed for multiple needs based on site-specific requirements, from

MARKET	MODE	HOW WILL EACH MARKET USE THE DMC WAYFINDING SYSTEM?									
		DIRECTIONS TO EMPLOYEE PARKING RAMPS	DIRECT AND COMFORTABLE ROUTES TO DESTINATIONS, LANDMARKS, AND SUB-DISTRICTS	QUICKEST ROUTE TO NEAREST STREETCAR OR RPT STOP	QUICKEST ROUTE TO THE TRANSIT TERRACE	QUICKEST ROUTE TO THE CITY LOOP	DIRECTIONS TO DESTINATIONS WHILE ON CITY LOOP	QUICKLY UNDERSTAND WHERE PARKING SUPPLY IS AVAILABLE	DISTRICT IDENTIFICATION	DAILY PROGRAMS AND EVENTS	ON-THE-FLY NAVIGATION AND INFORMATION VIA APPS AND SENTIENT WAYFINDING APPLICATIONS
Employee	Walk	+	+		+	+	+		+	+	+
	Transit		+	+	+				+		+
	Bike		+	+	+	+	+		+		
	Drive	+						+	+		
Visitor (patient)	Walk	+	+			+	+		+	+	+
	Transit		+	+					+		+
	Bike		+	+		+	+		+		
	Drive	+						+	+		
Visitor (convention attendee, patient family, youth sport participant, etc)	Walk	+	+		+	+	+		+	+	+
	Transit		+	+	+				+		+
	Bike		+	+	+	+	+		+		
	Drive	+						+	+		
Resident	Walk	+	+		+	+	+		+	+	+
	Transit		+	+	+				+		+
	Bike		+	+	+	+	+		+		
	Drive	+						+	+		

FIGURE 7.5-44 - WAYFINDING SYSTEM FUNCTIONALITY AND USER GROUPS

Modern, Clean



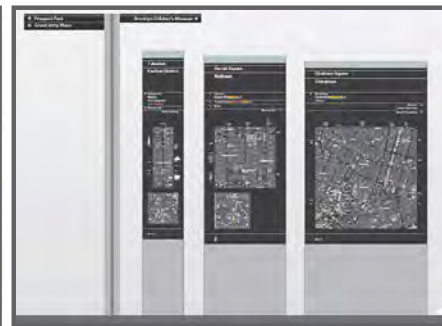
Legible London, streetscape wayfinding



Downtown Alliance (NYC), streetscape wayfinding

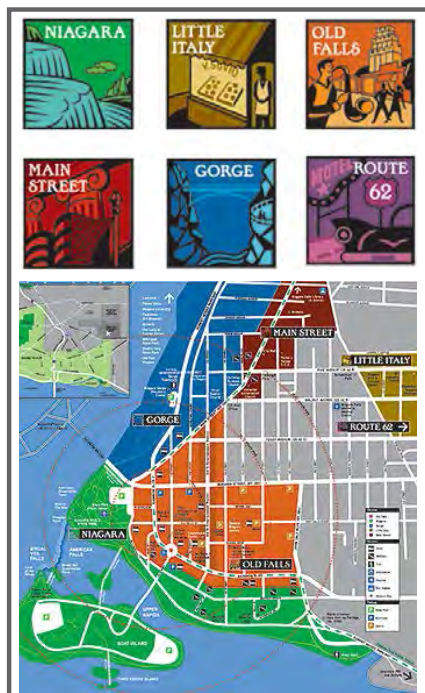


Cleveland wayfinding



WalkNYC

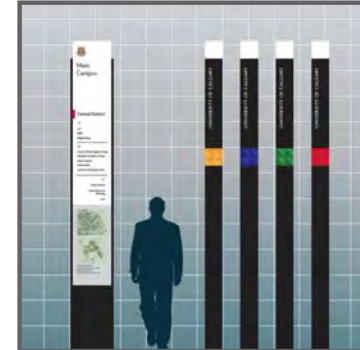
Color-Coding



Niagara Falls streetscape districting



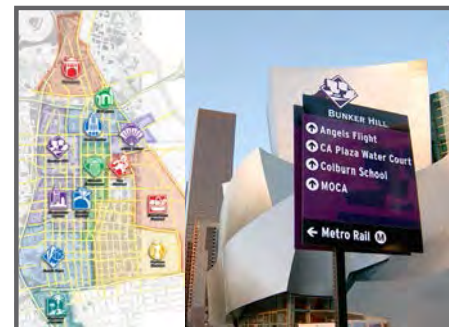
Cancer Hospital, Sign Family



University of Calgary signage program



Dubai mall



LA Walks, streetscape districting

sizing (small, medium or large) to attachment methods (freestanding or wall mounted)

- **Transit Station Kiosk:** Locate kiosks along streetcar stations and priority transit streets to display information pertinent to transit users. Content should include a transit map indicating nearest locations of all public transit, timetables and regulatory messaging. Kiosks should be designed for multiple needs based on site-specific requirements, from sizing (small, medium or large) to attachment methods (freestanding or wall mounted).
- **Bike Share Station Kiosk:** Locate kiosk map panels adjacent to bike share station payment kiosks. Typically these are provided by the operator, but should contain all pertinent information needed for the bike share users and pedestrians. Content may include regulatory messaging and station location maps with travel time indicators to sub-districts and landmarks. Kiosks should be designed for multiple needs based on site-specific requirements, from sizing (small, medium or large) to attachment methods (freestanding or wall mounted).

Pedestrian Specific Elements (Exterior)

- **Kiosks:** Provide directional kiosks at key locations on pedestrian walkways to aid in directing foot traffic between districts and buildings. Kiosks should indicate distances and corresponding walking time ranges within a 5–20 minute radius. Maps should show sub-districts, parking lots, landmark destinations, services and areas of interest. Regulatory messaging should be included. Kiosks should be designed for multiple needs based on site-specific requirements, from sizing (small, medium or large) to attachment methods (freestanding or wall mounted).
- **Directionals:** Provide navigational 'breadcrumbs' to lead pedestrians to their destinations. These elements display directions, distances and walk times to sub-districts, landmark destinations and transit facilities from important locations on streets, the City Loop and other key public places within the Development District. Directionals should be designed for multiple needs based on site-specific requirements, from sizing (small, medium or large) to attachment methods (freestanding or wall mounted)

Pedestrian Specific Elements (Interior)³

- **Directional signs:** Provide navigational 'breadcrumbs' to lead pedestrians to their destinations within the subway/skyway network and key downtown buildings.
- **Map Panel:** Position maps at key locations with the subway/skyway network to aid in directing foot traffic. Potential messaging adjustments should show sub-district locations, sub-district to sub-district and building-to-building positioning, distance indications and corresponding walking time ranges within a 5–30 minute radius. Regulatory messaging should be included.

ESTABLISH DISTINCT SUB-DISTRICT IDENTITIES

The Development District is comprised of six sub-districts. Providing visual identities for each sub-district will improve recognition and assist in navigation. Visual enhancements could include icons, logos, wordmarks, photographic imagery, color coding or other visual elements. These elements help to establish a marketable identity per sub-district.

³ Note: The Rochester Downtown Alliance has recently implemented a new comprehensive wayfinding program in the skyway and subway system. The DMC Transportation Plan does not intend to replace this program, but potentially update the applied content, directional messaging and maps, in order to coordinate with new messaging and sub-district identification programs.

FIGURE 7.5-45 WAYFINDING DESIGN AND CONTENT INSPIRATION

SIMPLIFY NAVIGATION APPROACHES

When navigating new cities or places, people often become overwhelmed. To counter this, it is advantageous to minimize the amount of messages one provides and to augment with other non-verbal cues and instructions, such as color-coding and using icons or imagery.

An example of a manageable set of instructions for vehicular navigation: indicate to the driver to head into the DMC, direct towards the appropriate sub-district, locate parking in a lot closest to your intended destination, adjacent to transit or connecting to the skyway/subway system. From this point pedestrian navigation would lead him/her to their intended destination.

For pedestrians, the use of succinct messaging is also desired. As an example: direct one towards the desired sub-district, then towards landmarks and ultimately to his/her desired destination. It is also encouraged to include standard walking times to provide a recognizable understanding of distance. Working with the destinations that attract the most or the most rushed visitors, consider creating a two level messaging hierarchy, districts and high usage destinations that contains dual destinations to assist those individuals that need the faster defined path.

The placement of sign components throughout the DMC Development District will need to follow a combination of best practices and regulations provided by Rochester Public Works Department, MnDOT and USDOT.

Vehicular centric elements, whether gateways or directionals, are placed prior to major decision points so information can be processed in order to ensure proper circulation flow. Pedestrian centric components, kiosks or directionals, are strategically located at key decision points, intersections and pathways within the streetscape. Emphasis will be given to placing pedestrian components along transit priority streets, the City Loop trail network, sub-district nodes or hubs, and existing or new landmarks. Figure 7.5-46 is a concept map that demonstrates key circulation corridors in which wayfinding sign placement should be prioritized.

In 2012, the Rochester Downtown Alliance (RDA) developed a streetscape wayfinding program. While the program was never implemented, a comprehensive design process was completed which included programming, placement and messaging. The placement and messaging process can provide a foundation for the DMC wayfinding program, but needs to be updated to address the needs of the current Development Plan. The DMC, in coordination with the City of Rochester and private sector leadership in downtown will need to engage a design consultant and complete a detailed report of the wayfinding programming requirements. This study and report should include:

- An audit of existing signs and messaging
- Determination of physical decision points where the variety of district-based wayfinding elements will need to be placed to ensure a streamlined and legible vehicular and pedestrian navigation experience
- Develop an overarching approach to messaging, from sub-district and destination messaging to regulatory content.

INTEGRATE DIGITAL AND MARKETING TECHNOLOGIES

Visitors to Rochester use a variety of resources to obtain information, from traditional printed pieces like maps, to

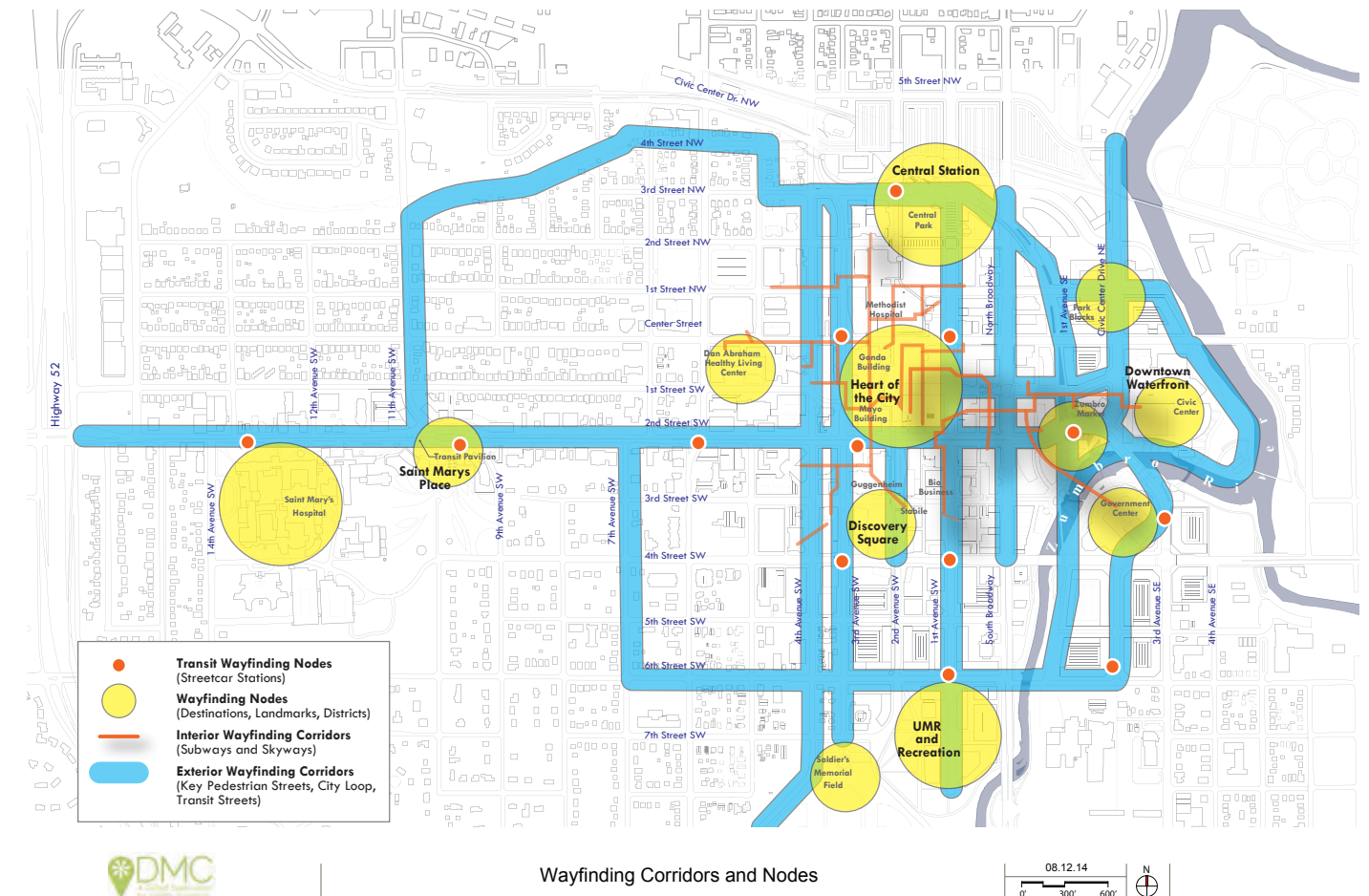


FIGURE 7.5-46 CONCEPTUAL WAYFINDING FRAMEWORK IN THE DMC

Image from Nelson\Nygaard

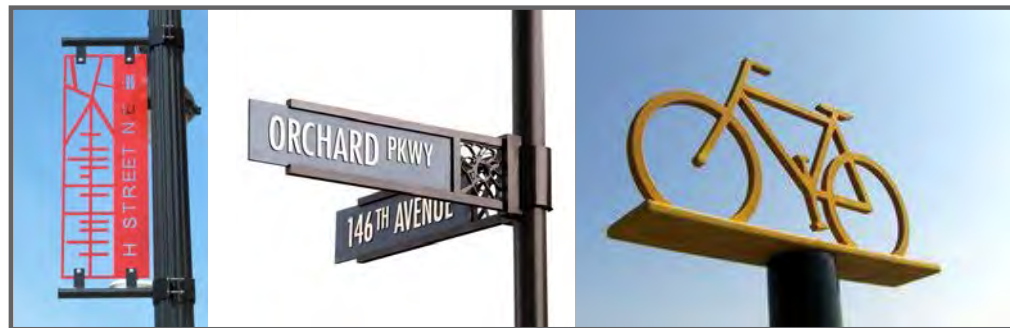
Integrate



The Style Outlets, Wayfinding



Public Art Wayfinding: Vercorin, Belem



Customized Accent Graphics: Dimensional Icons, Patterns

Ownable



Baltimore Streetscape, Districting Wayfinding



Centre Pompidou Wayfinding



Riverbank Adelaide



Downtown Brooklyn

online sites and mobile applications. The most important component in a comprehensive wayfinding program is consistency. The following are options to expand on the physical wayfinding program, but as technologies are constantly evolving they are only a starting point based on availability at implementation. These opportunities may change as wayfinding and information technology progresses.

Existing Opportunities

- The Mayo Clinic has created a popular mobile application, which has a navigation feature that can be expanded, integrated to encompass other DMC needs.
- The Rochester Convention and Visitors Bureau has implemented several affixed interactive flat screen monitors, incorporating the functionality and information offerings.
- Update printed maps present in subway and skyway system, tourism magazines, etc.

New Opportunities

- **TransitScreen.** A transportation software and digital signage company that provides real-time transit information displays at specific locations, including but not limited to: subway, bus, train, bike-share, and car-share. Its main objective is to make transit information simple, easily accessible and more engaging to commuters, visitors, residents and employees, so they are able to choose the most convenient method of transportation. TransitScreen can be displayed on any screen and its web application can run on any computer, smart phone or tablet.
- **RideScout.** A mobile app that helps you get from one point to another “faster and smarter.” It shows users real-time information for all transportation options, such as: bus, taxi, car-share, bike-share, parking and walking directions, all in one view. It also compares rides by cost and type, and lets you active alerts to help you arrive on time.
- **SmartWalk.** SmartWalk brings real-time dashboard information into the physical world by projecting the information onto sidewalks and walls. It includes a complete wayfinding system with arrows pointing you in the direction of your preferred method of transportation, and information about local landmarks, including direction and distance.
- **iBeacon.** iBeacon is considered the trademark for indoor positioning systems (IPS)—any solution based on magnetic, sensor data or network of devices used to wirelessly locate objects or people within a building. The term iBeacon is the name for Apple’s technology that allows Mobile Apps (running on both iOS and Android) to listen for signals from Beacons (small, cheap Bluetooth transmitters) in the physical world and react accordingly. iBeacon technology allows Apps to understand their position in a space and deliver content to other iBeacon users based on location. iBeacon utilizes a communication technology called Bluetooth Low Energy (BLE), which has a range of up to 100 meters. It consists of small packets of data, broadcasted by Beacons through radio waves. This is a one-way communication method—the broadcasted packets are meant to be collected by devices (smartphones), which then trigger actions. For example, on a visit to a museum, the museum’s app could provide you with information about the closet display, using your distance from beacons placed near exhibits.

FIGURE 7.5-47 WAYFINDING DESIGN AND CONTENT INSPIRATION

7.5.5.2 WAYFINDING PROGRAM RECOMMENDATIONS

The DMC Transportation Plan establishes a set of recommendations organized around Design, Placement and Messaging, and Digital and Communication Coordination that define the comprehensive multimodal wayfinding system in the DMC Development District. The recommendations are shown below. Figure 7.5-5 conceptually illustrates how the DMC wayfinding sign family might look.

DESIGN

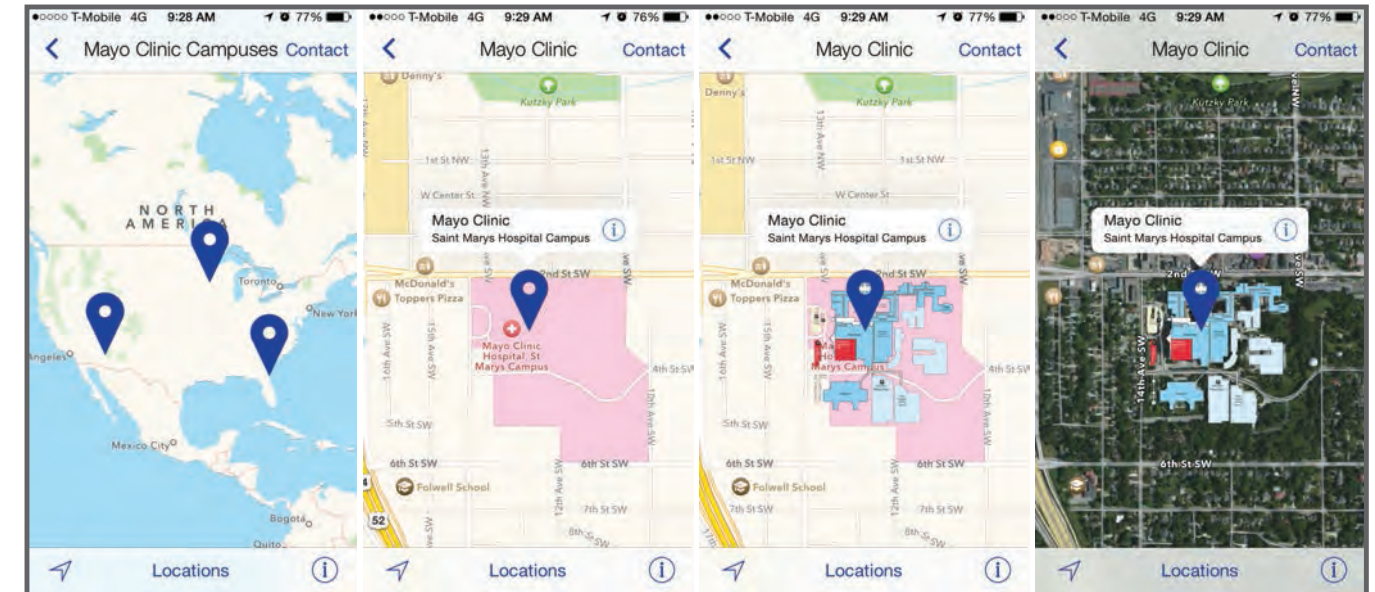
- Create a sign program that is owned by and recognizable as the DMC Development District. The sign family will have modern, clean forms and typography.
- Create a comprehensive Development District map that clearly illustrates and induces a mental image of all sub-districts, major destinations, landmarks, circulation corridors, etc. Ensure maps are positioned to be viewed “heads-up” or forward facing and have time and distance indicators for key destinations..
- Create a series of interconnected and individually recognizable identities for the sub-districts. Consider the intent of each zone, identify its offerings and determine the appropriate personality, associated color and visual iconography palettes.
- Chose materials and fabrication applications for their longevity and ability to withstand local weather conditions and other degrading factors.
- Ensure legibility with appropriate contrast levels in graphic applications and provide for required illumination reflective coatings as needed.
- Provide for content replacement and layout flexibility on all sign types. Messaging will need to be updated based on phasing, evolution and development of the Development Plan.

PLACEMENT & MESSAGING

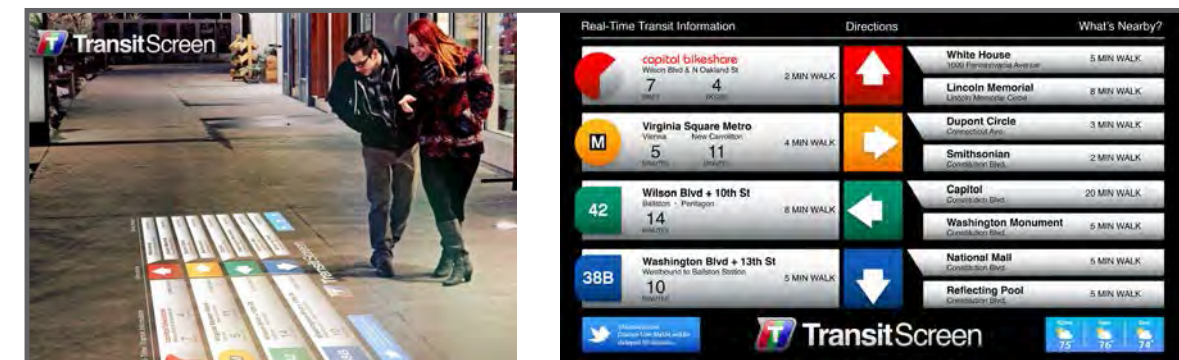
- Ensure that signage is positioned to tie together various elements of Downtown Rochester including paths (City Loop, subway, skyway, parking access pathways, streetcar access pathways, 3rd/4th Avenue Transit Priority Streets, etc.), places, sub-districts, destinations/landmarks, etc.
- Identify decision points for both vehicular and pedestrian programs that streamline navigation.
- Simplify and limit the number of routing options. Utilize a large to small approach: direct to a sub-district and then to particular destinations. Do not overwhelm with complicated approaches.
- Indicate corresponding time and distance to destinations on all directional elements.

DIGITAL AND COMMUNICATIONS COORDINATION

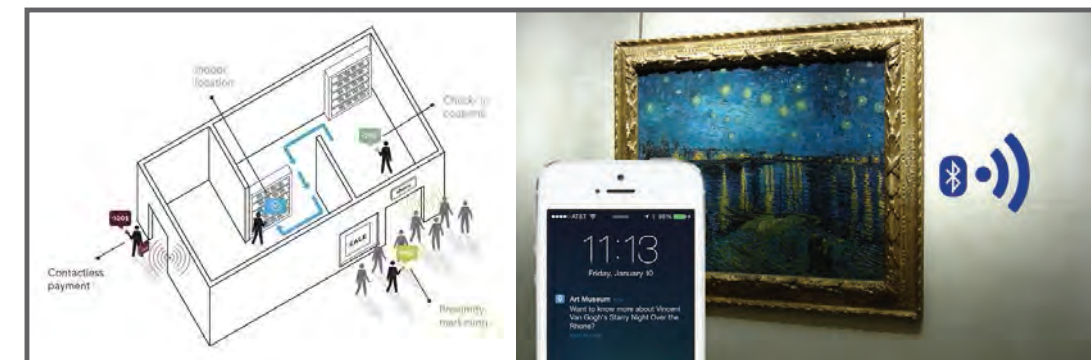
- Hire a single point of contact to manage external content coordination and internal commissioning of application development. This entity shall be responsible for all maintenance and upkeep.
- Ensure all content, messaging and visuals are consistent across all mediums. Apply interactive design elements where users can toggle, scroll, and scan through information.
- Create an ownable DMC mobile application that provides multi-layered content to users.
- Enable digital delivery of content by use of iBeacon integrated software (or similar) that connects users with the happenings of the built environment, advertizes weekly happenings and local events, and serves as an extension of the Convention and Visitors Bureau.



Mayo Clinic Wayfinding Application



Transit Screen ApplicationIntegrated Technologies



iBeacon Integrated Technologies

FIGURE 7.5-48 EMERGING WAYFINDING TECHNOLOGIES

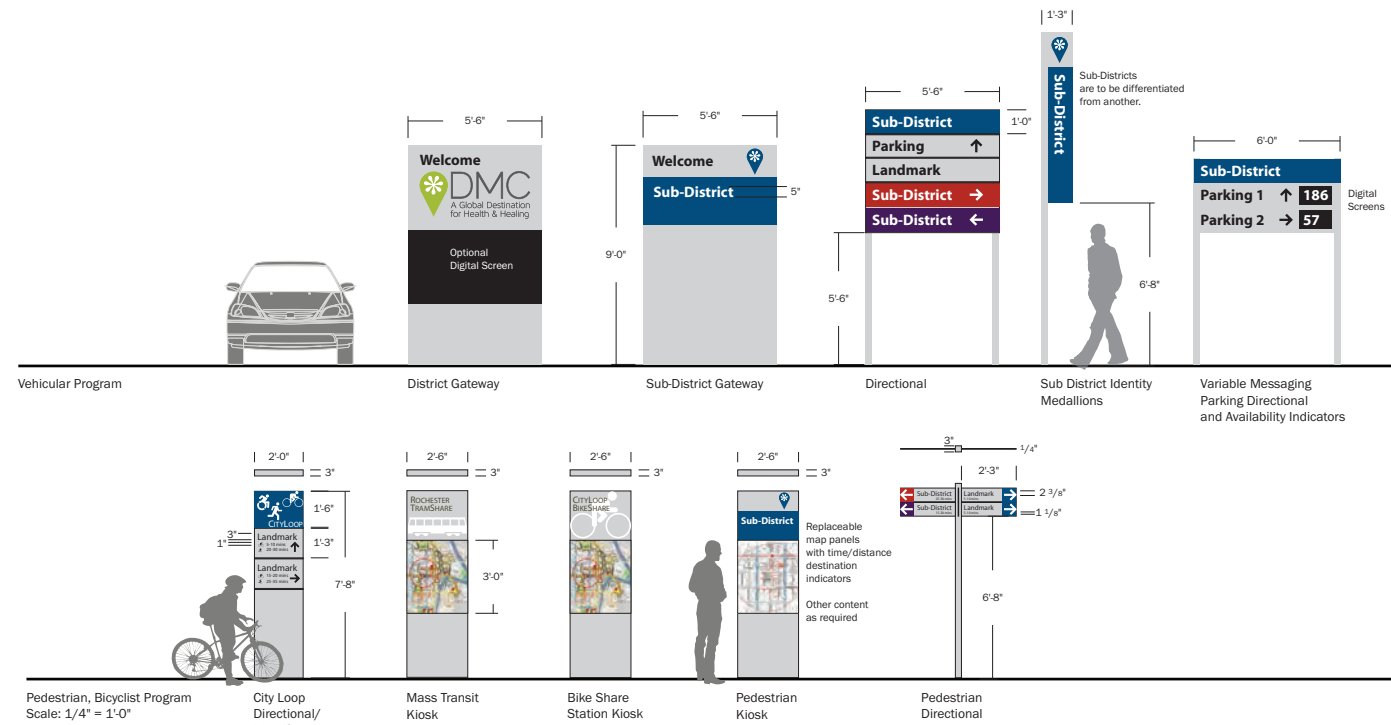


FIGURE 7.5-49 CONCEPTUAL VIEW OF THE RECOMMENDED WAYFINDING SIGN FAMILY

7.5.5.3 INSTITUTE A DMC WAYFINDING SYSTEM ZONING OVERLAY

The conceptual recommendations of the Wayfinding Investment Strategy are consistent with standards established in Manual on Uniform Traffic Control Devices and most sign types adhere to the City's sign regulations (established in Chapter 63 of the City's Land Development Manual). However, some sign types will require a relaxation of sign regulations. Generally, the types of signs recommended in the Wayfinding Investment Strategy can be placed in the public right-of-way with a revocable permit per 63.224-2-K⁴ and are exempted from most regulations per 63.224-4-E.⁵

The DMC should work with the City to revise the current sign regulations using a Wayfinding System Zoning Overlay to allow freestanding signs to be sized appropriately for people to see maps and other information. This overlay would amend regulatory language to allow digital displays into the map totems and kiosks for the wayfinding system only. This is critical to achieving the wayfinding system's objectives and establishing a public amenity that will be utilized by residents, employees, and visitors.

⁴ No signs except those of a duly constituted governing body shall be erected or allowed to extend over a public right-of-way. However, in the Central Development Core District, such signs are permitted where a revocable permit is secured prior to issuance of a sign permit

⁵ Exempt Signs: The following signs shall be exempt from regulation under this ordinance:

E. Any sign, display or device allowed under this ordinance may contain, in lieu of any other copy, any otherwise lawful noncommercial message that does not direct attention to a business operated for profit, or to a commodity or service for sale and that complies with size, lighting and spacing requirements of this ordinance.

PROJECT		PROJECT ELEMENT	CAPITAL COST ESTIMATE	ESCALATED COST
P1.10	Phase 1 Gateway and Downtown Wayfinding System	Commission graphic design consultant(s) to undertake the creation of an ownable, comprehensive identity, signage and wayfinding program as outlined in these corresponding guidelines. The signage program should be designed towards bid documentation level with phased packages created for the differing installation schedules. Prepare draft location plans, new and replacement messaging schedules per phase. The identity program is to be designed to implementation level, complete with all sharable artwork formats for integration across all platforms, static and digital. Begin development, coordination on Digital & Marketing Communications applications: apps, website content, GPS mapping, interactive content and static maps and promotional banners.	\$0.2 million	\$0.21 million
A1.3	Wayfinding System - Phase 1	Commission graphic design consultant(s) to undertake the creation of an ownable, comprehensive identity, signage and wayfinding program as outlined in these corresponding guidelines. The signage program should be designed towards bid documentation level with phased packages created for the differing installation schedules. Prepare draft location plans, new and replacement messaging schedules per phase.	\$0.4 million	\$0.42 million
P2.10	Phase 2 Gateway and Downtown Wayfinding System	Applications focus around the existing district land uses: The Heart of the City, Discovery Square, and around the Civic Center and sky/subway system; and future development in Phases 1 and 2, including The Heart of the City, corridors between UMR south campus, connections to the regional trail system, City Loop Trail, Downtown Waterfront, Saint Marys Place, and The Heart of the City.	\$1.5 million	\$1.8 million
A2.2	Wayfinding System - Phase 2	Applications focus around the existing district land uses: The Heart of the City, Discovery Square, and around the Civic Center and sky/subway system; and future development in Phases 1 and 2, including The Heart of the City, corridors between UMR south campus, connections to the regional trail system, City Loop Trail, Downtown Waterfront, Saint Marys Place, and The Heart of the City.	\$0.25 million	\$0.3 million
P3.10	Phase 3 Gateway and Downtown Wayfinding System	Applications focus around Phase 3 of the City Loop Trail and future development in Downtown Waterfront, Discovery Square, Central Station, and UMR.	\$1.5 million	\$2.0 million
A3.2	Wayfinding Sytem - Phase 3	Applications focus around Phase 3 of the City Loop Trail and future development in Downtown Waterfront, Discovery Square, Central Station, and UMR.	\$0.25 million	\$0.34 million
P4.10	Phase 4 Gateway and Downtown Wayfinding System	Applications focus around future development in Downtown Waterfront, Discovery Square, Central Station, and UMR.	\$1.0 million	\$1.5 million
A4.1	Phase 4 Wayfinding System	Applications focus around future development in Downtown Waterfront, Discovery Square, Central Station, and UMR.	\$0.25 million	\$0.38 million
TOTAL			\$5.4 million	\$7.0 million

FIGURE 7.5-50 - ESTIMATED CAPITAL COSTS FOR WAYFINDING INVESTMENTS



Improving access to the DMC Development District necessitates a regional approach. The DMC Transportation Plan recommends improvements in the District that will enhance access. The Transportation Plan also supports supplemental non-DMC funded improvements that will enable the Development District to accommodate envisioned growth.

Image from Fly RST

7.5.6 REGIONAL IMPROVEMENTS

The DMC Development Plan focuses investments within the DMC boundary in downtown Rochester. However, DMC is a State and regional initiative that will have significant benefits and affects on southeast Minnesota. The demand for travel to and from the DMC District is one of the most prominent regional foci of the project. Many of the infrastructure investments in the District are necessary to prepare for workers, patients, and visitors traveling from around the region as well as those arriving from around the United States and other countries.

The DMC Development Plan seeks to achieve the following objective to improve the capacity and quality of regional, national, and international connections to the DMC Development District:

- **Provide direct, affordable, and comfortable access for commuters.** Regional transit services should attract new users and be seen as an amenity. Transit originating from communities throughout southeast Minnesota should offer productive time in transit where people can read, work, or catch up on current events while in transit to and from Rochester. By attracting people to regional transit services, the DMC Development Plan offers cost and time savings for employees and people accessing DMC offerings, including Mayo Clinic services and facilities.
- **Provide seamless connections to the Development District from points across the globe.** Connecting visitors and residents between the DMC Development District and its ports of access (including Rochester International Airport and Minneapolis-St. Paul International Airport) should be easy and enjoyable. Access to Southeast Minnesota should be relatively stress-free and free of complications. The supporting amenities that bring people into the DMC District should be marketable to future Mayo Clinic patients, future employers, and even national and global air passenger carriers.
- **Strengthen linkages between the DMC Development District and the Twin Cities.** People traversing the 100 miles between Rochester and the Twin Cities should not perceive the trip to be lengthy or difficult. Connections should be fast, attractive, and filled with passenger amenities. This alone will help further Mayo Clinic initiatives in the Twin Cities and extend the reach and economic impact of the DMC initiative. Enhanced transportation services enables the possibility of living in the Twin Cities and working in the DMC Development District—likely an attractive option for young urban professionals.

The supportive investments suggested in subsequent sections are not recommended for DMC funding but help achieve the objectives established above.

7.5.6.1 IMPLEMENT A REGIONAL PARK-AND-RIDE NETWORK SUPPORTED BY COMMUTER TRANSIT SERVICE

As the DMC Development District grows, parking costs and scarcity at peak times will rise (as demonstrated in Section 7.5.1). The availability of reliable regional commuter bus service with convenient park-and-ride locations will allow more employees to access the Development District without incurring the cost of downtown parking and the personal time cost of a long drive alone commute. Increased ridership on regional commuter bus service supports DMC Transportation Plan principles established in Section 7.1 by enabling more employees to access the Development District without building parking beyond the street network's ability to accommodate parking demand. The following strategies support expansion of regional commuter bus service.

BOLSTER COMMUTER BUS SERVICE QUALITY

This strategy attracts more passengers to regional commuter bus service by improving the physical and technological capabilities of the vehicles. Attractive, well-maintained, smoothly operated buses that include passenger comforts and online connections respond to the demands of commuters that value time, recreation, and connectivity above access to personal vehicles. All buses should have the following components:

- **Free on-board WiFi.** Providing free WiFi allows people to stay connected and productive, even in transit.
- **Clean and comfortable passenger areas.** Basic vehicle upgrades should include comfortable seats with adequate legroom, overhead lights, and storage space. Daily cleaning should ensure a comfortable experience.
- **On-board real-time arrival information.** Basic arrival information informs passengers the expected time of arrival and may include other information such as the time, weather, and news headlines. Installation of automated vehicle location (AVL) technology is necessary for this upgrade.
- **Bicycle storage.** Bicycle racks at park-and-ride lots and on buses allow more flexibility for passengers and support commute options. Bike share in the Development District is a DMC-funded investment that will extend destination-end mobility and last mile connectivity for people arriving by commuter bus (see Section 7.5.4).

GUIDE THE LOCATION AND DESIGN OF REGIONAL PARK-AND-RIDE FACILITY IMPROVEMENTS

Park-and-ride lots at regional origin points should include clean and comfortable waiting facilities and secure designs. Adequate pedestrian accessibility and enhanced passenger amenities at commuter bus stops are critical to attracting people to the service. Facilities should provide customers with protection from inclement weather and information about transit service. The following list specifies amenities that should be provided at park-and-ride locations:

ENHANCE THE QUALITY AND SECURITY OF PARK-AND-RIDE LOTS AND SHELTERS.

Important enhancements include:

- Enclosed, heated shelters for year-round comfort
- Benches located inside and outside the shelter
- Real-time travel information about bus operations and travel times to downtown
- Trash receptacles, routinely emptied
- Hardcopy route maps and schedules
- Lighting at the shelter and in the park-and-ride lot designed to follow crime prevention through environmental design (CPTED) guidelines
- Bicycle and pedestrian access, where applicable



An enclosed passenger waiting facility in Lake Tahoe, CA with real-time information.

Image from WRNS Studio

LOCATE COMMUNITY PARK-AND-RIDE LOTS WHERE THEY WILL SUPPORT THE LOCAL ECONOMY (I.E., PROXIMATE TO RETAIL OR NEAR MAJOR INTERCHANGES)

Ideally, the location of the park-and-ride lot is near a downtown location supported by pedestrian and bicycle access. Secure automobile and bicycle parking should be provided at all lots. The order of preference for locating regional bus stops and park-and-rides are:

- **Downtown:** If all-day commuter parking is available and will not disrupt the activities of downtown merchants, locate bus stops in the downtowns of regional communities near active retail uses. Centralized downtown locations may encourage kiss-and-ride drop-offs and more walking and biking to transit.
- **Proximate to retail:** Utilizing existing shopping centers and other available parking lots located near active retail uses provides security and convenience for passengers.
- **At major intersections or highway interchanges:** In locations away from traditional downtowns and shopping centers, locating the park-and-ride at the intersection of major roadways allows improved access from rural locations.

MARKET AND INCENTIVIZE REGIONAL PARK-AND-RIDE FACILITIES

The proposed Access Management Authority (recommended in Section 7.5.1) should actively market available park-and-ride lots near employees' homes. Each new employee should receive information about the closest park-and-ride lot, the monthly cost of service compared to driving and parking in downtown Rochester, and availability of the Guaranteed Ride Home program.

EXPAND THE GUARANTEED RIDE HOME PROGRAM

This program can provide an important transportation "safety net" for downtown employees committed to alternative commute modes. The current program is limited to Mayo Clinic employees. Through the proposed Access Management Authority, expanding the program to all downtown monthly commuter bus users can help alleviate the fear of these deeper commitments and make regional commuter bus service more attractive and feasible for commuters. See more information in Section 7.5.1.

7.5.6.2 ESTABLISH A REGIONAL COMMUTER SHUTTLE BETWEEN TWIN CITIES AND ROCHESTER

Employment growth will generate greater travel demand between the Development District and the Minneapolis-St. Paul region over the next 20 years. The DMC Transportation Plan recommends a high-end shuttle service that will connect employees between these two anchors. This will serve as an interim transit solution that meets growing demand for regional transit before regional high speed rail is constructed. Such a high-end bus service will be valuable to the DMC as it will help satisfy growing access demand, contribute to the reduced need to build parking on valuable developable land, and help Mayo Clinic Human Resources market to professionals that would like to continue living in Minneapolis-St. Paul. Further, a bus service of comparable quality to the “tech bus” services in the San Francisco Bay Area and the Seattle area could help to “shorten” the distance between Rochester and Minneapolis. As Rochester competes nationally for bio-tech businesses and other businesses, a strong, high-quality linkage between the Twin Cities and downtown Rochester could help to strengthen the competitive advantage of both cities.

The shuttle service could be developed incrementally and expanded as the market grows. Seeking to partner with MSP airport shuttle, service providers could expand the size of the shuttle market and establish an earlier market for all-day services.

Given demand levels within the first five to ten years, it might be most appropriate to start service using a high-end cutaway shuttle service with passenger amenities and comfort levels similar to the Sprinter vehicle pictured at right. As demand grows and higher capacity vehicles are required to meet demand, private coach bus service with enhanced passenger amenities should be introduced. Over-the-road coaches carry a much higher capital purchase cost and are more expensive to operate. However, the passenger experience aboard an over-the-road coach is much better because it provides a much more stable, smoother ride, and is more conducive to working or conducting other activities while on board.

Each version of the Highway 52 transit service should include the following minimum passenger amenities:

- Recline-able chairs with table attachments and ample leg room
- Large windows
- On-board WiFi and plugs for mobile device charging
- On-board real-time arrival information
- Bicycle storage
- Restrooms (on private coaches only)



A high-end cutaway-style shuttle service could serve the Twin Cities-Rochester transit market in the early phases of DMC development

Image from Bridj



A larger more high-end over-the-road coach could be introduced as demand grows

Image from Nelson\Nygaard



Image from Gary Chambers

7.5.6.3 IMPROVE ACCESS TO ROCHESTER INTERNATIONAL AIRPORT

The success of the DMC initiative is bolstered by expanding options for air access to southeast Minnesota and Rochester. The Rochester International Airport (RST), the most proximate commercial air service hub to the DMC, established a Strategic Plan in June 2014 to help shape air access to Rochester and the SE Minnesota region. RST seeks to remain a highly competitive option for access to the Mayo Clinic and other DMC-generated businesses and initiatives. A market analysis conducted as part of the RST Strategic Plan found significant demand for expanding air service in southeast Minnesota, with DMC growth comprising a major component of that demand. Key objectives identified in the Strategic Plan that tie directly into the DMC Transportation Plan include:

- Developing a customer-focused, integrated transportation network connecting the airport to downtown Rochester and southeast Minnesota.
- Pursuing additional hub service, as well as supplemental air service to the Minneapolis-St. Paul International Airport with an integrated multimodal transportation option.
- Maximizing use of social media and mobile technology opportunities to communicate RST services and cross-leverage technology with community partners.
- Exploring options for high-quality bus links between RST, downtown Rochester, and MSP.

While RST will remain a critical access point for domestic and international flights serving Mayo Clinic and other DMC-related businesses, the DMC Transportation Plan recommends a series of supportive improvements, rather than directly funding upgrades to the airport operation. This helps the airport achieve several of their key strategic objectives related to airport access. The DMC Transportation Plan recommends the following improvements to RST access:

- **Improve access to RST.** Improve access to RST and the process required to connect air passengers to their terminal by establishing a remote TSA passenger and baggage screening. This would be developed as part of the Transit Terrace facility, as described below.
- **Improve transit connections to RST.** The DMC transit strategy in Section 7.5.2 is well integrated into a citywide transit framework being developed through the Comprehensive Plan Update. The framework will likely improve transit connections between downtown Rochester and RST via premium frequent transit service. RST is a potential anchor stop for premium transit service, even if service is provided on a limited basis (e.g., service every other trip). Supplemental to the remote TSA checkpoint screening facility recommendation, a shuttle is also recommended to directly connect DMC visitors between the Transit Terrace and RST.
- **Integrate RST departure information into the digital wayfinding interface.** Basic departure information such as departure times and transit departure times destined for RST into wayfinding kiosks would both improve passenger schedule understanding and improve the visibility of RST to employees, visitors, and residents. These wayfinding elements would be located close to hotel entrances and in the subway/skyway (supports the Wayfinding Investment Strategy's digital interface recommendations found in Section 7.5.5).

7.5.6.4 DEVELOP AN INTEGRATED TSA CHECKPOINT SCREENING AND SHUTTLE SERVICE AT TRANSIT TERRACE

The DMC Transportation Plan recommends establishing a remote checkpoint screening area in the Transit Terrace to simplify and streamline the process of connecting visitors and residents to the Rochester International Airport (RST) and Minneapolis–Saint Paul International Airport (MSP). A remote checkpoint screening would include a TSA operation that checks-in outbound passengers for both US domestic and international flights using travel document scanning capabilities, baggage check, and baggage screening. The checkpoint screening amenity would be connected to a direct shuttle service that operates between the Transit Terrace and the two airports. The screening process would continue to be the role of TSA agents per TSA guidelines and protocols, but back of house baggage screening and management can be the responsibility of a private contractor. This type of pre-screening service is offered at Orlando International Airport, increasing the airport’s capacity and screening effectiveness.

Technology and processes to manage remote passenger check-in is already in place and used in the US. The technology to process and transmit Advance Passenger Information System data for U.S. carriers that fly between, into, and out of the U.S. has been authorized by the U.S. Customs & Border Protection division of the Department of Homeland Security.

Passengers would view remote TSA checkpoint screening as a value add as it will reduce their time spent in security lines at the airport. For people with evening flights that are tied to a standard 11 a.m. hotel checkout time, this service also allows early baggage check from their hotel or from the Transit Terrace. Passengers would drop-off their bags in a secure area, continue to explore the DMC’s offerings, and pick up their baggage at the destination-end of their trip.

The remote checkpoint would also be beneficial to RST and airlines because it would: 1) reduce the need to build additional rental vehicle parking at RST due to a greater number of passengers arriving via the TSA shuttle as noted above; 2) serve as a strategy to retain and potentially attract new carriers to RST; and 3) provide added value to airline carriers by allowing them to plan baggage handling more efficiently.

This service could be implemented earlier (before construction of the Transit Terrace) if it was based at RST using existing TSA passenger screening equipment and staff. However, the optimal long-term location would be at the Transit Terrace at Central Station.



TSA passenger screening and passenger shuttles could be operated out of the Transit Terrace facility.

Image from Wally Skalij



This conceptual rendering of high speed rail service (ZipRail) between Minneapolis-St. Paul and Rochester illustrates the service that would drastically reduce the “distance” between the Twin Cities and the DMC. ZipRail would offer a 30-minute trip along the 100- mile corridor, cutting the time between the two cities in half.

Image from Go ZipRail

7.5.6.5 SUPPORT REGIONAL HIGH SPEED RAIL (I.E., ZIPRAIL)

Multiple efforts are underway to evaluate high speed rail between the Twin Cities of Minneapolis and St. Paul and Rochester. The Olmsted County Regional Railroad Authority (OCRRA), in partnership with the Minnesota Department of Transportation (MnDOT) and the Federal Railroad Administration (FRA), is undertaking an evaluation of a high-speed passenger rail connection between Rochester and the Twin Cities Metropolitan Area. The project being pursued has been dubbed ZipRail. The corridor would represent about 100 miles of rail service to be designed to true high speed rail specifications, which would include:

- Rail designed to all speeds of up to 150-220 mph
- Dedicated track with no slowdowns required due to freight rail competition or crossings
- Service tht is time and cost competitive with air and vehicle travel
- Potential for future connections to other cities and states

Corridor alignments are still under study. At the time of publishing this document, the project was waiting release of Environmental Scoping Documents, including alternatives to be studied in a Tier 1 Environmental Impact Screening (EIS).

The DMC Transportation Plan anticipates this future passenger rail connection to the Twin Cities by integrating the service into the Transit Investment Strategy. The Central Station sub-district provides an opportunity for passenger rail to connect to the proposed DMC transportation framework, sharing an arrival in a grand terminal with multimodal transportation connections and direct access to climate-controlled pedestrian facilities. Moreover, the sub-district envisions a mixed-use neighborhood to anchor the rail and serve as one of Rochester’s premier addresses for people and companies that want top-quality access and mobility between Minnesota’s two largest urban areas.

While the DMC will not provide financial assistance for the high speed rail project, DMC funds will invest in supportive elements of the project, including approximately 15% of the capital funding necessary to design and construct the Transit Terrace.

7.5.6.6 NON DMC-SUPPORTED COSTS

Each of the recommended regional improvements listed above seeks to improve connectivity and quality of connection to the DMC Development District. All recommendations support the DMC’s vision and economic objectives. While all of the regional improvements will vastly improve access, none of the recommended improvements are recommended for DMC financial support as they are located outside of the DMC Development District.

While supportive of the DMC mission and its underlying access strategy, these recommendations will require outside funding for capital investment and ongoing operations and maintenance costs. Upgrades and development of the regional commuter bus network and park-and-ride location enhancements, high amenity bus enhancements, ZipRail, and airport upgrades will be funded through private investment and state and federal grants.