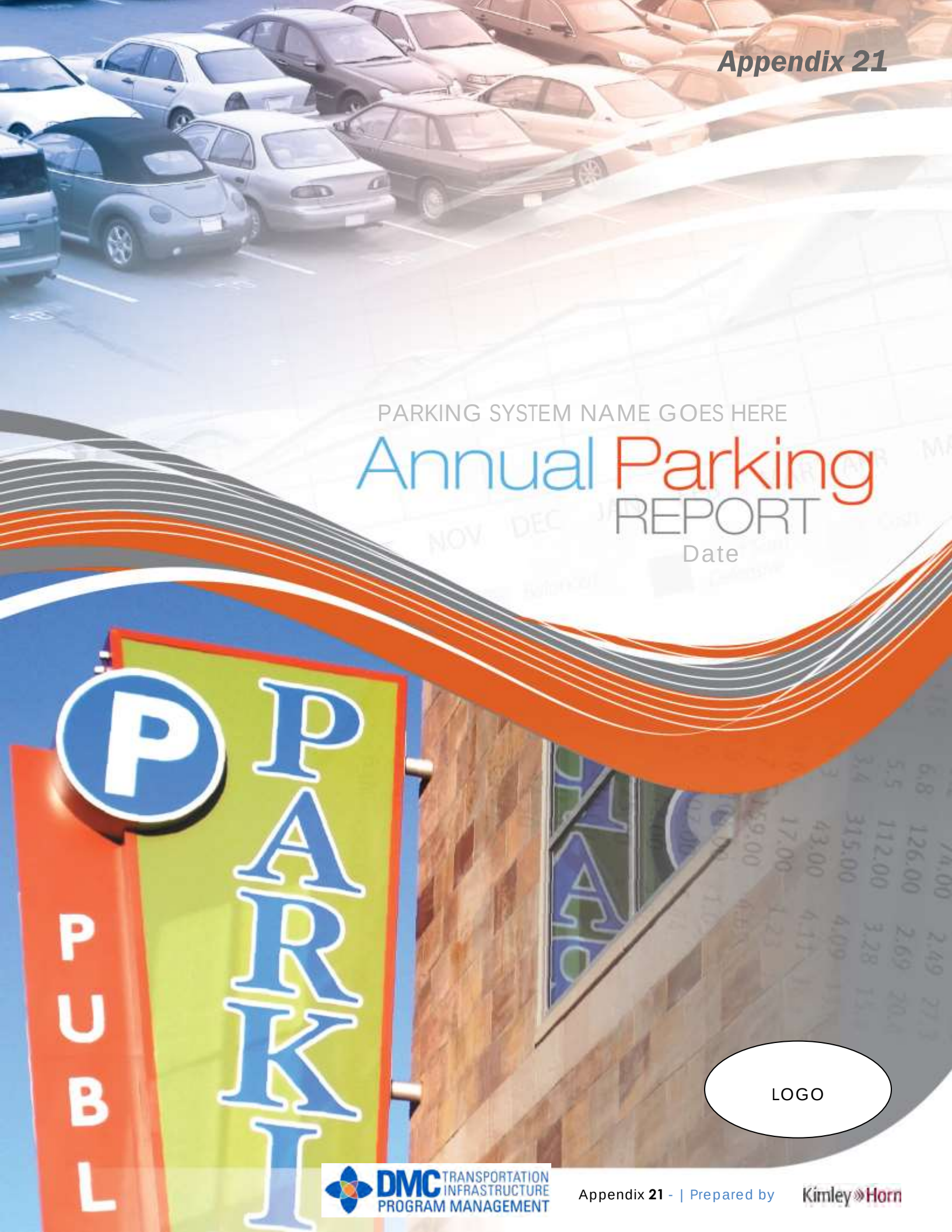
PARKING SYSTEM NAME GOES HERE

# Annual Parking REPORT

Date




LOGO

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LOGO

LOGO

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LOGO

## List of Exhibits **(Example Exhibits)…continued**

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## 2012 Missoula Parking Commission Annual Report

In 2012, Kimley-Horn was engaged by the Missoula Parking Commission to assist with the development of their Annual Parking Report. Appendix 21b is provided as an example of a well-done annual parking report.

# 2012 ANNUAL REPORT

missoula parking commission





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## WHY PARKING MATTERS?

The International Parking Institute ( IPI – of which the Missoula Parking Commission (MPC) is an active member) has a new ad campaign ("Parking Matters") that succinctly sums up what every parking and Downtown management professional knows to be true. However, the specifics about "how" and "why" need to be conveyed much more broadly and effectively. Disseminating this information locally is a role that the MPC will embrace going forward. The MPC has a great story to tell about how it has emerged as a valued and professional "partner for success" in Downtown Missoula and the larger community that it serves.

One of the on-going goals of this new Annual Report initiative will be to educate the community as to the growing importance and impact of the parking profession in the world at large. The report will annually summarize emerging trends and recent advances in the areas of parking planning, design, technology, communications, governance, community engagement, and a more strategic approach to parking management.

In this inaugural edition of the MPC Annual Report, a special emphasis will be placed on four key areas that have been explored over the past couple of years by the MPC staff and its Board of Directors:

- **Emerging Technologies –** We have been exploring the dynamic role of emerging technologies and their impact on our ability to provide enhanced customer service and improved program management.
- **Integrated Access Management –** We continue to emphasize the importance of broadening our scope to include an integrated approach to parking, transportation and demand management programs as a means of delivering more sustainable community access strategies.

# INTRODUCTION

- **Parking and Economic Development –** We believe leveraging parking as an important community and economic development strategy is an important role for the Parking Commission. Working with our community partners, we will continue to explore the application of various parking management and community investment strategies for the overall benefit of our community.
- **Strategic Parking Management –** The MPC was a key funding partner of the Downtown Master Plan project a few years ago. One of the major outcomes for the MPC was the development of our first parking program "strategic plan". It was significant that this plan was an integrated element of the larger Downtown master planning process. Having this plan has been extremely beneficial in guiding the direction and annual work plans of the MPC. Most of the major priority action items within the strategic plan have been accomplished. Updating the MPC strategic plan is a priority for the Board in 2013.

Other areas of focus for 2013 will be our relationships with related associations and professional organizations. We will continue to explore the huge potential for shared benefits that can be realized through improved connections, shared resources, and enhanced community collaboration.

Ultimately, one of our key focus areas is to increasingly embrace our role in contributing to the overall "Downtown Missoula experience". There is a growing respect for the complexity and multi-faceted nature of both parking and downtown management. Strategic communications, effective collaboration, and enhanced customer services are keys to success.

In early 2013, with the opening of the new "Park Place" garage at the corner of East Front and Pattee Streets, the community will see the realization of the largest single project to date from the MPC and the largest project to date to grow from the Downtown Master Plan.

To quote Oliver Wendell Holmes, Jr., "A mind that is stretched by a new experience can never go back to its old dimensions." The MPC plans to keep on stretching!

## A Message from MPC Director, Ms. Anne Guest

The last several years have been filled with significant accomplishments for the MPC. Collectively, they have enhanced our overall parking program and have positioned the MPC to be a major partner for economic development in downtown Missoula.

One significant catalyst for these accomplishments has been the Downtown Master Plan that was approved by the City of Missoula (City) Council in 2009. An integral part of the Downtown Master Plan was the development of a Parking Strategic Plan that included the establishment of ten program guiding principles and wide range of specific recommendations.

The Downtown Master Plan identified a core area in the downtown as a "retail hot spot" and recommended the development of a new parking structure at the corner of East Front and Pattee Streets. In response to that, the MPC along with the Missoula Redevelopment Agency successfully negotiated and financed a new parking structure, "Park Place", at this location. It is designed to support the First Interstate Bank Project while providing additional parking supply to serve the development of the Missoula Mercantile while also providing shared parking for the many evening and weekend events in Caras Park. Park Place will be completed by the beginning of 2013, adding 336 new parking spaces to our downtown inventory. It will be a tremendous asset to the Missoula community.

Most of the other Parking Strategic Plan recommendations have been completed, taking our parking program to a new level. However, there is more work to be done. One of the goals for this upcoming year is to replace the old mechanical meters with new multi-space parking technology that will offer an exciting array of new payment and user-friendly program options for downtown patrons.

I would like to thank our Board of Directors, our dedicated staff, and our community partners for their support and hard work over the past few years. We are very proud of our parking program and look forward to continuing to develop innovative and customer-friendly programs to support downtown Missoula as one of the most vibrant and exciting downtowns in the state.

Anne Guest
Director, Missoula Parking Commission

# INTRODUCTION

## A Message from MPC Board Chair, Mr. Rod Austin

The MPC is an active partner in many downtown and community interests, including being a significant partner in the Downtown Master Plan. Over the past three years we have worked hard at the many parking and mobility-related tasks associated with the Downtown Master Plan. The MPC has been a leader in keeping that plan relevant and alive through our community investments and on-going planning initiatives. The MPC has also embraced economic development as a core element of our overall mission in support of the downtown's larger strategic goals.

Key to this thinking is embracing an approach where parking is directly linked to and actively engaged with other local agencies and organizations whose primary objectives are downtown management and community development. This includes organizations like the Missoula Downtown Association and the Missoula Redevelopment Agency, City Planning and Public Works, and a variety of community mobility partners.

As part of our economic development mission, we want to stimulate future community development by leveraging parking development and strategic investments in land acquisition. These activities will include partnerships with other public agencies and/or private development and will encourage the creation of new mixed-use projects, the promotion of adaptive reuse and infill development, good urban design, and the creation of walkable and inviting "people places". The new Park Place project is a first step in this direction with the creation of street-level retail space in conjunction with needed parking infrastructure on the corner of East Front and Pattee Streets.

The MPC will also continue its leadership role in efforts to create a balanced parking and transportation system for the City. We will work closely with Mountain Line, Missoula In Motion, Missoula Ravalli Transportation Management Association (MRTMA) and other local agencies to develop a more integrated and comprehensive mobility management system for the greater Missoula community. This will be critical as Downtown Missoula works to build retail, residential, and employment opportunities. Supporting multiple modes of access is good for business, the environment, and the overall quality of life that makes Missoula a special place. The MPC is proud to be an active partner in the success of Downtown Missoula.

Rod Austin
Board Chair, Missoula Parking Commission

# ABOUT THE MPC

## Purpose

The MPC works with government, businesses, and citizens to provide and manage parking and parking alternatives. MPC identifies and responds to changing parking needs in the area for which it is responsible.


## Overview

The MPC has for years been a well managed and progressive parking and transportation program. In addition to the management of significant on- and off-street parking assets, the MPC also actively participates in a variety of community transportation initiatives in collaboration with Missoula in Motion, Mountain Line (Missoula Urban Transit District) and the MRTMA.

## Awards

As a key partner in a comprehensive downtown master plan, the MPC has been a community leader in master plan implementation, including the introduction of new "downtown-friendly" parking policies, new technology, expanded support for transit and transportation alternatives programming, and an aggressive investment in new parking infrastructure, despite an economy in recession.

- 2010 – The Missoula In Motion Best Practices Award Finalist was awarded to the Downtown Streetscape Consortium, which included the MPC.
- 2011 – The MPC was honored by the International Downtown Association highlighting the positive community benefits that can occur when a progressive parking and transportation management organization works collaboratively with downtown management groups, urban renewal agencies and the overall community.
- 2012 – The MPC was awared the 2012 International Parking Institute (IPI) Award of Merit for its *"Integrated Downtown Master Plan and Parking."*

IDA DOWNTOWN ACHIEVEMENT AWARDS

## PARTNERSHIPS FOR SUCCESS

One of the characteristics that sets the MPC apart from most parking programs in the country is its level of community engagement. The MPC is involved in a wide range of community initiatives and is actively involved with almost every community development agency and significant institutional organization. According to MPC Board Chair Rod Austin, much of this credit belongs to MPC Director Anne Guest, however, she also has strong support from the MPC Board of Directors who clearly see the value of strong community engagement.

There are strong and effective working relationships between the MPC, the primary downtown management, redevelopment, transportation, and other City agencies whose job it is to make Missoula a world class community.

The MPC is also actively involved with the University of Montana, Hellgate High School, St. Patrick's Hospital, the Hip Strip Neighborhood, Missoula In Motion, Mountain Line, and the MRTMA, just to name a few.

This type of consistent, high level engagement helps ensure that the parking program is connected, better understood, and respected as a community partner and leader.

The MPC is not only engaged in the planning and operational contexts, but they have proven to be an effective contributor in the community and economic development arenas as well. Early in 2013, the community will be invited to the grand opening of the MPC's largest capital project to date—the new Park Place garage.

**Downtown Business Improvement District**

**Missoula Redevelopment Agency**

**Missoula Parking Commission**

**Missoula Downtown Association**

# CURRENT PROGRAM SUMMARY

## Overview

The MPC is the city department responsible for parking operations, maintenance, and enforcement within Missoula's central business district (CBD) and around the University of Montana. The MPC oversees 15 parking facilities in the downtown core, the Residential Parking Permit Program (RPPP), meter collections, maintenance and enforcement, and the issuance of permits for disabled, commercial, and loading zone spaces. The MPC has established itself as more than just an organization that provides parking for vehicles. The MPC is striving to be an active and collaborative partner with other organizations to develop and promote strong parking, transportation alternatives and transportation demand management strategies.

## Jurisdiction

The MPC's jurisdiction includes two basic areas:

- The Central Business District, including the area downtown where the meters are located
- The Residential Parking Permit Program (RPPP), adjacent to the University of Montana

## Organization

The MPC is governed by a Board of Directors consisting of five members with four-year terms. The Board members are recommended by the Mayor and approved by the City Council and are required to be residents of the City. The Parking Commission works in coordination with the City Council to further the transportation and economic goals of the City, especially the downtown.

The City of Missoula's parking organization is "vertically integrated" under the leadership of the MPC Director. (i.e., on-street, enforcement, off-street operations and planning are managed as one unit). The Director reports to the MPC's Board, and the position also serves as an ex-officio board member of the Missoula Downtown Association. The MPC Director also takes counsel and advisement from the Missoula Redevelopment Agency (MRA).

The MPC is comprised of eleven full-time equivalent (FTE) employees and one half-time employee under the following operating and service entities;

- Administrative Group (4 FTE)
- Parking Enforcement Group (3 FTE)
- Parking Operations / Maintenance Group (3 FTE)
- Booth Attendants (1.5 FTEs)

The parking Operations/Maintenance and Administrative groups are the largest sections each with approximately 36% of the staff, while the Enforcement Group comprises approximately 28%. Each Group has clearly defined tasks and responsibilities under the leadership of a supervisor who reports to the MPC Director.

## Key Program Elements

### Overall Parking Resources

The MPC manages approximately 3,000 on-street and off-street downtown public parking spaces of which 11% were provided in structured parking facilities (not including the new Park Place garage scheduled to open in early 2013). The table below provides a breakdown of parking spaces by type.

**MANAGED MPC PARKING RESOURCES OVERVIEW**

| | Number of Facilities | Spaces | % of Total Spaces | Number Permits Issued |
|---|---|---|---|---|
| | **OFF-STREET** | | | |
| SURFACE LOTS | 13 | 787 | 26% | 627 |
| GARAGES | 2 | 325 | 11% | 280 |
| TOTAL OFF-STREET | 15 | 1,112 | 37% | 907 |
| | **ON-STREET** | | | |
| METERS | | 1,075 | 36% | N/A |
| RPPP | | 820 | 27% | 1,100 |
| TOTAL ON-STREET | | 1,895 | 63% | 1,100 |
| **TOTAL ON-STREET AND OFF-STREET** | | **3,007** | **100%** | **2,007** |

### Off-Street Parking Facilities

In 2012 the MPC owned/managed two parking structures and 13 surface lots. Three surface lots (Greyhound, Caras Park, and Woody) allow hourly parking through the use of meters and contain a total of 45 meter spaces. All other surface lots are designated for monthly parking.

### On-Street Parking

There are a total of 1,075 metered on-street parking spaces in Downtown Missoula, 820 Residential Parking Permit Program (RPPP) spaces near the University of Montana, and an additional 714 on-street spaces that are unsigned, signed with time limits, or designated as loading zones.

The table below summarizes parking spaces by type and area.

| TOTAL PARKING SPACES BY TYPE/AREA | | | | |
|---|---|---|---|---|
| | OFF-STREET | | ON-STREET | TOTAL |
| | PUBLIC | PRIVATE | | |
| DOWNTOWN CORE | 631 | 1,433 | 872 | 2,936 |
| E. DOWNTOWN | 51 | 396 | 499 | 946 |
| FRONT STREET | 37 | 652 | 125 | 814 |
| CARAS PARK | 300 | 134 | 31 | 465 |
| HIP STRIP | 93 | 611 | 368 | 1,072 |
| **TOTAL** | **1,112** | **3,226** | **1,895** | **6,233** |

## Residential Parking Permit Program

MPC's RPPP zone is shown in the figure below. The MPC's jurisdiction includes 820 residential parking permit spaces adjacent to the University of Montana.

## New Facility Development

One of the primary responsibilities of the MPC is to plan for, finance, and construct new parking infrastructure.

Having been a good steward of parking revenues for many years, the MPC is excited to be opening their newest and largest parking facility to date with the new Park Place garage in early 2013.

On the following page are a few photos tracking the progress of the garage from the earliest days of construction.


*Photos of the Park Place Garage During Construction*















# FINANCIAL OVERVIEW

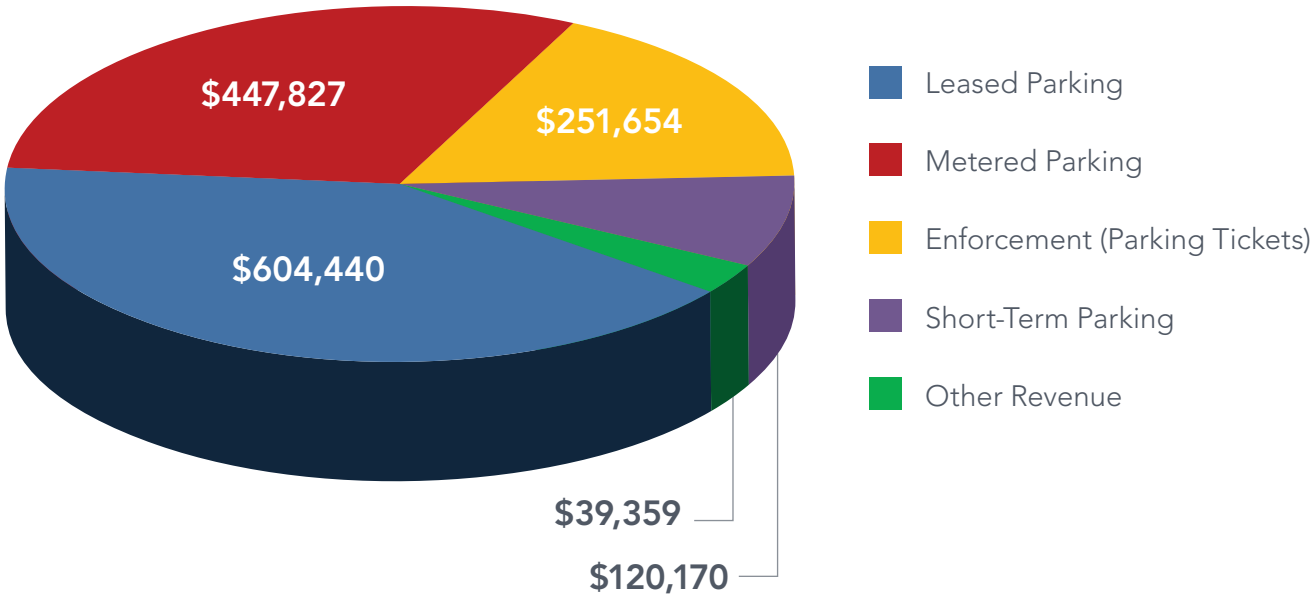
From a high level perspective, the parking program's financials can be summarized into two major categories – "revenue by type" and "expenses by major categories". These two categories of financial data are summarized below:

## Revenue by Type

The figure below illustrates the MPC's FY 2012 revenue budget. This figure breaks out revenues by category; excluding non-parking related revenues. Based on the FY 2012 data, the "leased" and "metered" revenue categories generate the majority of the program revenue.

## Revenue by Major Categories

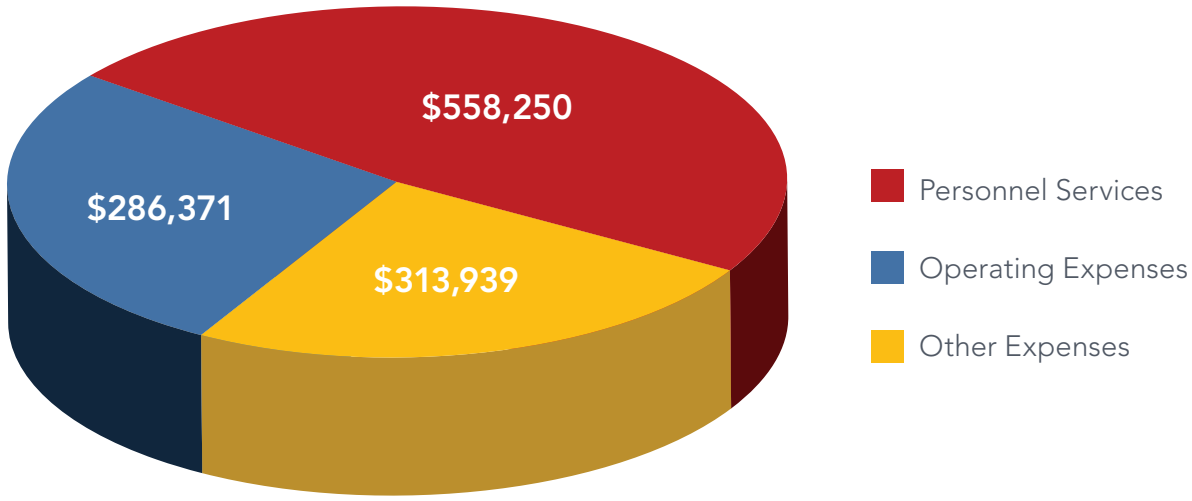
| | |
|---|---|
| Leased Parking | $604,440 |
| Metered Parking | $447,827 |
| Enforcement (Parking Tickets) | $251,654 |
| Short-term Parking | $120,170 |
| Other Revenue | $39,359 |
| **TOTAL** | **$ 1,463,450** |



## Expenses by Major Categories

The amended 2012 MPC expense budget totaled $1,158,560. The "Personnel Services" category accounted for largest percent of the expenses (48%) followed by "Other Expenses" (27%) and "Operating Expenses" (25%). A more detailed breakdown of expenses is provided on the following page.

| | |
|---|---|
| Personnel Services | $558,250 |
| Operating Expenses | $286,371 |
| Other Expenses | $313,939 |
| **TOTAL** | **$1,158,560** |




On the following page is a summary of the audited financial statements of the MPC dated June 30, 2012. The draft financial statements were prepared by the firm Junkermier, Clark, Campanella, Stevens, PC of Missoula, Montana and were submitted to the MPC Board on August 9, 2012.

## MPC EXPENSES – JUNE 30TH, 2012

| | |
|---|---|
| *PERSONNEL EXPENSES* | |
| Salaries | $384,846 |
| Employer Contributions | $173,404 |
| **TOTAL PERSONNEL EXPENSES** | $558,250 |
| *OPERATING EXPENSES* | |
| Outside Labor | $5,750 |
| Office Supplies | $7,059 |
| Operating Supplies | $10,720 |
| Special Clothing | $2,581 |
| Gas and Diesel | $7,524 |
| Postage and Freight | $14,745 |
| Printing - General | $8,676 |
| Printing - Tickets | $12,582 |
| Publicity and Subscriptions | $2,711 |
| Business Promotions | $15,419 |
| Transportation Demand Management (TDM) | $21,000 |
| Electricity | $39,008 |
| Water | $(2,194)* |
| Telephone | $4,797 |
| Garbage | $1,467 |
| Prof. Fees Misc. | $35,158 |
| Prof. Fees Acct. | $18,018 |
| Prof. Fees Audit | $11,165 |
| Central Park Security | $5,478 |
| State License Inquiry | $905 |
| Internal | $11,488 |
| External | $13,289 |
| Parking Structures | $8,077 |
| Bank Street Repairs | $63 |
| West Broadway | $7,650 |
| Bridge | $6,986 |
| Midtown Lot | $4,950 |
| Travel and Per Diem | $1,073 |
| Education and Training | $395 |
| Collection Bureau Expense | $1,283 |
| Property Taxes and SID | $8,482 |
| Bank Charges | $66 |
| **TOTAL OPERATING EXPENSES** | **$286,371** |

*Refund for non-functional water line

| MPC EXPENSES – JUNE 30TH, 2012 (CONTINUED) | |
|---|---|
| **OTHER EXPENSES** | |
| City Contract | $149,812 |
| Bond Interest Expense 2010A | $11,759 |
| Bond Amortization Expense | $18,718 |
| Depreciation/Amortization Expense | $133,650 |
| **TOTAL OTHER EXPENSES** | **$313,939** |

| KEY FINANCIAL METRICS (5 YEAR COMPARISON) | 2012 | 2011 | 2010 | 2009 | 2008 |
|---|---|---|---|---|---|
| Total Parking Revenue | $1,463,450 | $1,306,657 | $1,402,318 | $1,439,912 | $1,475,308 |
| Total General Expenses | $844,619 | $947,789 | $858,587 | $920,786 | $1,005,428 |
| Total Other Expenses | $313,939 | $337,451 | $323,057 | $338,455 | $302,734 |
| Net Operating Rev/(Loss) | $280,171 | $3,150,417 | $276,873 | $347,809 | $331,700 |

| CAPITAL PROJECT – PARK PLACE | |
|---|---|
| Cash Reserve Fund | $2,500,000 |
| Revenue Bonds (supported by parking revenues) | $4,500,000 |
| Missoula Redevelopment Fund (MRA) TIF funds | $3,000,000 |
| **TOTAL CAPITAL** | **$10,000,000** |

# PLANNING

## Parking Strategic Plan

As mentioned in the introduction, the development of a Parking Strategic Plan as an integrated element of the larger Greater Missoula Downtown Master Plan was an important planning element for the MPC. The MPC adopted a strategic framework of ten Guiding Principles as part of the 2008 plan that aligned parking philosophies and programs with the larger downtown strategic goals and objectives.

The following nine primary action plan items formed the initial MPC work plan:

1. New Parking Facility Planning and Development
2. Adjust Parking Rates and Fines
3. Invest in New Parking Technology
4. Continue to Support and Invest in Multi-modal Access Strategies
5. Develop More Open and Collaborative Public Processes
6. Focus on Economic Development Support Strategies
7. Implement Recommended Retail Parking Strategies
8. Parking Program Growth/Expansion
9. Parking Program Marketing


*Seamless Integration of Downtown Master Plan and Parking and Transportation Strategic Plans*

## Strategic Plan Implementation

The MPC moved quickly to implement its primary strategic plan action items and generate momentum for overall Master Plan implementation.

The strategic plan implementation involved transportation, parking and access elements that led to improved economic development and renewed vitality of Missoula's downtown.

## Capital Investment Projects

The most significant parking program action item was an initiative to embark on a capital investment program to support the overall Master Plan development strategies. This program, while stretching parking program finances, is currently being implemented and the new Park Place garage is the largest single Master Plan implementation project to date.

The investment in a multi-million dollar design and construction project in the heart of a recession was both important and smart. This investment generated jobs in the local economy when it was most needed and leveraged their capital assets while design and construction services were at the lowest prices in decades—creating even greater project value.

The new parking structure project has generated an exciting and original design that incorporates good urban design principles, sustainability elements as well as creative façade treatments designed to integrate the structure with the surrounding Montana environment.

## New Technology Investments/New Downtown-Friendly Policy Investments

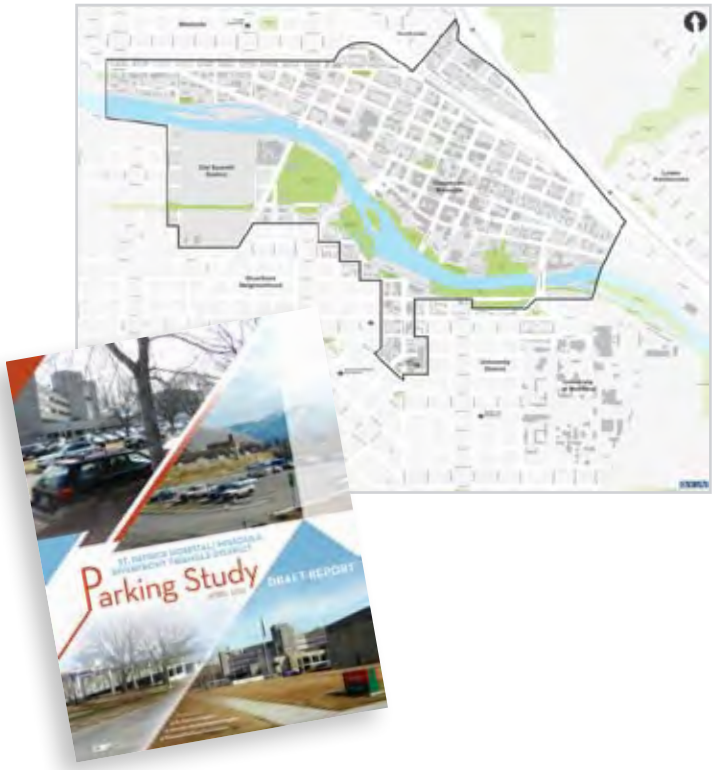
In addition to the new parking garage, several other investments in new technology and management programs were initiated. Some these investments included:

- A pilot program to replace 40 old mechanical parking meters on North Higgins Avenue with new credit card enabled meters
- Implementation of First Hour FREE Parking in Central Park Garage to compliment the existing validation program
- Replacement of old parking pay-stations in New Park lots and the Bank Street Parking Structure
- Adjusted parking rates to support parking capital infrastructure investments
- Implemented new fine structure in 2012

## Other Planning Initiatives

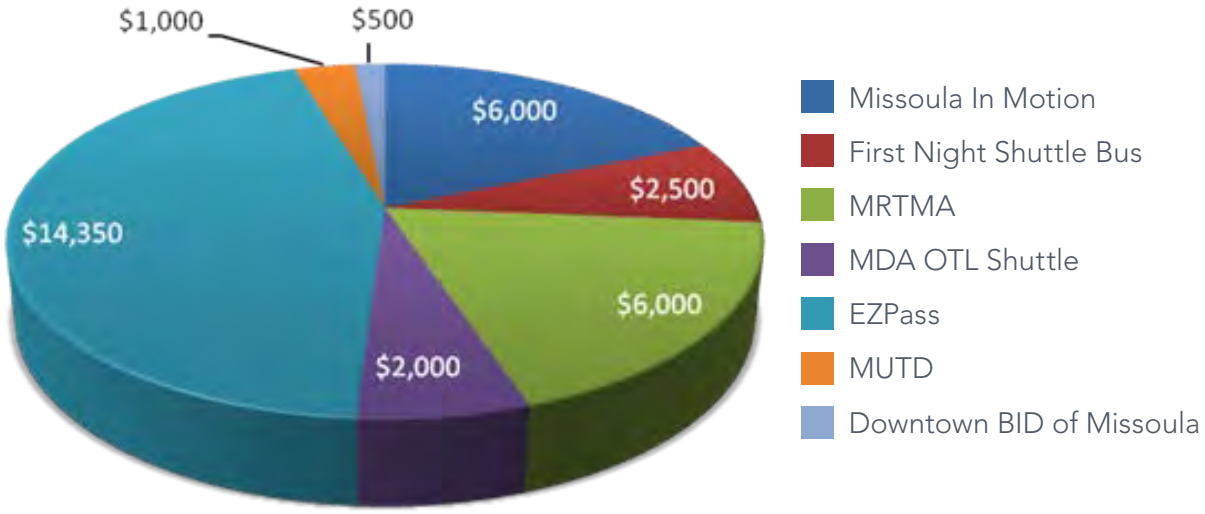
The MPC partnered with the Missoula Redevelopment Agency and Providence Health and Services – Montana (St. Patrick Hospital) to fund a parking study for the "Riverfront Triangle Urban Renewal District" (the "District") and the adjacent St. Patrick Hospital campus located in Missoula, Montana.

The overall goal of this project was to assist St. Patrick Hospital, the MRA, and the MPC in assessing current and future parking needs related to the development of the District and a defined area adjacent to the district. The study area included the main campus of St. Patrick Hospital and the neighborhoods to the north and northwest of the hospital.



# LARGER COMMUNITY TRANSPORTATION SUPPORT

The MPC actively participates in a variety of community transportation initiatives in association with Missoula in Motion, Mountain Line and MRTMA. In 2011, MPC funded approximately $32,350 to support Transportation Demand Management (TDM) efforts.




Missoula in Motion runs the TDM program. The program is designed to help businesses and employees save money and time while helping to maintain the quality of life in Missoula. The TDM programs help curb parking costs, improve employee productivity, realize tax benefits, and free up spaces for customer parking. Currently 4,835 members are signed up for the Momentum program.

The MRTMA works in conjunction with Montana Department of Transportation to develop comprehensive transportation alternatives to reduce traffic and parking congestion. MRTMA provides transportation choices for citizens of Missoula, Ravalli, and Lake Counties, including employer TDM programs, carpool and vanpool programs, guaranteed ride programs, school outreach, and park and ride sites.

Mountain Line is the public transit agency, providing service to Missoula and the University of Montana. Mountain Line operates fixed-route and para-transit bus service in and around Missoula and offers a car free way to get around Missoula. Service between downtown and the University of Montana has helped both areas address parking and congestion issues.

## SUMMARY OF PROGRAM ACCOMPLISHMENTS

- Participation and funding support for the Greater Missoula Downtown Master Plan by the MPC was a significant and important investment that is paying positive dividends for the agency and the downtown.
- The significant community engagement process has created strong momentum and a consensus for action.
- The investments made by the MPC are helping keep Master Plan momentum alive and are helping to stimulate new economic development opportunities.
- Investments in new parking technology are creating positive downtown customer service enhancements.
- The strategic decision to reinvest parking system revenues to support downtown development projects is an important practice that will have long-term positive impacts on the downtown.
- By adopting a more strategic approach to downtown access management, the MPC is positioned to be a more engaged and effective downtown community member as well as being an active partner in community and economic development.
- The MPC should be applauded for its progressive approach to supporting an integrated approach to parking and transportation alternatives.
- The MPC has moved quickly and aggressively to implement its primary strategic plan action items and has thus adopted a leadership position within the downtown community.
- The investment in the new Park Place garage is the largest and most significant project-to-date for the MPC. The timing of this multi-million dollar design and construction project, during the heart of a major recession, helped to generate local jobs and boost the local economy when it was most needed. The MPC's quality management and fiscal prudence over many years has resulted in this important investment in downtown Missoula; an investment that reflects the organization's growing focus on being an engaged and contributing community partner in the area of economic development.

# MPC BOARD AND STAFF

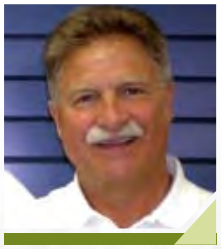
Ms. Anne Guest,
MPC Director

Mr. Rodney Austin,
Board Chair

Ms. Theresa Cox

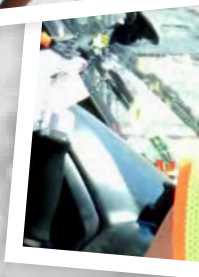
Ms. Carol Williams

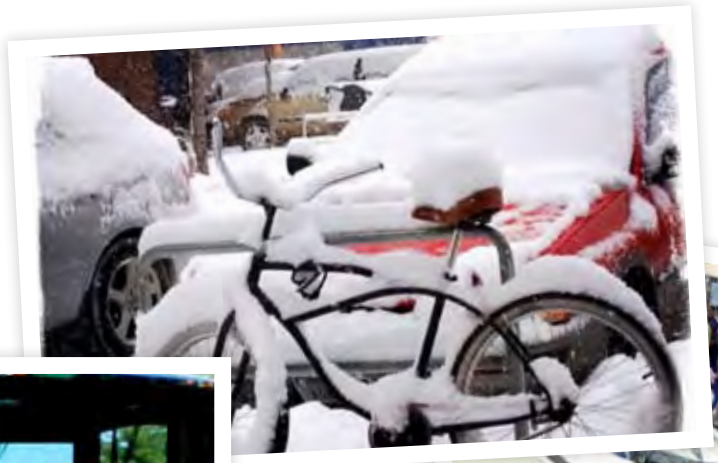
Mr. John Smith

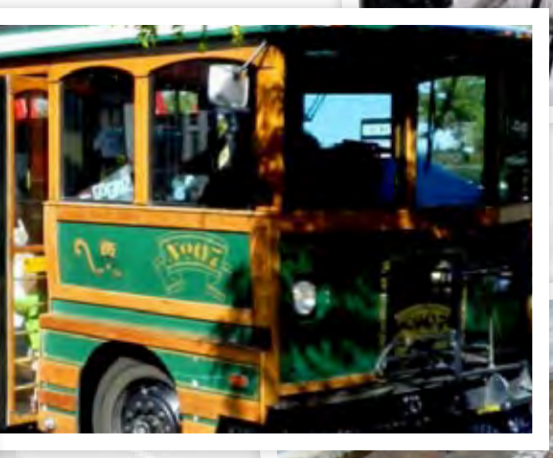


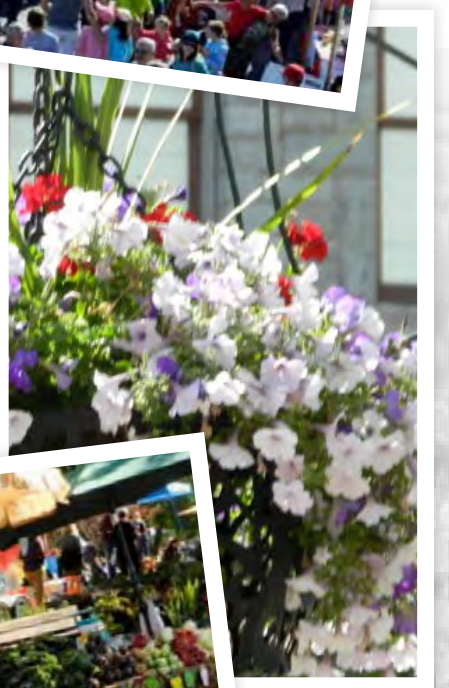
Mr. John Roemer










missoula parking commission

# Task 5: Align Zoning and Parking Requirements with Growth & Mobility Vision

# Updating Parking Requirements

## *Rochester DMC Implementation Studies*

*Report Version 5*

**Prepared for:**

**DMC Transportation & Infrastructure Program**
City of Rochester, MN

Prepared by:

Date: January 2017
DMC Project No. J8618-J8622 Parking/TMA Study

# Table of Contents

# Background Context

## The Problem with Minimum Parking Requirements

Parking requirements defined within municipal zoning codes are a powerful tool for shaping a city's transportation and development character. As our populations continue to urbanize, the collective ability of communities to use zoning and other tools to shape local transportation conditions around shared values and goals will have increasingly far-reaching impacts.

For several decades, zoning codes across the United States have emphasized minimum requirements for on-site, tenant-reserved parking spaces to protect local street-parking capacities from parking activity generated by new development. The concern was that without these requirements, developers would save money and developable land area by not building any parking, relying instead on nearby street parking to accommodate their project's parking needs. In response, cities began to require sufficient accessory parking at each new development — enough to ensure that a space would always be available for anyone who needed one.

For this to work, not only must developers provide enough parking to meet peak demand, but they need to provide it for free to prevent drivers from parking on-street to save money. The result of this approach is the common practice of requiring far more parking than is consistently needed at new development projects. There are, of course, exceptions, but aerial images of most downtowns and commercial centers attest to the fact that most have been inundated with low-cost parking facilities that are mostly empty, most of the time.

This is not only a waste of some of the best real estate in the country, it depresses development densities and undermines walkable, bike-friendly, and transit-accessible development patterns. (For a more in-depth overview of the impacts of minimum parking requirements, see DMC Parking- Best Practices Research 12-6-2016.)

Today, governments are increasingly questioning the merits of minimum parking requirements in urban centers — particularly as traditional urban forms and transportation options have regained considerable market favor. In many of these areas, including downtown Rochester, requirements have been reduced or eliminated in recognition of the potential for minimum requirements to be counter-productive. Increasingly, many are proposing full-scale reviews of their standards, and even considering removing parking requirements altogether.

In downtown Rochester, the coordination between the Mayo Clinic and the City's municipal parking system has resulted in laudable efficiencies through which most downtown parking facilities are well-utilized most weekdays. And, for the most part, existing surface lots are viewed as "interim uses" for land that is expected to be developed into active land uses, and perhaps mixed-use developments that include public parking. This proactive management approach has helped recapture more value from existing parking, and facilitated a multimodal mobility environment downtown. At the same time, the City continues to pursue an optimal approach to development parking standards in its central business districts.

## The Problem with Too Much Private Parking

Minimum parking requirements are not the only reason projects end up "over-parked". Developers who are unfamiliar with walkable, transit-accessible urban centers often bring assumptions and formulas built from experience gained in highly auto-dependent environments. As often, lenders bring the same assumptions and formulas to downtown projects, insisting upon levels of parking that go beyond zoning code requirements, and well beyond the highest peak levels of demand generated by realized development. [1] [2] As a result, in many contexts, removing minimum parking requirements is not enough to address the many problems created by a glut of private, free parking in urban areas, as outlined above.

## Pending Disruption

The cost of over-requiring parking is set to become even greater, as disruptive technologies and service innovations, primarily in the arena of "Shared Mobility", push US travel preferences toward what many expect to

[1] http://www.planetizen.com/node/56296

[2] http://www.washingtonpost.com/wp-dyn/content/article/2009/10/07/AR2009100703996.html

be a profound paradigm shift, and potentially a significant drop in personal-auto parking demand. While the exact impact is still to be determined, some experts estimate that self-driving vehicles predominantly utilized through on-demand, shared-mobility services, could eliminate the need for up to 90% of the current parking supply over the next two decades.[3] Services like Uber and Lyft are already significantly reducing auto-dependency, allowing more commuters to shift their primary mode away from driving by providing a nimble, affordable, and increasingly-familiar, non-driving "rainy day" commute option.

This relatively recent mobility phenomenon has good company in several, more-established Shared Mobility elements, such as car-share, bike-share, and computer-matched ridesharing. Where access to these options is consistent, one-car and carless households are becoming far more common,[4] further increasing the share of trips taken by modes that require a fraction of the parking necessary for private autos.[5] Into this ever-expanding mix of mobility options, driverless autos can be expected to bring a new level of disruption and opportunity. Put simply, driverless ride services will combine the distinctly appealing components of car-sharing (privacy and autonomy) and TNCs (Transportation Network Carriers: door-to-door service, no driving or parking necessary) services at a fraction of the cost for either.[6]

*"There is more parking today in American cities than they will ever, ever need." – Jeff Tumlin, Nelson\Nygaard in Mother Jones*[7]

## Municipal Parking as Ballast

One of the most familiar and oft-championed parking-management strategies, shared parking, may prove to be one of the most important resources cities have for managing the current and pending disruptions to parking demand. The efficiencies that shared parking offers have always been critical to effectively negotiating the trade-offs inherent in "right-sizing"

[3] http://www.motherjones.com/environment/2016/01/future-parking-self-driving-cars

[4] https://escholarship.org/uc/item/5k56406d#page-6

[5] https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf (page 6)

[6] https://www.morganstanley.com/ideas/car-of-future-is-autonomous-electric-shared-mobility

[7] http://www.motherjones.com/environment/2016/01/future-parking-self-driving-cars

downtown parking supplies, primarily by providing more access with fewer spaces. The primary virtue of "accessory" parking is redundancy, which not only requires far more parking spaces to accommodate the same level of access, but also creates redundant vehicle trips and turning movements, by limiting the viability of walking between local destinations.

Because accessory parking is designed and managed to exclusively serve specific land uses, it is poorly positioned to adjust to fluctuating rates of parking-demand generation. Historically, this has meant that such parking facilities tend to sit half-empty much of the time, while still failing to meet demand during the few hours when parking is most needed. In consideration of the near-term future, the greater concern may be that these facilities could soon find their capacities significantly outsized, even relative to their peak needs, and ill-suited for any other purpose.

By contrast, parking facilities built as a shared resource, facing the same drop in demand, can simply accommodate more nearby growth. They can also be designed and configured to facilitate adaptive reuse, should the most extreme predictions of falling parking demand bear out. The scale of these facilities, their intention to serve broad, evolving public needs, and their shared management, make them far more likely than private facilities to effectively contribute to the mobility challenges and opportunities of "tomorrow".

If provided as a municipal parking program, the opportunity to navigate uncertainty will be even greater. Should such a program manage parking as a component of mobility, rather than an "end" in itself, and manage travel demand toward an optimal balance with area multimodal infrastructure, the uncertain future is likely to bring more opportunity than threat.

# Background Conditions

## The DMC'S Access Management Objectives

The DMC Report identified a set of objectives for mobility and access within the district.

- Make it easy, affordable, and convenient for people from Southeast Minnesota and around the world to get to downtown Rochester
- Bring 23-30% of the Workforce to Downtown Rochester on Transit by 2035
- Create a Park-Once Downtown Environment Connected by a Frequent Downtown Circulator
- Build Shared-Parking Prioritized for Economic Development
- Create World-Class Streets, Designed for People
- Create an Exceptional Place for Healthy, Human-Powered Transportation
- Form a Downtown Rochester Access Authority
- Invest in Sustainable Transportation Infrastructure and Programs that Reduce the Ecological Footprint of the City
- Use DMC Funding to Leverage Public and Private Transportation Infrastructure Funding
- Establish and maintain a transportation network that is accessible and inclusive to people of all ages, abilities, and states of wellness

## Downtown Master Plan

On January 3, 2011, the City Council adopted the "Downtown Rochester Master Plan Report" as part of the comprehensive plan and Future Land Use Plan. The "Mobility" section of the adopted Master Plan addressed the major issue of off-street parking and how it affects the downtown. The Plan recommended the City revise its land development codes as they apply to required off-street parking standards, specifically parking requirements in other non-Central Business District zones surrounding the Central Development Core/Central Business District (CDC-CBD).

In part, this is a response to the concept of maximum portal capacity, described as follows in the Master Plan.

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*Access to downtown Rochester is provided by a few primary arterial streets that make connection to regional highways, providing drivers and regional transit passengers access to downtown. Since these "portals" are limited and are unlikely to be expanded, downtown access improvements must focus on moving more people in high-occupancy vehicles, on transit, on foot, and on bicycle.*

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Narrative elements of the Downtown Master Plan related to DMC parking requirements are summarized below.

Zoning and design guidelines are powerful tools to shape development, although a careful balance must be struck to encourage investment while providing appropriate oversight to achieve a civic outcome. Currently, Rochester has a traditional form of zoning that is prescriptive for elements such as use, height, density, setbacks, and parking. For example, drive thru businesses and car dealerships are currently allowed in the Fringe Zone and Parks are considered an accessory use in the Downtown Zoning. Traditional zoning often does not take a proactive stance on community goals and incentives to achieve desired urban form. Without specific restrictions, the City lacks the power to provide possible incentives such as extra height in exchange for more amenities like open space, green buildings, or quality ground floor pedestrian environment. Similarly, regulations that are overly permissive in terms of height and mass can create the perception that the City gives away too much to incent development.

The general move in cities toward form-based zoning and design guidelines promotes good urban design and mixed use rather than limiting flexibility and separation of land uses. In the past few years, the City of Rochester has been actively updating aspects of their regulations such as the Urban Village Design Guidelines. However, beyond the Urban Village, if the use is by-right then design guidelines are not applicable. The City should consider key specific regulations throughout downtown. In addition, the skyway system should also be under the umbrella of design guidelines.

Consideration should be given to create a site plan review board for all projects within the Downtown that has a transparent process and clear expectations. The overall focus should be on those issues that affect the pedestrian and the community, such as relationship to the street and form, and on clarifying expectations and supporting regulations with a straightforward and consistent development review process that does not slow down investment, but also achieves community goals. Additionally, the

City should complete a comprehensive review of their zoning as it relates to downtown development to achieve the vision of this master plan.

### Recommendations

Downtown Master Plan recommendations related to DMC parking requirements are excerpted below (and mutually supported in Kimley-Horn's Parking and Economic Development Policy).

- Revise parking codes for other non-CBD/CDC zones in Downtown Master Plan study area to eliminate minimum requirements for commercial and residential development. This should include the CDC Fringe zone, portions of the General Commercial and Mixed Commercial-Industrial zones (located east of the Zumbro River and north of 9th Street) S and CDC Residential zone areas. Consider adding maximum parking requirements for CBD/CDC Zones to limit total area dedicated to downtown parking.
- Incentivize or require developers to unbundle parking from residential units and commercial development.
- Develop shared parking policies and work with developers to increase use of public parking at off-peak times and reduce need for single use parking development.
- Develop and implement a bicycle parking plan including requirements for new development.
- Require new residential developments to provide a transit pass to each resident for two years.

## Rochester's Parking Enterprise Fund

Rochester's parking enterprise fund collects all downtown parking revenues and reinvests them into the maintenance, operations, improvement, and expansion of the municipal parking system. This provides an invaluable opportunity to develop synergies with a zoning code that allows funding of public parking in lieu of accessory, on-site parking at new projects. It also provides a potential funding source for establishing a TMA or similar, district-level, mobility/demand-management organization or program.

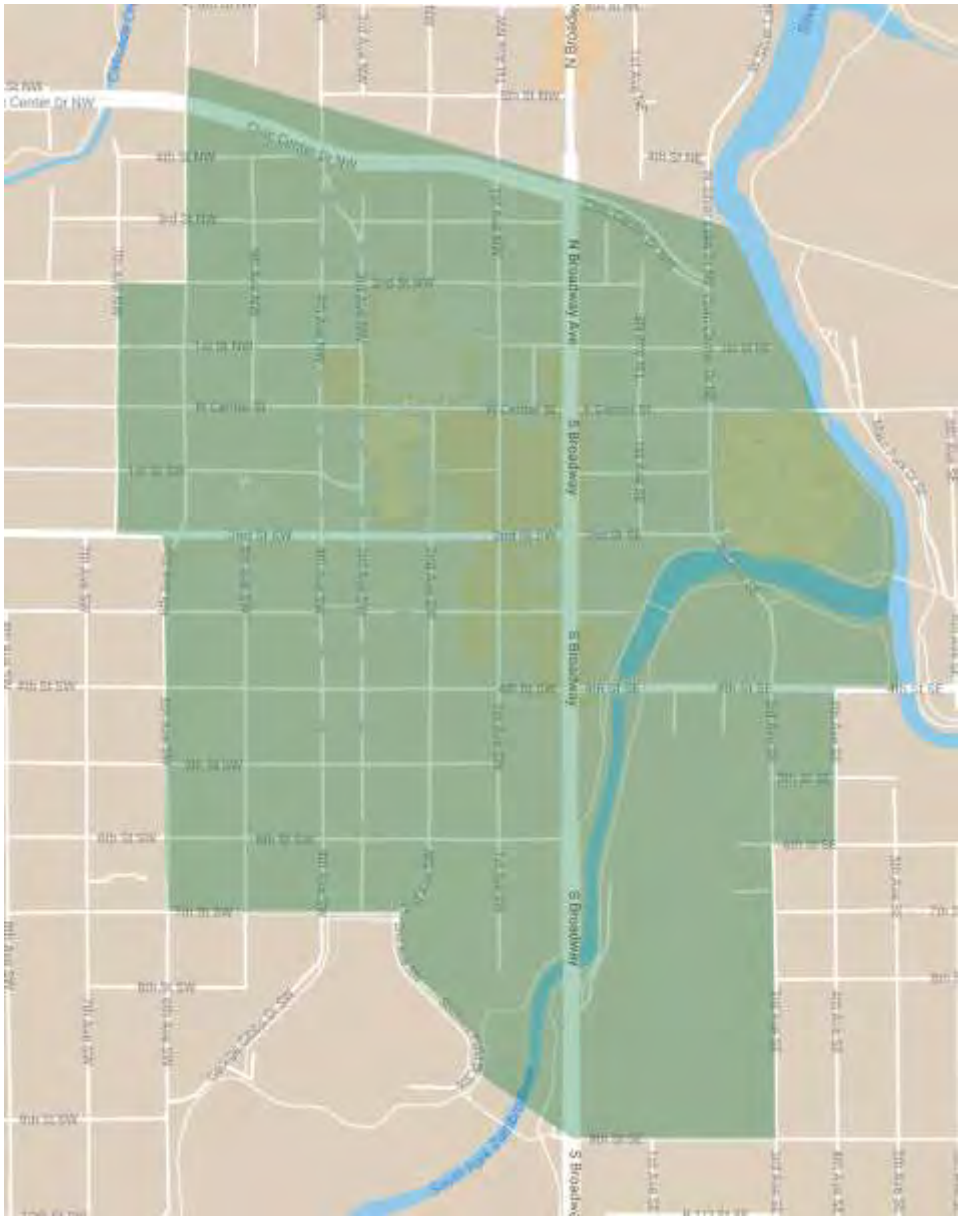
# Current Code

Relevant sections of the current code, including those outlining parking requirements for the DMC are summarized below.

## 63.427. Downtown Parking Overlay Zone

One of the primary objectives of the Downtown Parking Overlay Zone (DPOZ was to "reduce the predominance of off-street parking as a land use in the fringe area of the downtown and release more land for redevelopment".

**Figure 1. Downtown Parking Overlay Zone**




## Amount of Off-Street Parking

### Central Business District Exemption

Developments in the Central Business District area of the Central Development Core (CDC-CBD) are exempt from the provisions of providing off-street parking, except that parking and loading spaces voluntarily established shall comply with the size and location requirements of this ordinance.

**Minimum Requirements (outside the CBD exemption zone)**

- The minimum required number of accessory off-street parking spaces for an existing or a new non-residential use required by the underlying, established zoning district, are reduced by 50 percent.
- The maximum number of accessory off-street parking spaces that can be provided for a non-residential use shall be no more than 75 percent of the minimum number required by the established zoning district.
- The minimum required number of accessory off-street parking spaces for an existing or new residential use as prescribed by the established underlying zoning district may be reduced to one parking space per residential dwelling unit.
    - Rooming units with no cooking facilities and congregate housing units as defined by this Code may provide no more than one-half a parking space per unit.

**Key Requirement-Reduction Options**

The above requirements for off-street accessory parking spaces may be reduced:

- by ten percent for new non-residential uses situated within 1,320 feet of a publically owned parking structure,
- by ten percent for new residential uses located within 600 feet of the right-of-way for a street that is used as a weekday service bus route and/or within 1,320 feet of a signed bus stop or bus shelter serving a weekday bus route,
- by ten percent for new residential uses located within 750 feet of a pedestrian entry point into the skyway and/or subway system available for use by the general public,
- if a shared or community vehicle is available for use by residents of a new residential development by ten percent if the new development provides a needed, adequately designed, sheltered transit stop within the development,
- by providing mixed-uses, and/or "small storefront retail business" uses, on-site,
- relative to the amount of public, metered on-street parking spaces lying adjacent, in whole or in part, to the property line of the zoning lot, and

- relative to off-street bicycle parking provisions located in a public space on the street level of a new development.

### Bicycle Parking

- Developments with 24 or more parking spaces must include off-street bicycle parking on site, at a rate of 1 bike space per 10 auto parking spaces for the first 10 required bike parking spaces, and at a rate of 0.5 bike spaces per 10 auto spaces beyond that.
- Where public bicycle parking spaces are located on the same block, the requirement may be reduced or waived.

### Design Parameters

The following elements off-street parking facility design are addressed in the code's design parameters.

1. The percentage of spaces set aside for small cars, from 30% to 50%, increasing with the number of spaces in the facility.
2. The percentage of spaces designed for long-term and short-term parking, which varies by land use.
3. Space dimensions for small-car and standard spaces.
4. Aisle widths, which vary according to the angle of parking spaces.
5. Screening and setbacks.

# The Interim Code

## Overview

The Rochester Downtown Interim Parking Ordinance (draft dated September 2016) provides guidance for continued implementation of the Downtown Master Plan while parking regulations are being reassessed as part of a set of multi-year transit studies being undertaken by the City and the Destination Medical Center (of which this review is one component). Short-term needs are the focus of the ordinance, which is structured around the following objectives:

- Give current and short-term development proposals clarity in terms of city expectations for parking regulations.
- Provide a parking maximum for all developments to limit the construction of excess parking capacity, which may significantly reduce areas available for redevelopment opportunities as identified in the Downtown Master Plan.
- Provide a parking minimum for all developments so that new development can be self-supporting until more long-term traffic and parking solutions can be identified as part of the Destination Medical Center Plan.
- Ensure flexibility is permitted for unique development situations for which proof of reduced parking demand is provided.
- Support the desire to shift long-term/employee parking activity toward the downtown periphery, and manage more downtown parking for the needs of visitors and patients.

## Key Provisions

Key, strategic changes to the provisions of the DPOZ are outlined below.

### Destination Medical Center Overlay Zone

The title of the overlay zone was changed, from the Downtown Parking Overlay Zone, to the Destination Medical Center District Overlay Zone. The name change was intended to reflect the need "to provide parking guidance unique to the DMC-POZ to allow for the continued implementation of the Rochester Downtown Master Plan and Destination Medical Center Vision."

## Emphasis on a Park Once Philosophy

A statement is included to reflect the opportunity and objective to establish a Park Once environment in this zone.

*"Many downtown land uses serve downtown employees, hotel guests, medical outpatient service users, hospital visitors or others who park their vehicle once for their primary trip and then patronize other business or services without an additional vehicle trip either as pedestrians or through use of shuttle or transit services. The DMC District has the highest concentration of land uses that attract persons via pedestrian travel, either after having parked a car or directly from other locations."*

## Removal of the CBD Exemption

The exemption for Central Business District is removed.

## Updated Parking Minimums and Maximums

The interim code establishes both minimum and maximum parking ratios for an extensive list of land use types. The table below presents the minimum parking requirements and maximum parking limits for an abbreviated list of common downtown land uses.

**Table 1. Table of Minimum and Maximum Standards**

| Land Use | Spaces Required/Allowed | | |
|---|---|---|---|
| | City's Baseline Requirement | Interim Minimum Requirement | Interim Maximum Limit |
| Multi-Family Housing | 1 to 3 per dwelling unit, increasing by # of bedrooms | 1 per dwelling unit | 2 per dwelling unit |
| Offices | 1 per 200 SQ FT FA - 1 per400 SQFT FA | 1 per 500 SQ FT FA in excess of 4,000 sq. ft. | 1 per 200 SQ FT FA |
| Medical Facilities | 1 per 4 Planned Bed sites, or 300 SQ FT. | 1 per 3 beds; may be superseded by parking study (TMDP) | 1 per 2 beds; may be superseded by parking study |
| Standard Restaurant | 1 per 4 seats, plus 1 per employee on largest shift | 1 per 300 SQ FT FA | 1 space per 75 SQ FT FA |
| Retail Trade | 1 per 150 SQ FT FA | 1 per 500 SQ FT FA in excess of 4,000 sq. ft. (minimum of 4 spaces) | 1 per 150 SQ FT FA |
| Drinking & Entertainment | 1 per 4 persons based on building's maximum capacity | 1 per 250 SQ FT FA | 1 per 100 SQ FT FA |

## In Lieu Fee Option Added

The Interim Code provides an option for payment in lieu of parking.

- Payment can be made to the City of Rochester in-lieu of some or all of a project's minimum parking requirement.
- Fee will be set, based on "fair market value" and other factors, to be determined by the Director of Public Works.
- Fees will be deposited into an executive fund, "to be used solely for expenses (land acquisition, design/engineering services and construction costs, but not maintenance costs) related to adding parking spaces, improving the utilization of existing parking spaces, or reducing the need for new parking to serve the Destination Medical Center District (emphasis added)".

## Mixed-Use/Shared-Parking Reduction

A shared parking clause was added to better capture the efficiencies created by mixed-used developments and shared-parking management.

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*Mixed Use Development Parking Reduction: The number of off-street parking spaces required for the non-residential portion of a new mixed-use development may be reduced when certain select "retail" uses are located in the mixed-use building. The required off-street parking for "retail" uses that are defined by Section 62.140 as Restaurants (Standard or Fast food), Personal Service uses, Convenience Retail uses or Retail Trade may be reduced by ten percent less than the minimum number identified herein. For the select "retail" uses to qualify for the additional parking reduction, the development must meet the following conditions: it must be designed and built as a single mixed-use building where the floor area of the portion of the building devoted to residential use is at least twice the floor area of the portion of the building devoted to non-residential use and the select "retail" uses are located in the portion of the building on the street level that fronts in some part on the public sidewalk and has public, pedestrian access from the public sidewalk.*

---

## Public Parking in Private Development

New provisions set out parameters for the city to negotiate with a developer to acquire and subsequently manage public parking spaces within a private parking facility. Within two weeks from the time preliminary parking plans are submitted for review, the City has the option to secure a portion of the parking facility (that which is in excess of the minimum parking requirement for the proposed development) for public parking.

Providing public parking is also a primary means of exceeding parking maximums in proposed projects. Any parking facility with public parking must include technology to monitor space availability, such as street-front electronic message signage or mobile phone applications that provide availability notifications.

## Travel Demand Management Plan

All developments containing more than 15,000 square feet of new or additional commercial gross floor area, or containing more than 50 residential units, shall include a Travel Demand Management Plan (TDMP) that addresses the transportation impacts of the development on air quality, parking and roadway infrastructure. All TDMP's must contain the following components:

- A description its goals and its relationship to applicable city policies and programs.
- A description of the transportation impacts of the development, including, but not limited to:
    - overall and peak period employment forecasts
    - trip generation and mode split forecasts
    - parking demand and availability of parking supply
    - ability to meet city parking requirements
    - transit demand and availability of transit supply
- A description of measures designed to mitigate the transportation impacts of the development, including, but not limited to:
    - on-site transit facilities and transit use incentives
    - preferential location of parking for carpool and vanpool vehicles
    - on-site bicycle facilities including secure storage areas and amenities
    - use-appropriate TDM strategies to minimize adjacent roadway impacts and parking supply needs (which can include marketing unused, unbundled spaces to other users)

At a minimum, the following proposed strategies must be included within the TDMP's descriptions of mitigation measures:

- A proposal to offer the Transit Pass Program to onsite residents and/or employees, subject to independent agreement with the City
- In new residential developments, one or more shared or community vehicles (with a minimum of one vehicle per 50 residential units) must be made available on-site with an established procedure for private use by residents
- A description of bicycle parking provisions, as required in the earlier bicycle parking section

# Leading Practices Survey

This section presents findings from a Leading Practices survey. This survey was completed to:

- Highlight issues and opportunities presented in the background and current conditions affecting mobility and access in the DMC;
- Suggest refinements to the Interim Code; and
- Guide recommendations for establishing a final set of parking recommendations for the DMC district.

It is organized by key issue/opportunity areas.

## Public Parking in Private Development

### Arlington County, VA

The private sector provides most of the public, off-street parking in Arlington County. County planning staff is reluctant to develop stand-alone public parking facilities, in part, as a response to decades of minimum parking requirements that have created a consistent surplus of parking in most of its transit and mixed-use, commercial corridors. In most cases, market opportunities have led the owners of over-parked developments to find ways to open up their parking to the public — either during off-peak hours, or even during peak-use hours when there has been capacity.

County Planning staff has responded by encouraging, and when possible rewarding or even requiring, such practices as a means of generating well-distributed pubic parking across its key commercial corridors without having to invest in new facilities. The County's success has focused on two areas of opportunity:

- Incentivizing owners of existing privately-controlled facilities to provide public parking, and
- Incentivizing new development to provide public parking in their on-site facilities.

The cumulative impact of this concerted effort has been to allow much of the County's key commercial corridors to benefit from the significant advantages of a shared parking system, without the County directly controlling any off-street parking facilities.

### Incentivizing Public Access to Existing Private Parking

The first step taken by the County was to address the challenges and opportunities of the many oversupplied private parking facilities that remained in its primary growth corridors as a legacy of long-standing zoning codes. In most cases, market opportunities led the owners of over-parked developments to find ways to open their parking to the public — either during off-peak hours or during peak-use hours when there is capacity. As such, the County was able to secure significant shared-parking gains simply by allowing shared and public access to parking that had been required to be exclusive to "on-site" demand – see text extraction below.

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*Parking spaces in C, C-O, M, RA-H or R-C districts which are required by this zoning ordinance may be used by persons other than persons engaging in uses on the site, provided that said spaces shall be made available at all times to persons engaging in uses on the site at least at the same rates as to persons not engaging in uses on the site, and provided that there is no demand for said spaces by persons engaging in uses on the site.*

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While a strong profit opportunity eased the path to converting private parking to public commercial management, it did not ensure that facilities were always managed as the County planners had hoped. Over the ensuing years, the County has become more involved in ensuring basic management parameters are met, to ensure optimal public access to these facilities.

### Requiring/Incentivizing Public Parking in New Development

Going further, in 2005, the County developed a form-based code to create a shared parking district in its Columbia Pike District, a planned streetcar corridor attracting development interest akin to the County's established rail lines. Like other areas of the county, the private sector is left to manage the shared parking they provide, and the County does not directly provide any shared and public parking. The County does, however, regulate how shared parking is provided and managed to ensure that these parking resources function as public parking resources, shared among all district uses, and accessible to all drivers.

The Columbia Pike District form-based zoning code outlines minimum requirements for shared-parking for all private development, as well as a maximum standard for parking that is reserved only for on-site uses. The County chose to emphasize "flexible" maximums in the Columbia Pike code, in part, to avoid anticipated public resistance to eliminating minimum parking requirements altogether. The flexibility of the maximum standards,

applicable only to parking that was managed as reserved parking for the development, allowed the County to set these maximums at a similar level as its minimums, much lower than a typical "hard cap" maximum could be set. This both discouraged excessive supplies and expanded shared parking within a critical, mixed-use, multimodal redevelopment corridor.

### Flexible Maximums

The County chose to emphasize "flexible" maximums in the Columbia Pike code, in part, to avoid anticipated public resistance to eliminating minimum parking requirements altogether. The flexibility of the maximum standards, applicable only to parking that was managed as reserved parking for the development, allowed the County to set these maximums at about the same level as its minimums, much lower than a typical, "hard cap" maximum could be set. This both discouraged excessive supplies and expanded shared parking within a critical, mixed-use, multimodal redevelopment corridor.

**Code Details**

- Sites under 20,000 square feet in land area have no minimum parking requirements.
- Sites over 20,000 square feet in land area have the following requirements:
    - A minimum of 1 and 1/8 parking spaces per residential unit, of which a minimum of 1/8 parking space per residential unit shall be provided as shared parking.
    - A minimum of one space per 1,000 square feet of non-residential Gross Floor Area (GFA) shall be provided as shared parking.
    - New on-street parking spaces created in conjunction with the development, which did not previously exist, may be counted toward the minimum requirement for shared parking.
    - A maximum of one space per 1,000 square feet of non-residential GFA or two spaces per residential unit may be made available for reserved parking.
- Reserved parking above the maximum may be provided upon payment to the County.

## Joint Development

Public Parking programs are increasingly using joint-development strategies to ensure that the parking facilities they build are part of mixed-use buildings designed to enhance their surrounding contexts, with prominent and active, street-oriented businesses along their perimeters. A primary advantage of a joint-development project is that both parties gain, through shared-use efficiencies, more parking capacity per construction dollar than would be financially feasible for a stand-alone public facility or a private, accessory parking garage. Each party gains significant access to "overflow" capacity by allowing demand to flow freely toward space availability, rather than according to an assortment of parking restrictions.

Furthermore, when built in lieu of accessory parking, joint-development helps to emphasize the municipal parking system, and the inherent efficiencies and shared-benefits it offers, to support area growth. When the municipal system is coordinated with TDM programs, parking customers also benefit from increased awareness of benefits, programs, and events that can make non-driving alternatives cheaper, more appealing, and easier to use. Combined, these benefits suggest joint-development as the ideal model of supply expansion for shared parking districts.

### The Flats at Bethesda Avenue, Montgomery County

The Flats at Bethesda Avenue, located in Bethesda, Maryland, is a mixed use development on 1.4 acres of land, completed as a joint-development between a private developer and Montgomery County, through its Parking Lot District program. The project includes 162 residential units, including 38 affordable workforce-housing units. It also includes 28,000 square feet of retail on the ground floor, primarily occupied by restaurants and food and beverage retailers.

**Figure 2. Flats at Bethesda Avenue, Bethesda, MD**

Source: http://www.flatsatbethesdaavenue.com/gallery/

## Meeting County Objectives

The County's primary goal for the development was to increase the public parking supply without creating stand-alone parking facilities. Following a 2010 study to update the County's Parking Lot District (PLD) program, which seeks to provide public parking in Bethesda and other commercial centers, the County decided against building any more stand-alone parking facilities in these areas, and to seek joint-development opportunities when new supplies where needed. Following this policy shift in 2015, the County released a Request for Proposal inviting private developers to proposed plans to purchase two PLD lots, which contained 279 public spaces, and build 980+ public parking spaces underground as part of a mixed-use development.

The request stipulated the development of private residences and retail above the parking facility, as well as a requirement for 15% of housing to be offered as affordable units. The four-level underground garage that was part of the winning Bethesda Flats proposal is owned and managed by the County, while everything above it is owned and managed privately.

The Bethesda Flats project realized these minimum criteria, and brought benefits beyond these efficiencies, using location, programming, and design to emphasize non-driving mobility and access which allows the project to extract even greater value from each of its 980 parking spaces.

### Going Beyond Supply Expansion

A distinctive point of appeal for the Flats at Bethesda is its location directly on the 11-mile Capital Crescent Trail. This trail connects with many other regional trails, and also feeds directly into Washington, D.C., which serves those who wish to commute to work via bicycle. When the development was built, the trail was widened from 10 feet to 14 feet along the development. Additionally, the developers implemented wider sidewalks and shorter crosswalks for an improved pedestrian environment. In addition to its direct trail access, the development also provides secure bicycle storage and a bicycle drop-off area to use while parking.

The design of the garage takes into account both motorists and pedestrians, especially those carrying bicycles. Four of six elevators are oversized, allowing cyclists to easily bring their bicycles up to the Capital Crescent Trail. The garage also provides 24/7 security, energy-saving fluorescent lighting, six electric vehicle charging stations, wayfinding and signage, and hand-made art glass windows, all creating a welcoming, safe, and secure pedestrian environment.

## Progressive "In Lieu Fee" Rate

### Berkeley, California

The City of Berkeley, California recently adopted an In Lieu Fee policy, including an increasingly recommended "graduated" fee scale, based on development size and the number of required parking spaces waived. A key advantage of a graduated fee scale is that it makes the fee option particularly affordable for infill projects, while creating an incentive for larger projects to provide on-site parking. This latter incentive can be particularly effective when combined with joint-development opportunities and/or zoning code provisions that encourage shared parking at private developments.

The fee schedule and proposed uses for the collected funds of the program were developed in a workshop with city staff and the Metropolitan Transportation Commission (MTC). After considering a variety of approaches and fee levels, the fee schedule was set in the following graduated range:

- $15,000 per space for spaces 1-5 waived or reduced,
- $20,000 per space for spaces 6-15 waived or reduced,
- $25,000 per space for spaces 16-25 waived or reduced, and
- $30,000 per space for spaces 26 and greater waived or reduced.

Such a graduated, or progressive, fee structure creates a strong incentive for "infill" projects to opt for the fee option, while encouraging larger projects, most of which will have sites more amenable to efficiently-scale parking facilities, to provide on-site parking. If complemented by a municipal parking program positioned to develop joint-use projects, with public parking in private development, this approach can be particularly promising.

## TDM Integration

### San Francisco, CA

In early 2016, the City and County of San Francisco adopted a resolution to initiate Code amendments that would require development projects to comply with a proposed TDM program[8], with the intent to reduce vehicle miles traveled (VMT), and to make it easier for people to get around by sustainable travel modes such as transit, walking, and biking.

The proposed TDM program is part of the Transportation Sustainability Program (TSP), a multi-agency initiative that aims to improve and expand San Francisco's transportation network to accommodate new growth. Under the proposed TDM program, the City would set a target TDM score, based on the number of accessory vehicle parking spaces included with the proposed project. Developers can meet the target by selecting TDM measures – each with a specified number of points – from a menu of options.

8 Unanimously approved by the Planning Commission on August 4, 2016, the Planning Code Amendment for the TDM Ordinance will be heard at the Land Use and Transportation Committee on Monday, November 28.

**Figure 3. San Francisco DRAFT TDM Checklist**

| CATEGORY | MEASURE | POINTS |
|---|---|---|
| ACTIVE-1 | **Improve Walking Conditions:** Option A - B<br>Provide streetscape improvements to encourage walking. | 1 |
| ACTIVE-2 | **Bicycle Parking:** Options A - D<br>Provide secure bicycle parking, more spaces given more points. | 1 - 4 |
| ACTIVE-3 | **Showers and Lockers** | 1 |
| ACTIVE-4 | **Bike Share Membership:** Locations A - B<br>Provide a bike share membership to residents and employees for one point, another point given for each project within the Bike Share Network. | 1 - 2 |
| ACTIVE-5A | **Bicycle Repair Station** | 1 |
| ACTIVE-5B | **Bicycle Maintenance Services** | 1 |
| ACTIVE-6 | **Fleet of Bicycles** | 1 |
| ACTIVE-7 | **Bicycle Valet Parking** | 1 |
| CSHARE-1 | **Car-share Parking and Membership:** Options A - E | 1 - 5 |
| DELIVERY-1 | **Delivery Supportive Amenities** | 1 |
| DELIVERY-2 | **Provide Delivery Services** | 1 |
| FAMILY-1 | **Family TDM Amenities:** Options A - B | 1 |
| FAMILY-2 | **On-site Childcare** | 2 |
| FAMILY-3 | **Family TDM Package** | 2 |
| HOV-1 | **Contributions or Incentives for Sustainable Transportation:** Options A - D | 2 - 8 |
| HOV-2 | **Shuttle Bus Service:** Options A - B | 7 - 14 |
| HOV-3 | **Vanpool Program:** Options A - G | 1 - 7 |
| INFO-1 | **Multimodal Wayfinding Signage** | 1 |
| INFO-2 | **Real Time Transportation Information Displays** | 1 |
| INFO-3 | **Tailored Transportation Marketing Services:** Options A - D | 1 - 4 |
| LU-1 | **Healthy Food Retail in Underserved Area** | 2 |
| LU-2 | **On-site Affordable Housing:** Options A - D | 1 - 4 |
| PKG-1 | **Unbundle Parking:** Locations A - E | 1 - 5 |
| PKG-2 | **Short Term Daily Parking Provision** | 2 |
| PKG-3 | **Parking Cash Out: Non-residential Tenants** | 2 |
| PKG-4 | **Parking Supply:** Option A - K | 1 - 11 |

NOTE: A project sponsor can only receive up to 14 points between HOV-2 and HOV-3.

Image source: SFMTA

In general, if a project proposes more parking, then the target and number of TDM measures the developer must implement would increase. Selected TDM measures must be incorporated into the project proposal, and analyzed in Draft 1 of the Transportation Impact Study (TIS) or Transportation Circulation Memo. Property owners will be required to implement TDM measures selected in the TDM plan for the life of the project. The image below presents an overview of how this process fits into the overall development-approval process.

**Figure 4. TDM Approvals Process Overview**

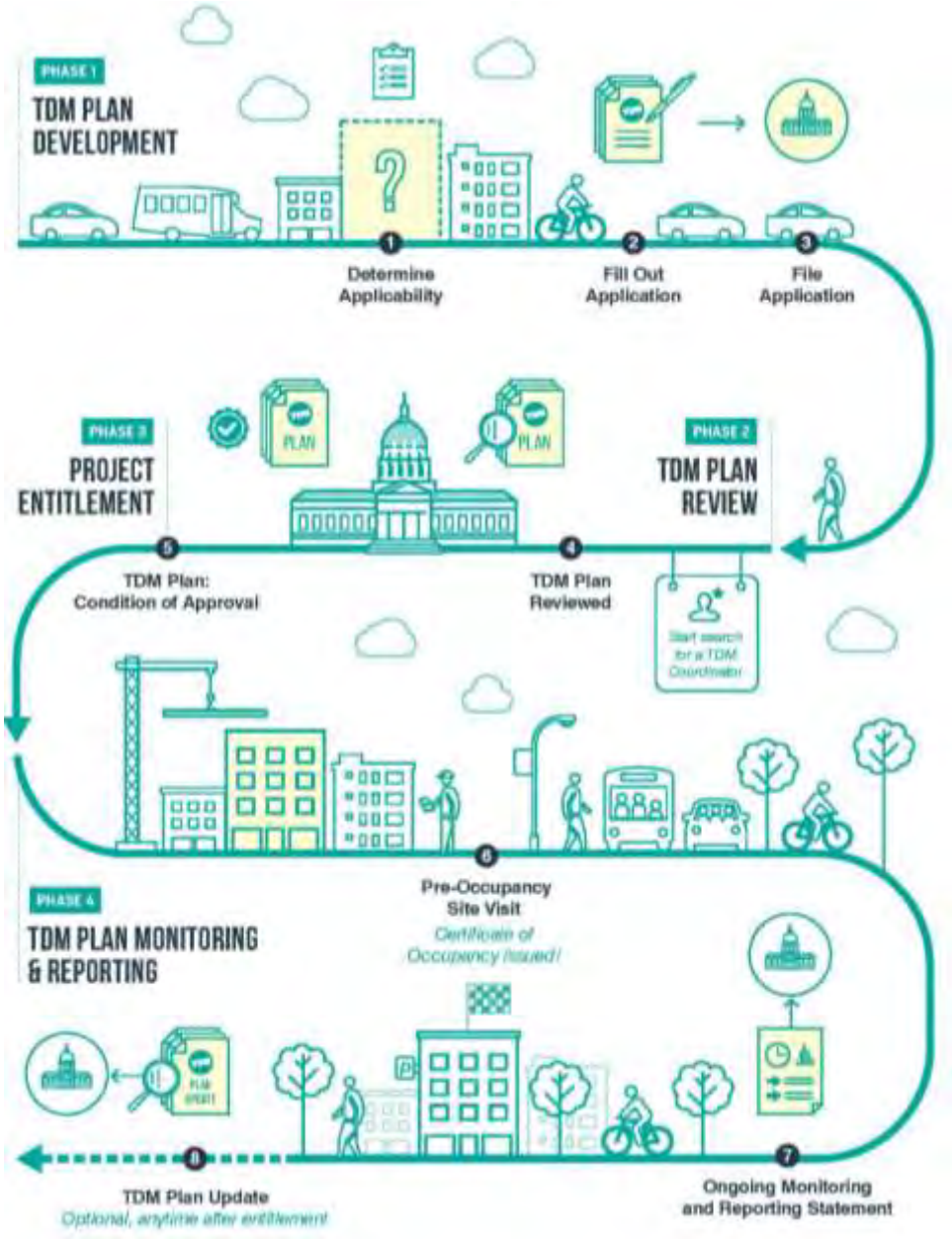



Image source: SFMTA

## Bicycle Parking Requirements

### Cambridge, MA

Linking bike-parking requirements to the number of on-site auto parking spaces is at cross purposes with reduced parking requirements, parking maximums, and other provisions intended to reduce on-site auto parking at new development. In such circumstances, bike parking needs should be expected to increase in direct proportion to declines in auto dependency. For

these reasons, places like Cambridge, MA have recently updated their bike parking requirements to untether them from auto parking capacities.

By separating bicycle parking into short and long-term parking as well as setting parking design standards, the City of Cambridge is also positively promoting the use of bicycles as an alternative transportation option. The following are some key concepts from the Cambridge zoning code.

- Bicycle parking for both short and long-term parking have minimum requirements for primary uses.
- Long-term bicycle parking must be enclosed and within 200 feet of a pedestrian entrance. Parking may also be shared between nearby uses or buildings.
- Short-term parking must be reasonably located within 50 feet of a pedestrian entrance, but if not feasible, an in-lieu fee may be paid towards a public facility.
- Bicycle racks and lockers must meet certain design guidelines including size and number of bicycles for each type of parking facility.
- Bicycle parking access must meet standards such as minimum width, maximum grade change, and be lighted in addition to the parking spaces

## Car-share Parking Requirements

### Montgomery County, MD

As car-sharing becomes a more prominent local mobility option, an updated code can support the expansion of car-share access by providing free parking within larger private parking facilities included in new development projects. Montgomery County, MD recently did so by adding requirements for car-share parking in its key commercial centers. Key concepts from the County's new zoning code are listed below.

- Any accessory parking facility with 50 to 149 parking spaces must have a minimum of one car-share parking space.
- One additional car-share parking space is required for each 100 parking spaces more than 149, up to a maximum requirement of 5.
- If the property owner cannot find a car-share organization willing to make use of the spaces, the property owner may use the spaces for publicly-available parking.

- If a County-recognized car-share organization notifies the property owner that the organization wants to use the car-share spaces, the property owner must make the spaces available to the car-share organization within 90 days after receiving written notice of interest from the County recognized car-share organization.

## Unbundled Parking Credits

### Montgomery County, MD

In the County's key commercial centers, offering residential parking only as an option from the purchase or lease of a residential unit, and at an added cost, reduces the baseline minimum parking requirement to the following.

- Efficiencies and 1-Bedrooms – 0.5 spaces/unit
- Larger units and Townhouses – 0.75 spaces/unit

## Multimodal Mobility-Amenity Credits

Many cities have begun providing parking requirement credits/reductions in exchange for the inclusion of amenities that improve and/or expand on-site mobility options.

### Car-Share Parking

#### Code Example: Bozeman, MT

- A car-sharing agreement may be used to meet the required number of parking spaces in developments with more than five dwellings.
- Each vehicle provided through a car-sharing agreement (with its corresponding space) will count as five standard spaces.
- The maximum reduction is set at 50% of the total.

### Bike-Share Facilities

#### Portland, OR

Substitution of a bike sharing facility for required parking is allowed if all of the following are met:

- A bike sharing station providing 15 docks and eight shared bicycles reduces the motor vehicle parking requirement by three spaces. The

provision of each addition of four docks and two shared bicycles reduces the motor vehicle parking requirement by an additional space, up to a maximum of 25 percent of the required parking spaces;

- The bike sharing facility must be adjacent to, and visible from the street, and must be publicly accessible;
- The bike sharing facility must be shown on the building plans; and
- Bike sharing agreement.
    - The property owner must have a bike sharing agreement with a bike-sharing company;
    - The bike sharing agreement must be approved by the Portland Bureau of Transportation; and
    - A copy of the signed agreement between the property owner and the bikesharing company, accompanied by a letter of approval from the Bureau of Transportation, must be submitted before the building permit is approved.

### Changing Facilities

#### Montgomery County, MD

- The required number of vehicle parking spaces may be redued by 3 spaces for each additional changing facility provided above the minimum required.
- A changing facility must include a shower and lockers provided separately for each gender.

## Preparing for Uncertainty

Predicting how much parking will be needed to support future land use developments has always been a fraught exercise. For decades, the major concern was that "enough" parking be in place, while the risks of "too much" parking was underappreciated. More recently, many cities have reversed this, and implemented codes that sought primarily to ensure against excessive parking supplies, particularly in areas where the risks of too much parking were highest. Despite this paradigm shift, one factor has remained virtually unchanged; it has not gotten any easier to predict what the "right amount" of parking will be for any particular use, building, or district. An

increasingly common response to this is to emphasize flexibility in codified parking standards. A particularly innovative example of such a response is a code update recently proposed, with final council approval pending, in Aspen, Colorado.

## Aspen, CO

The City of Aspen is preparing for a future into which it is becoming increasingly tenuous to predict rates of parking-demand generation, particularly in walkable, urban centers. It is seeking to integrate parking regulations and TDM into a Mobility Requirement, which will replace all parking requirements in its downtown. To satisfy the Mobility Requirement, developers will have three primary options.

1. Provide on-site parking.
2. Commit to on-site mobility amenities and/or TDM programs, beyond the minimum required for the project's Transportation Impact Analysis.[9]
3. Contribute funding to the provision of public parking, mobility, and TDM programs.

This is designed to generate direct provision of private amenities and programs, as well as funding for public amenities and programs. It also provides optimal levels of flexibility for private and public investments to respond to changes in parking demand and mobility opportunities, as modal options and preferences evolve.

9 http://www.aspenpitkin.com/Business-Navigator/Get-Approval-to-Develop/Transportation-Impact-Analysis-Guidelines/

# Recommended Code Updates

## Broaden the Focus to Access & Mobility

### Reframe Parking Requirements as Access Management Requirements

Using the existing framework for calculating minimum parking requirements, reframe the "requirement" as a requirement to manage the project's access needs and impacts, measured as Access Management Requirement (AMR) points.

**Table 2. Examples of Access Management Requirements (in AMR points)**

| Land Use | Minimum Requirement |
|---|---|
| Multi-Family Housing | 1 to 3 per dwelling unit, increasing by # of bedrooms |
| Offices | 1 per 200 SQ FT FA -<br>1 per400 SQFT FA |
| Medical Facilities | 1 per 4 Planned Bed sites, or 300 SQ FT. |
| Standard Restaurant | 1 per 4 seats, plus 1 per employee on largest shift |
| Retail Trade | 1 per 150 SQ FT FA |
| Drinking & Entertainment | 1 per 4 persons based on building's maximum capacity |

### Provide Three Options to Satisfy AMR

Allow developers to meet a project's AMR through any combination of

- On-site parking,
- Bonus TDM measures, and
- In Lieu Fee payments.

### Credit Parking Spaces Based on How They Will Be Managed

Calculate credits for on-site parking spaces included in a proposal according to the management of those proposed spaces, and based on the following space-type categories.

#### Defining Space Types

Defining the following space types in the code will help the City link parking management to development approvals, by providing more credit when parking is managed to emphasize efficiency, and less credit when parking will

necessitate more redundancy – and induce more driving in the process. This will also allow the City to build several best practices into this process (streamlining the code and reducing the need for prescriptive explanation) including the following.

- Public Parking in Private Development: Management approaches that facilitate shared-parking efficiencies increase space credits toward an AMR. Those that reduce these efficiencies increase the project's AMR.
- Unbundling: Spaces that are priced receive more credits toward an AMR.
- Flexible Maximums: Rather than assigning a "hard cap" on parking, spaces in excess of the project's baseline AMR actually increase the AMR, thus necessitating increased TDM commitments, fee payment, or inclusion of public parking. While this adds flexibility in how much parking can be provided, it adds a "cost" to each space built above the AMR, in the form of public-benefit contributions.

**Reserved Parking Space**

A parking space that is managed to limit access to specified individuals or individuals engaged with specific on-site uses (residents, tenants, and their guests/customers).

- AMR Credit per space: -0.25

**Accessory Parking Space**

A parking space that is managed to limit access to individuals engaged with specific on-site uses (residents, tenants, and their guests/customers), but are shared between all on-site land uses.

- AMR Credit per space: 0.75

**Public Parking Space**

A parking space that is managed to provide at least 12 hours of public parking in any 24-hour period, with approved signage to effectively identify these hours of public access.

- AMR Credit per space: 1

**Priced Parking Space**

A parking space – whether reserved, accessory, or public – that is priced comparable to rates charged by the City for nearby off-street facilities.

- AMR Credit per space: 0.25 (added to underlying space-type credit)

### Municipal Parking Space

A parking space that is provided within City facilities, or directly managed by the City, whether located in a private or City-owned parking facility.

- AMR Credit per space: 1.5

### Excess Parking Space

Any reserved and accessory parking space provided in excess of the project's AMR, calculated as the total number of reserved and accessory spaces, minus the project's AMR.

- AMR Credit per space: -0.25 (added to underlying space-type credit)

## Assigning Credits

The table below summarizes proposed credits to be assigned to the space types defined above.

**Table 3. Parking Credits Table**

| Parking Space Types | Credit Toward AMR (points) |
|---|---|
| Reserved Spaces | -0.25 |
| Accessory Spaces | 0.75 |
| Public Spaces | 1.0 |
| Priced Spaces | 0.25 (additive) |
| Municipal Spaces | 1.5 |
| Excess Spaces | -0.75 (additive) |

## Notes

- Reserved and Excess spaces receive "negative" credits, reflecting the fact that these management approaches work against supply efficiencies, and tend to induce more driving.
- Public spaces are treated as the "baseline" credit (1.0), emphasizing that this is preferred as the normative form of management in the DMC.
- Accessory spaces, by contrast receive less credit, reflecting the reduced efficiency of this management approach.

- Credits for Priced and Excess spaces are assigned additive to the credit assigned to their primary space type (Reserved, Accessory, or Public), so, for example:
    - Reserved spaces provided in excess of the project's AMR would be credited at -1.0 per space;
    - Public spaces that are priced would be credited at 1.25 per space; and
    - Accessory spaces provided in excess of the project's AMR would be credited at 0.0 per space.
- Municipal spaces are, by definition, priced and public, so pricing and "excess" factors are not assigned to these spaces.
- Municipal spaces are credited to reflect the optimal efficiencies made possible by incorporating their management into the overall City program.
- ILF payments will be credited at the same rate as Municipal spaces, as that is the only form of parking ILF revenue can fund.

## Let Math Do the Explaining

Provide developers with a web-based app to calculate a project's AMR, and to assess their options for meeting it, including a calculator that will tally points toward meeting the AMR, based on specific parking, TDM, and ILF payment assumptions. Working with such a calculator quickly makes clear the "cost" of inefficient forms of parking, the benefits of pricing and sharing, as well as options to reduce or eliminate parking altogether, through TDM commitments or ILF payments.

*Scenarios*

*The following table provides examples of how a developer whose project receives an AMR of 150 points might calculate options for accumulating sufficient points, assuming various combinations of on-site parking, bonus TDM points, and ILF payments.*

| Scenario | # Parking Spaces Proposed by Type | | | | | | Parking Points | Bonus TDM Points | Remaining AMR (for ILF payment) | TOTAL POINTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | Reserved | Accessory | Public | Priced | Municipal | Excess | | | | |
| 1 | 200 | 0 | 0 | 0 | 0 | 50 | -88 | 12 | 226 | 150 |
| 2 | 200 | 0 | 0 | 200 | 0 | 50 | -38 | 0 | 188 | 150 |
| 3 | 125 | 0 | 0 | 0 | 121 | 0 | 150 | 0 | 0 | 150 |
| 4 | 0 | 0 | 150 | 0 | 0 | 0 | 150 | 0 | 0 | 150 |
| 5 | 0 | 150 | 0 | 0 | 0 | 0 | 113 | 20 | 17 | 150 |
| 6 | 0 | 150 | 0 | 150 | 0 | 0 | 150 | 0 | 0 | 150 |
| 7 | 50 | 0 | 160 | 0 | 0 | 0 | 148 | 0 | 2 | 150 |

### Calculate Bonus TDM Credit

There are two options for setting up a system of bonus TDM credit for proposed DMC area projects.

1. Expand the Interim Code's TDM requirements, moving toward the San Francisco model, with an expanded "menu" of options, each of which is assigned a range of points that are calculated toward a required, minimum score. Any points accumulated beyond the minimum required score can be credited toward the AMR.

2. Leave the Interim Code's TDM requirements as is, while creating a menu of options for accumulating TDM credits beyond the minimum required in the code.

## Emphasize Municipal Parking to Prepare for Uncertainty

One of the most important potential benefits of the framework outlined above is the opportunity to discourage privately built and managed parking facilities, so that most of the parking added within the district is built and managed as part of the Municipal system. Shared Mobility services like car-sharing and TNCs are already disrupting the relationship between mobility and parking-generation. The much-anticipated advent of driverless vehicles may make such services profoundly more expansive, efficient, and affordable to the point that they begin to function like transit. Predicted impacts to parking demand from these disruptive changes are wide ranging, but are sure

to be both significant and difficult to predict from city to city, district to district.

Municipal parking structures provide two distinct advantages over private parking facilities in such an environment, advantages that will be all the more meaningful to the extent that parking demand does broadly decline in the coming years. The most basic advantage lies in the fact that such facilities tend to be highly accessible and strategically positioned, so that declining parking demand simply means that the same set of facilities can support more growth, rather than fall into obsolescence as an accessory facility would likely do. The second is the capacity to apply emerging design strategies that facilitate the adaptive re-use of parking facilities with significant excess capacity, and facilitate the potential efficiencies of self-parking and self-driving vehicles as they become more common.[10] This includes careful placement and orientation of parking structures, as well as specific facility-design strategies.

See Kimley-Horn's report on Parking Design Guidelines for future-of-parking design guidelines, to be developed.

## Allow Required Parking to Be Shared

Adopt code language similar to the Arlington County example provided above to:

- Allow parking spaces provided to meet parking requirements to be shared, and
- Make this retroactive for existing developments.

## Update Bike Parking requirements

Decouple bike parking ratios from auto-parking requirements. The City of Minneapolis does this, providing an example of ratios from a comparable location.

**Table 4. Bike Parking Requirements in Minneapolis**

| Land Use | Minimum Bicycle Parking Requirement |
|---|---|
| Non-Residential Uses under 1K SF | Exempt |
| Residential: Single Family – 4 Units | Exempt |

[10] http://www.curbed.com/2016/8/8/12404658/autonomous-car-future-parking-lot-driverless-urban-planning

| Land Use | Minimum Bicycle Parking Requirement |
|---|---|
| Multifamily – 5 Units or more | 1 space per 2 dwelling units |
| Schools (K-12) | 3 spaces per classroom |
| Community Centers | 6 spaces |
| Theaters | 3 spaces |
| General Retail | 3 spaces or 1 space per 5K SF |
| Offices | 3 spaces or 1 space per 15K SF |
| Restaurant or Coffee Shop | 3 spaces |
| Recreational Facility | 3 spaces |
| Sports & Health Facility | 3 spaces or 1 space per 10K SF |
| Medical Clinic | 3 spaces |
| Industrial Uses | 2 spaces or 1 space per 20/30/40K SF |
| Post Office | 3 spaces |

## Require Car-Share Parking

Require that larger private parking facilities set aside a modest number of spaces, to be offered to recognize car-sharing services. The Montgomery County, MD example provided above is modeled on a similar requirement in parts of San Francisco. The same or similar parameters would help to expand access to car-share vehicles in the DMC, something that has been shown to reduce rates of private-vehicle ownership and use.

## Add Credits for Key Multimodal Amenities

Added credits toward a project's AMR for the following.

- **Car-share Parking**, including required spaces, but linked to signed agreements with a car-share provider to occupy credited spaces
- **Bike-Share Facilities**, similar to the example provided from Portland, OR
- **Showers and Changing Facilities**, to help facilitate active-mobility commutes

## For Further Consideration

### Consider a Progressive In-Lieu Fee Rate Structure

This may be particularly important if discouraging on-site parking at smaller development sites is a priority. It can also help generate interest in joint-development partnerships among developers with larger-scale projects on

sites likely to be more accommodating of efficient parking facilities, folded into mixed-use projects.

## Adopt A Joint-Development Policy

Defining the optimal-outcome potential of the In Lieu Fee program, highlighting better-designed facilities that offer more broadly shared benefits, will clarify the intent of the ILF program, and encourage developers to rethink assumptions about the relative benefits of accessory parking. Thinking beyond parking, the joint-development model of supply expansion can evolve toward a means of implementing innovative mobility solutions, such as Uber rooms[11] and bikestations[12] that bring the same scales of efficiency and emphasis on shared benefits.

[11] https://www.washingtonpost.com/news/local/wp/2016/08/17/this-new-apartment-building-has-an-uber-room-to-wait-for-your-ride/

[12] http://home.bikestation.com/what-is-bikestation

# Rochester DMC Park+ Framework

## *Model Development Overview and Status Update*

*Version 1.1*

**Prepared for:**

**DMC Transportation & Infrastructure Program**
City of Rochester, MN

Prepared by:

Date: 12-20-2016

DMC Project No.: Rochester J8618-J8622 Parking/TMA Study

# Table of Contents

# Rochester DMC Park+ Framework

## Introduction to Park+

The Park+ Parking Scenario Planning Model is an ArcGIS-integrated module that analyzes the total impacts of parking demand for municipal, campus, or development settings. Park+ allows the user to evaluate existing parking demands, identify new land use and parking configurations, test the impact of multimodal changes, and define parking management scenarios. The user can then manipulate various inputs, create alternative scenarios, and adjust analysis areas to create specific and localized evaluation sets to help predict the effects and impacts of land use-parking demand relationships. Scenarios can be evaluated from the aggregate level to the finite level. Additional details on the Park+ process are included later in this report. The following section provides details regarding the Rochester DMC Park+ project.

## Rochester DMC Park+

The Park+ Modeling component of the Rochester DMC project will build on the previous parking analysis and data collection work completed in recent years by Kimley-Horn and Nelson-Nygaard. The Park+ model will provide the City, DMC, and Mayo Clinic with a common tool to enable continual updates based on actual development, and future analysis of anticipated or proposed parking modifications in the study area.

### Schedule

Table 1 below includes an anticipated Park+ Model development schedule.

**Table 1. Schedule**

| Milestone | Task | Action Items | Schedule (Status) |
|---|---|---|---|
| **Park+ Kick-Off** | Initial Project Kick-Off Meeting | Complete | 14 days following Park+ Kick-Off – Complete (Nov. 2016) |
| | Initial Data Request/ Data Collection Effort | Ongoing | 15 days following Park+ Kick-Off – Ongoing (Nov. 2016) |
| **Data Collection/ Validation** | Supplementation Data Collection/ Validation | Pending complete data – City/Lanier, Mayo | Post-Holiday – Jan/Feb 2017 (Pending) |
| | Database Development | Ongoing - Pending completed data collection | 18 days following Data Collection/ Validation |
| **Calibration and Scenario Development** | Model Calibration | Completed Database Development | 30 days following Data Collection/ Validation |
| | Mid-Project Check-In Meeting | Present Calibrated Park+ Model; Baseline Future Conditions | 37 days following Data Collection/ Validation |
| | Scenario Evaluation | Build-out and master plan analysis scenarios | 52 days following Data Collection/ Validation |
| **Train Local Staff on Park+** | Train Local Staff | Deliver Park+ models, instruction, and manual | TBD (Pending) |

Data collection and validation efforts are on-going, and pending supplemental parking occupancy counts. Supplemental parking occupancy counts to validate previous studies and gather additional data in the study

area will be collected when the holiday season concludes and school is back in session. Data collection will occur on a typical weekday to identify business as usual, and will not occur when there are major events or modified schedules that may impact results. Kimley-Horn is committed to contributing to the Targeted Business Group allocation for the Rochester DMC project and proposes to coordinate with a designated TBG to assist with the data collection/validation process.

Calibration and, following the mid-project check-in, scenario development will be an exciting opportunity to model and analyze various scenarios related to the eventual build-out and modification of the study area relating to the master plan. The primary deliverable will include a parking and land use database and corresponding model that is customized for the City of Rochester. Kimley-Horn will provide a final Park+ User Manual and training specific to the Rochester DMC Park+ Model, along with a summary report detailing the results of the supply/demand analysis. The City will own the rights to this model and have full rights to use it on an on-going basis.

## Data Collection Efforts

Table 2 and Table 3 below provide a summary of data collection efforts to-date.

**Table 2. Parking Data Collection Summary – December 2016**

| Parking Data Needed | On-Street | | | Off-Street | | | |
|---|---|---|---|---|---|---|---|
| | Meters | Residential Permit | Free/ Not Controlled | City Ramps & Lots | Park & Ride | Mayo Ramps & Lots | Other Ramps & Lots |
| **GIS Data** | City - Received | City - Received | KHA – Field Inventory | Partial - 2014 Study Data update | City – (Requested) | Partial - 2014 Study Data update | KHA - Field Inventory |
| **Inventory - Name - Spaces -Restrictions (ex. duration)** | City - Received | City – Received | TBG - Inventory | Partial - 2014 Study Data update | City - Database (Requested) | Partial - 2014 Study Data update | TBG - Inventory (Public access facilities) |
| **Users/ Inventory by Group (assumptions noted)** | Public Hourly (assumed) | Residential Permit | Public Hourly (assumed) | Mixed - Public Hourly/ Monthly Contract | Mixed - Public Hourly/ Monthly Contract | Mayo - Received | Public Hourly (assumed) |
| **Cost** | City Website - Received | Annual Pass (assumed) | Free (assumed) | City Website - Received | City - Database (Requested) | Mayo - Received | TBG - Inventory |
| **Hourly Occupancy** | Partial Data/ TBG - Inventory | TBG - Inventory | TBG - Inventory | Lanier 2014 Study (adjusted) - Received | City – (Requested) | Mayo - (Requested) | TBG - Inventory |
| **Future Changes to the Parking System** | City - pending | City - pending | City - pending | City - pending | City - pending | Mayo - pending | TBG - Inventory |



Kimley»Horn SRF Consulting Group, Inc.

Table 3. Land Use Data Collection Summary – December 2016

| Land Use Data Needed | Land Use – From County/ City Parcels/Buildings 2016 | Land Use – From Mayo Break-Out of Hospital Facility Uses for Large Facilities (Supplemental to Tax Parcel Data, if desired by Mayo) |
|---|---|---|
| **GIS Data** | County Parcels 2016 - Received | *CAD from Facilities - Received* |
| **Land Use Type** | County Tax Database by sub-Parcels 2016 (Pending – Partial through GIS data) | *Database (Requested)* |
| **Land Use Intensity** | County Tax Database by sub-Parcels 2016 (Pending) | *Database (Requested)* |
| **Future Development** | City - pending | Mayo - pending |

## Scenario Development

Pending the Mid-Project Check-In Meeting dialogue, the Rochester DMC Park+ Model scenario development will incorporate concepts as defined by the overarching Master Plan, and may include the some of the following possible build-out scenarios:

- Incorporation of the Portal Capacity study results
- Modification to existing permit and hourly public parking strata
- Master Planning
- Right-sizing parking in urban environments/shared parking
- Development of localized parking generation rates
- Special events management and planning
- Redevelopment support
- Evaluating pricing scenarios
- Projecting multimodal impacts on reducing parking demand
- Infrastructure Planning

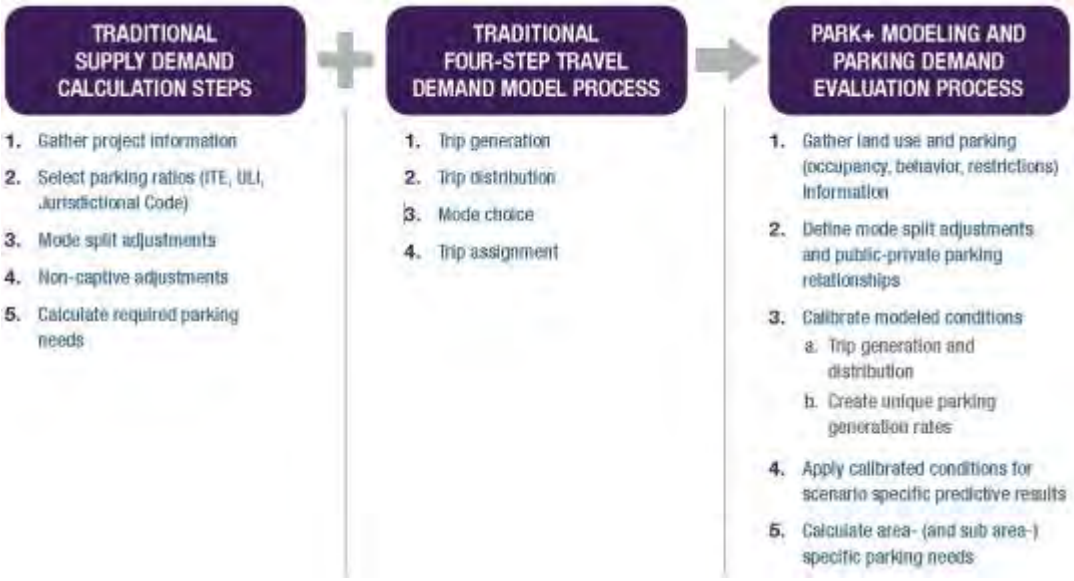
# The Park+ Process

## Development Theory and Process

Park+ models parking supply and demand based on area context, user behavior, and the distinct decision matrix made by parkers as they choose their vehicular destination. Park+ is largely modeled after traditional supply and demand evaluations, which include a multi-step process for evaluating parking demand conditions for a development, community, or campus. The multi-step process typically includes gathering data, defining assumptions or characteristics, selecting generation rates, applying reduction factors, creating scenarios, and evaluating results.

The model takes the ITE's Parking Generation and ULI's Shared Parking manuals and adapts these concepts to each local community, combining elements of traditional supply and demand analyses with applications of a traditional four-step travel demand modeling application. The figure below compares the traditional supply-demand analysis, traditional four-step travel demand model, and the Park+ modeling application, which combines elements of each to derive parking demand and behavioral characteristics.

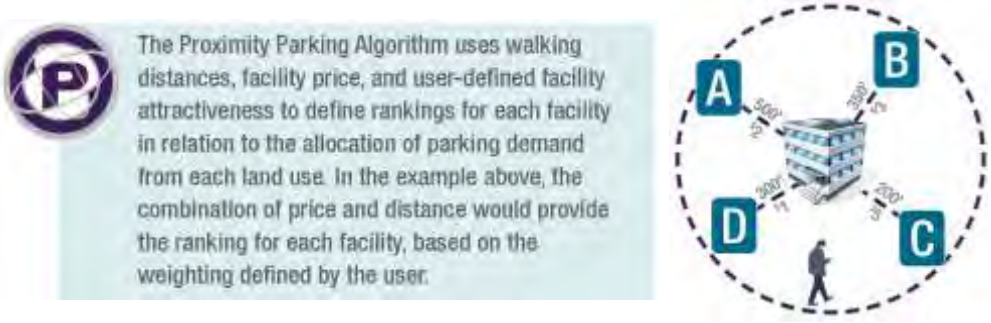
**Figure 1. Park+ Modeling and Parking Demand Evaluation Process**




## Proximity Parking Approach

The Park+ model is built on the principle of Proximity Parking, which assumes that parking demands are generally handled within a specific walking radius of a demand generator. This methodology is founded on the relationship between walking distance, price, attractiveness of a facility, and general user decision making. The result of this methodology is localized parking generation rates that are predictive of actual demand conditions and representative of realistic parking generation characteristics for individual land uses throughout the specified study area.

**Figure 2. Proximity Parking Approach**




## Calibration in Park+

The Park+ calibration process utilizes the Proximity Parking Algorithm and the existing data of a community or campus to create localized parking generation rates for the model area. The importance of this step in ensuring the accuracy of the model's predictive engine cannot be overstated. By accurately calibrating land use parking behaviors and user parking characteristics, users can more effectively use the Park+ model to define changes to parking demand relative to the community or study area. This section describes how each component of the calibration process affects the model's results.

## Components of Calibration

The calibration process uses a combination of local data and user defined variables to set the base characteristics of the Park+ Model. In general, the following components are used in the calibration process:

**Table 4. Components of Calibration**

| Component | Description |
|---|---|
| **Land Use Characteristics** | Land use types and intensities. Example: Apartment complex with 90 dwelling units, along with office space with 100,000 square feet, and ground floor retail with 15,000 square feet. |
| **Parking Characteristics** | Parking types and characteristics. Example: The Main Street parking garage, with a public designation, 100 spaces, $1 hourly rates, $8 daily rates, and $80 monthly rates. Data would include hourly occupancy data for a user-defined time period (based upon available data). |
| **Private Parking Relationships** | Designation of parking facilities as private or for the use of a specific user group. Example: An office parking facility and its 100 spaces are reserved for the use of office employees. In the model, public demands will not be allowed to utilize this space, even if available. |
| **Temporal Settings** | The time of day and day of week. Although the user can select any time, the time is typically set to the peak hour during the calibration process. |
| **Multimodal Variables** | Mode split percentages for user types, including bus, walking, shuttle, light rail, bicycle, and an "other" catch-all category. |
| **Maximum Occupancy Percentage** | The maximum occupancy level a parking facility can experience. This is based on the principle of an effective parking cushion, which assumes that a facility will reach capacity at some point below 100% because of the users' abilities to find available parking spaces. The Park+ user can define this as a percentage between 85% and 100%. |
| **Walking vs. Price Threshold** | The user can define the relationship and weighting between walking and distance in the Proximity Parking Algorithm. The variables are defined on a scale of 100%, meaning that the decision can be weighted a certain percentage walking and distance. Example: The users in the model are more concerned with price than distance, setting the scale at 80% price and 20% distance. |
| **Walking Distances** | The final component of the calibration process, the user-defined walking distance defines how far each user group is willing to walk from parking facility to final destination. |

While many of these variables are straightforward, others are quite user subjective or less than intuitive. The following sections describe some of those factors.

### Parking Relationships

The introduction of private parking relationships in the Model's calibration process is the most important step in ensuring an accurate calibration. By removing spaces from the system that are not available for public demand, the modeler can more accurately represent allocation patterns. The removal of these spaces privatizes them for the strict use of the land use they are associated with. Typically, the defined relationships take on one of four relationships:

1. **Private-Private** – A private parking facility serves a private land use. For example, an office or a condominium is served by its own parking facility. In these situations, no other demand can be parked in the restricted private parking facility. However, parking demands generated by the private land use can be parked in adjacent public facilities, either as overflow or as a secondary option.

2. **Shared Parking** – One parking facility serves many land uses. Similar to the private-private relationship, parking is only available to the land uses allocated to the parking facility. Also, just like private-private, parking demands generated by the allocated land uses can be parked in adjacent public facilities, either as overflow or as a secondary option.

3. **Shared Pools of User Parking** – A shared pool of parking is only available to a certain subset of users in the model. This configuration works well for academic settings, where permit systems define multiple locations where specific users can park. Unlike the previous examples, these users are confined to their pool of parking; defined walking tolerances can be used to determine which parking from the pool supports the user.

4. **Public Parking** – Those parking locations not defined by a land use relationship are considered public. These public spaces are available to all demand in the model, except for users confined to a specific user-type pool.

### Allocated vs. Related

The terms allocated and related are used to define the land use parking relationship. The term Allocated means that the modeler has defined a specific relationship and that the parking facility is allocated to the land use. The term Related means that through the calibration process, the user-defined walking tolerances have created specific relationships between parking facilities and land uses. Thus, those land uses and parking facilities are related based on their geospatial location and availability.

### Maximum Occupancy Percentages

Effective supply is generally defined as the usable portion of a parking system, which is less than 100% due to circulation, loss of spaces, or general lack of knowledge of the system. Typically, the effective supply is between 85 and 99 percent, indicating that the facility is full before it reaches full capacity. Typical industry standards indicate that for system with largely short-term, unfamiliar users, the effective supply is between 85 and 90%, while systems with longer-term, familiar users observe effective supplies between 90 and 95%.

These values are good rules of thumb for the application of Park+ modeling principles. However, for the calibration process, it is a good practice to set your Maximum Occupancy Percentage at least as high as your highest observed occupancy to ensure the modeled data reflects actual conditions. You can always reduce the percentage in subsequent model projections to understand how potential demand might operate under these theoretical conditions.

### Walking Distance

Walking distance is another critical component in the calibration process. As the final step in calibration, the modeler defines walking distances for each user type in the model, which predict how far a parker will walk from parking facility to destination. These walking distances are typically derived from known community characteristics or through discussions with planning staff. The following table provides typical walking distances for different settings.

| SETTING | SHORT DISTANCE* | LONG DISTANCE* |
|---|---|---|
| Urban municipality | 500' | 1,320' |
| Suburban municipality | 300' | 600' |
| Urban campus | 500' | 2,500' |
| Suburban campus | 300' | 1,320' |

*Average observed walking tolerances in various Park+ modeling platforms in use today

## The Calibration Process

During the Park+ calibration process these components are used to relate parking facilities and land uses and to create unique prediction characteristics for use in Park+ projection processes. The calibration process uses the Proximity Parking Algorithm and the geospatial analysis capabilities of ArcGIS to define relationships and measure actual parking demands attributed to each land use. Calibration is a critical step in the development of unique modeling platforms for each of our users, allowing the community- or campus-specific parking and land use information to be transformed into parking demand modeling parameters that are used to evaluate existing and future parking demands.

Once allocations are defined, the actual parking demands from each facility are applied to the land uses based on the *Proximity Parking Algorithm*. Actual parking demands are defined as the observed parking occupancies within the facility at a given time of day. These occupancies are typically collected in the field or measured using parking revenue control equipment at the facility. The *Proximity Parking Algorithm* will proportionately distribute demand for shared facilities based on distance, price, and user-defined facility attractiveness.

The result of the algorithm calculations is the actual demand for each of the land uses. The model also calculates theoretical demands for each land use, based on the land use type, land use intensity, and code source. For the Park+ model, the code source can be either ULI/ITE or City/County Code. Once the theoretical demand is calculated, the following formula is applied to create the unique parking generation rate for each land use by hour:

$$Adjusted\ Parking\ Generation\ Rate = \frac{Actual\ Demand}{Theroetical\ Demand} \times Original\ Code\ Source$$

The adjusted parking generation rates are the primary output of the calibration process. Again, the calibration process is intended to relate parking facilities and land uses and create unique prediction characteristics for use in Park+ projection processes. The model's ability to create unique prediction factors not only allows users to identify their specific parking needs, but also establishes a foundation for evaluating future conditions.

### Testing the Calibration Process

Calibrating a Park+ model is an iterative process that requires a thorough understanding of the parking and land use characteristics and relationships within the modeling area. The latest version of Park+ includes a calibration testing module that allows the user to iteratively change calibration input factors (allocation relationships, walking distance, price/distance sensitivity, etc.). A screenshot of this module is below:


The following are important metrics to consider with this calibration testing module:

**Mean Difference** – The mean difference is the average difference between observed parking demands and the calibrated parking demands in the model. The mean is calculated using each hour of observation and each hour of prediction. The mean difference presented here is the absolute average of all facilities within the modeling area. Considering the nature of the inputs, the amount of data points observed (multiple hours for numerous facilities), and the variability of parking decision points over a large area, a mean difference of 10% or less represents an adequately calibrated model for a large downtown or campus area. For a smaller modeled area, a mean difference of 5% or less represents an adequately calibrated model, considering the ability to better understand and control the inputs for a model of that size.

**Standard Deviation** – The standard deviation represents the typical variation from the mean of the projected occupancies (by hour for each facility). A low standard deviation indicates that the data points tend to be very close to the mean, while a high standard deviation indicates that the data points are spread out over a large range of values. For the purposes of evaluation, a large modeling area should typically have a standard deviation between 5 and 10 percent, while a smaller modeled area should have a standard deviation between 0 and 5 percent.

**Low and High Confidence Interval** – These two values represent how far from average the calibrated occupancies will vary (shown in percentages) based on the modeling parameters. The confidence interval is an estimate used to indicate the reliability of the modeling efforts. For the purposes of the Park+ modeling platform, a 95% Confidence Interval is used to display the average spread of data variation.

## Using Calibrated Data: Scenario Development

Once a model has been calibrated sufficiently, specific scenarios can be modeled to evaluate future land use, parking, or behavioral characteristics. While the process of scenario building will be covered in depth in a future white paper, the general concept is to take the calibrated parking generation rates defined in the previously described sections and determine parking demands on a land use by land use basis. These demands are then placed in parking facilities using the previously defined allocation relationships and the same *Proximity Parking Algorithm* used to calibrate the model. The result is a prediction of where existing and future parking demands will likely be located, as well as where specific issues might be generated based on lack of parking availability or presence of latent parking demand.

# Task 5: Align Zoning and Parking Requirements with Growth & Mobility Vision

# Updating Parking Requirements

## *Rochester DMC Implementation Studies*

*Report Version 1*

**Prepared for:**

**DMC Transportation & Infrastructure Program**
City of Rochester, MN

DMC TRANSPORTATION INFRASTRUCTURE PROGRAM MANAGEMENT

Prepared by:

SRF Consulting Group, Inc.

NELSON NYGAARD

DMC TRANSPORTATION INFRASTRUCTURE PROGRAM MANAGEMENT

Date: November 2016

DMC Project No. J8618-J8622 Parking/TMA Study

# Table of Contents





NELSON NYGAARD SRF Consulting Group, Inc.

*Document File Name*

Background Context

## The Problem with Minimum Parking Requirements

Parking requirements defined within municipal zoning codes are a powerful tool for shaping a city's transportation and development character. As our populations continue to urbanize, the collective ability of communities to use zoning and other tools to shape local transportation conditions around shared values and goals will have increasingly far-reaching impacts.

For several decades, zoning codes across the United States have emphasized minimum requirements for on-site, tenant-reserved parking spaces to protect local street-parking capacities from parking activity generated by new development. The concern was that without these requirements, developers would save money and developable land area by not building any parking, relying instead on nearby street parking to accommodate their project's parking needs. In response, cities began to require sufficient accessory parking at each new development — enough to ensure that a space would always be available for anyone who needed one.

For this to work, not only must developers provide enough parking to meet peak demand, but they need to provide it for free to prevent drivers from parking on-street to save money. The result of this approach is the common practice of requiring far more parking than is consistently needed at new development projects. There are, of course, exceptions, but aerial images of most downtowns and commercial centers attest to the fact that most have been inundated with low-cost parking facilities that are mostly empty, most of the time.

This is not only a waste of some of the best real estate in the country, it depresses development densities and undermines walkable, bike-friendly, and transit-accessible development patterns. In the images below, it is easy to perceive the impact of ubiquitous and redundant parking supplies on area walkability, bike safety, and transit service levels.

**Figure 1. Downtown Rochester (north of 2nd St)**

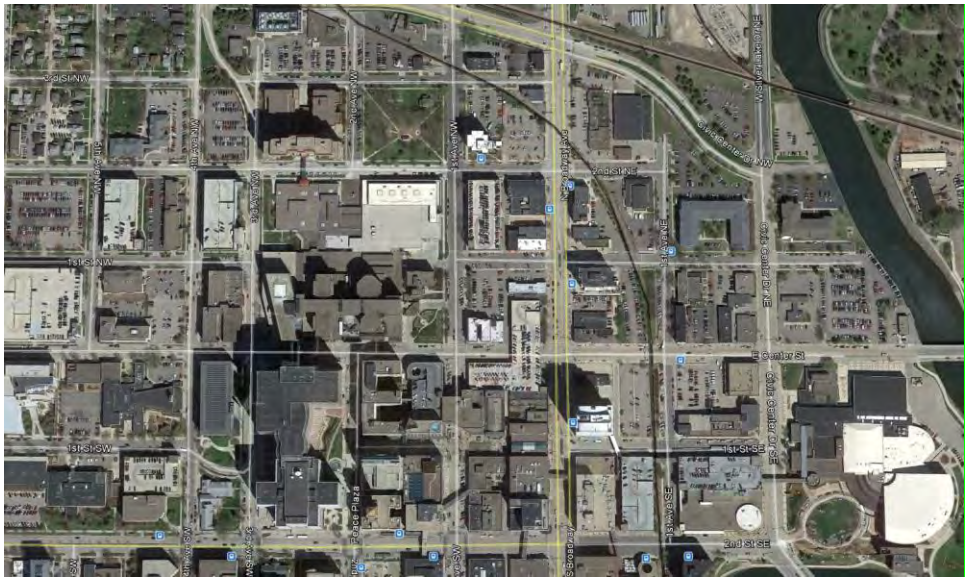


**Figure 2. Downtown Rochester (south of 2nd St)**

**Figure 3. Heart of Downtown Minneapolis**

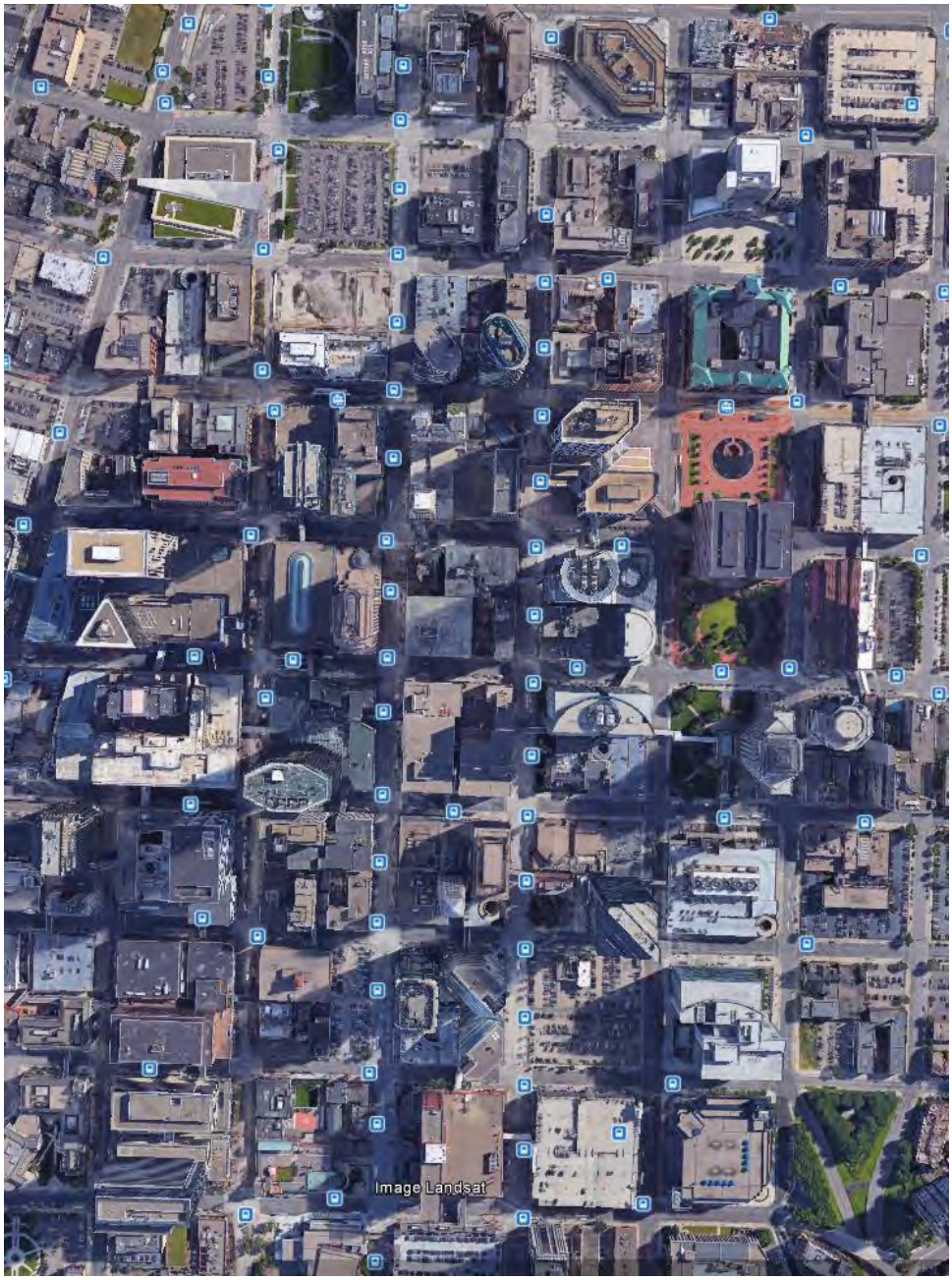
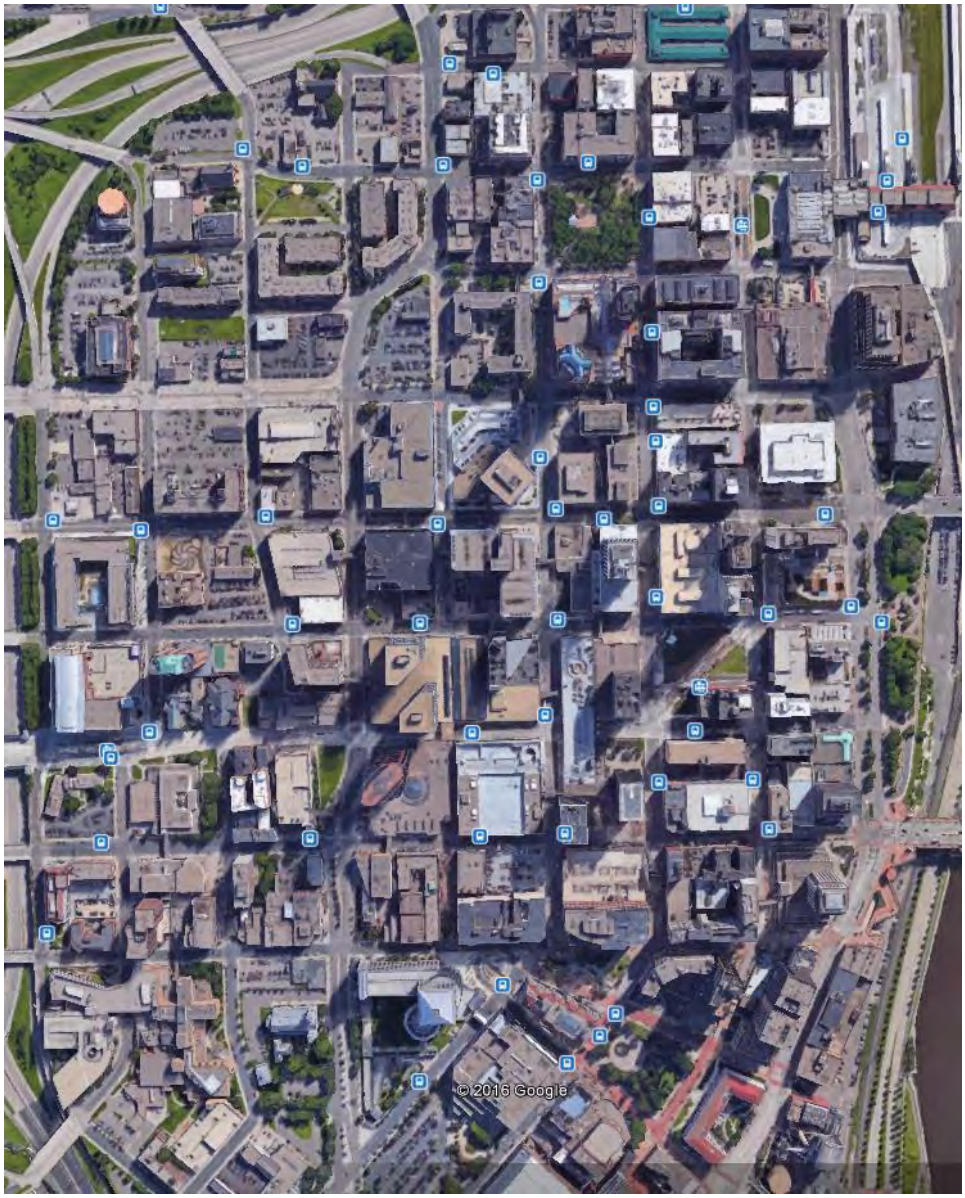


**Figure 4. Downtown St. Paul**



The subsequent decades of development codes commonly over-requiring parking have revealed the following significant and consistent unwanted consequences inherent in this approach, particularly in urban centers:

- Reducing infill development viability – Parking requirements can make smaller opportunity sites and historic redevelopment opportunities physically or economically infeasible, limiting their re-investment value and encouraging "green field" development.
- Encouraging car ownership and use – Linking parking amenities to dwelling units misses an opportunity to emphasize the reduced need and utility of maintaining a private auto while living downtown.
- Disrupting pedestrian, bike, and transit networks – Requiring each development to self-park greatly increases the proliferation of driveways that create pedestrian conflicts, unpredictable traffic patterns for cyclists to navigate, and turning movements that worsen congestion.
- Increasing the cost of living – Requiring developers to build parking in urban areas adds considerable project costs and ensures that parking costs are externalized in higher prices for goods, services, and housing — creating a particularly unfair burden for low-income households and those who do not drive, and making it challenging for developers to construct workforce housing.

Today, governments are increasingly questioning the merits of minimum parking requirements in urban centers — particularly as traditional urban forms and transportation options have regained considerable market favor. In many of these areas, including downtown Rochester, requirements have been reduced or eliminated in recognition of the potential for minimum requirements to be counter-productive. Increasingly, many are proposing full-scale reviews of their standards, and even considering removing parking requirements altogether.

## The Problem with Too Much Private Parking

Minimum parking requirements are not the only reason projects end up "over-parked". Developers who are unfamiliar with walkable, transit-accessible urban centers often bring assumptions and formulas built from experience gained in highly auto-dependent environments. As often, lenders bring the same assumptions and formulas to downtown projects, insisting upon levels of parking that go beyond zoning code requirements, and well

beyond the highest peak levels of demand generated by realized development. [1] [2]

As a result, in many contexts, removing minimum parking requirements is not enough to address the many problems created by a glut of private, free parking in urban areas, as outlined above.

## Pending Disruption

The cost of over-requiring parking is set to become even greater, as disruptive technologies and service innovations, primarily in the arena of "Shared Mobility", push US travel preferences toward what many expect to be a profound paradigm shift, and a significant drop in personal-auto parking demand. Some experts estimate that self-driving vehicles could eliminate the need for up to 90% of the current parking supply over the next two decades.[3] Services like Uber and Lyft are already significantly reducing auto-dependency, allowing more commuters to shift their primary mode away from driving by providing a nimble, affordable, and increasingly-familiar, non-driving "rainy day" commute option.

This relatively recent mobility phenomenon has good company in several, more-established Shared Mobility elements, such as car-share, bike-share, and computer-matched ridesharing. Where access to these options is consistent, one-car and carless households are becoming far more common,[4] further increasing the share of trips taken by modes that require a fraction of the parking necessary for private autos.[5] Into this already-heady mix of mobility options, driverless autos can be expected to bring a new level of disruption and opportunity. Put simply, driverless ride services will combine the distinctly appealing components of car-sharing (privacy and autonomy) and TNCs (Transportation Network Carriers: door-to-door service, no driving or parking necessary) services at a fraction of the cost for either.[6]

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[1] http://www.planetizen.com/node/56296

[2] http://www.washingtonpost.com/wp-dyn/content/article/2009/10/07/AR2009100703996.html

[3] http://www.motherjones.com/environment/2016/01/future-parking-self-driving-cars

[4] https://escholarship.org/uc/item/5k56406d#page-6

[5] https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf (page 6)

[6] https://www.morganstanley.com/ideas/car-of-future-is-autonomous-electric-shared-mobility

*"There is more parking today in American cities than they will ever, ever need." – Jeff Tumlin, Nelson\Nygaard in Mother Jones*[7]

## Municipal Parking as Ballast

One of the most familiar and oft-championed parking-management strategies, shared parking, may prove to be one of the most important resources cities have for managing the current and pending disruptions to parking demand. The efficiencies that shared parking offers have always been critical to effectively negotiating the trade-offs inherent in "right-sizing" downtown parking supplies, primarily by providing more access with fewer spaces. The primary virtue of "accessory" parking is redundancy, which not only requires far more parking spaces to accommodate the same level of access, but also creates redundant vehicle trips and turning movements, by limiting the viability of walking between local destinations.

Because accessory parking is designed and managed to exclusively serve specific land uses, it is poorly positioned to adjust to fluctuating rates of parking-demand generation. Historically, this has meant that such parking facilities tend to sit half-empty much of the time, while still failing to meet demand during the few hours when parking is most needed. In consideration of the near-term future, the greater concern may be that these facilities could soon find their capacities significantly outsized, even relative to their peak needs, and ill-suited for any other purpose.

By contrast, parking facilities built as a shared resource, facing the same drop in demand, can simply accommodate more nearby growth. They can also be designed and configured to facilitate adaptive reuse, should the most extreme predictions of falling parking demand bear out. The scale of these facilities, their intention to serve broad, evolving public needs, and their shared management, make them far more likely than private facilities to effectively contribute to the mobility challenges and opportunities of "tomorrow".

If provided as a municipal parking program, the opportunity to navigate uncertainty will be even greater. Should such a program manage parking as a component of mobility, rather than an "end" in itself, and manage travel demand toward an optimal balance with area multimodal infrastructure, the uncertain future is likely to bring more opportunity than threat.

[7] http://www.motherjones.com/environment/2016/01/future-parking-self-driving-cars

# Background Conditions

## The DMC'S Access Management Objectives

The DMC Report identified a set of objectives for mobility and access within the district.

- Make it easy, affordable, and convenient for people from Southeast Minnesota and around the world to get to downtown Rochester
- Bring 23-30% of the Workforce to Downtown Rochester on Transit by 2035
- Create a Park-Once Downtown Environment Connected by a Frequent Downtown Circulator
- Build Shared-Parking Prioritized for Economic Development
- Create World-Class Streets, Designed for People
- Create an Exceptional Place for Healthy, Human-Powered Transportation
- Form a Downtown Rochester Access Authority
- Invest in Sustainable Transportation Infrastructure and Programs that Reduce the Ecological Footprint of the City
- Use DMC Funding to Leverage Public and Private Transportation Infrastructure Funding
- Establish and maintain a transportation network that is accessible and inclusive to people of all ages, abilities, and states of wellness

## Downtown Master Plan

On January 3, 2011, the City Council adopted the "Downtown Rochester Master Plan Report" as part of the comprehensive plan and Future Land Use Plan. The "Mobility" section of the adopted Master Plan addressed the major issue of off-street parking and how it affects the downtown. The Plan recommended the City revise its land development codes as they apply to required off-street parking standards, specifically parking requirements in other non-Central Business District zones surrounding the Central Development Core/Central Business District (CDC-CBD).

Narrative elements of the Downtown Master Plan related to DMC parking requirements are summarized below.

Zoning and design guidelines are powerful tools to shape development, although a careful balance must be struck to encourage investment while providing appropriate oversight to achieve a civic outcome. Currently, Rochester has a traditional form of zoning that is prescriptive for elements such as use, height, density, setbacks, and parking. For example, drive thru businesses and car dealerships are currently allowed in the Fringe Zone and Parks are considered an accessory use in the Downtown Zoning. Traditional zoning often does not take a proactive stance on community goals and incentives to achieve desired urban form. Without specific restrictions, the City lacks the power to provide possible incentives such as extra height in exchange for more amenities like open space, green buildings, or quality ground floor pedestrian environment. Similarly, regulations that are overly permissive in terms of height and mass can create the perception that the City gives away too much to incent development.

The general move in cities toward form-based zoning and design guidelines promotes good urban design and mixed use rather than limiting flexibility and separation of land uses. In the past few years, the City of Rochester has been actively updating aspects of their regulations such as the Urban Village Design Guidelines. However, beyond the Urban Village, if the use is by-right then design guidelines are not applicable. The City should consider key specific regulations throughout downtown. In addition, the skyway system should also be under the umbrella of design guidelines.

Consideration should be given to create a site plan review board for all projects within the Downtown that has a transparent process and clear expectations. The overall focus should be on those issues that affect the pedestrian and the community, such as relationship to the street and form, and on clarifying expectations and supporting regulations with a straightforward and consistent development review process that does not slow down investment, but also achieves community goals. Additionally, the City should complete a comprehensive review of their zoning as it relates to downtown development to achieve the vision of this master plan.

## Recommendations

Downtown Master Plan recommendations related to DMC parking requirements are excerpted below.

- Revise parking codes for other non-CBD/CDC zones in Downtown Master Plan study area to eliminate minimum requirements for commercial and residential development. This should include the CDC

Fringe zone, portions of the General Commercial and Mixed Commercial-Industrial zones (located east of the Zumbro River and north of 9th Street) S and CDC Residential zone areas. Consider adding maximum parking requirements for CBD/CDC Zones to limit total area dedicated to downtown parking.

- Incentivize or require developers to unbundle parking from residential units and commercial development.
- Develop shared parking policies and work with developers to increase use of public parking at off-peak times and reduce need for single use parking development.
- Develop and implement a bicycle parking plan including requirements for new development.
- Require new residential developments to provide a transit pass to each resident for two years.

## Rochester's Parking Enterprise Fund

Rochester's parking enterprise fund collects all downtown parking revenues and reinvests them into the maintenance, operations, improvement, and expansion of the municipal parking system.

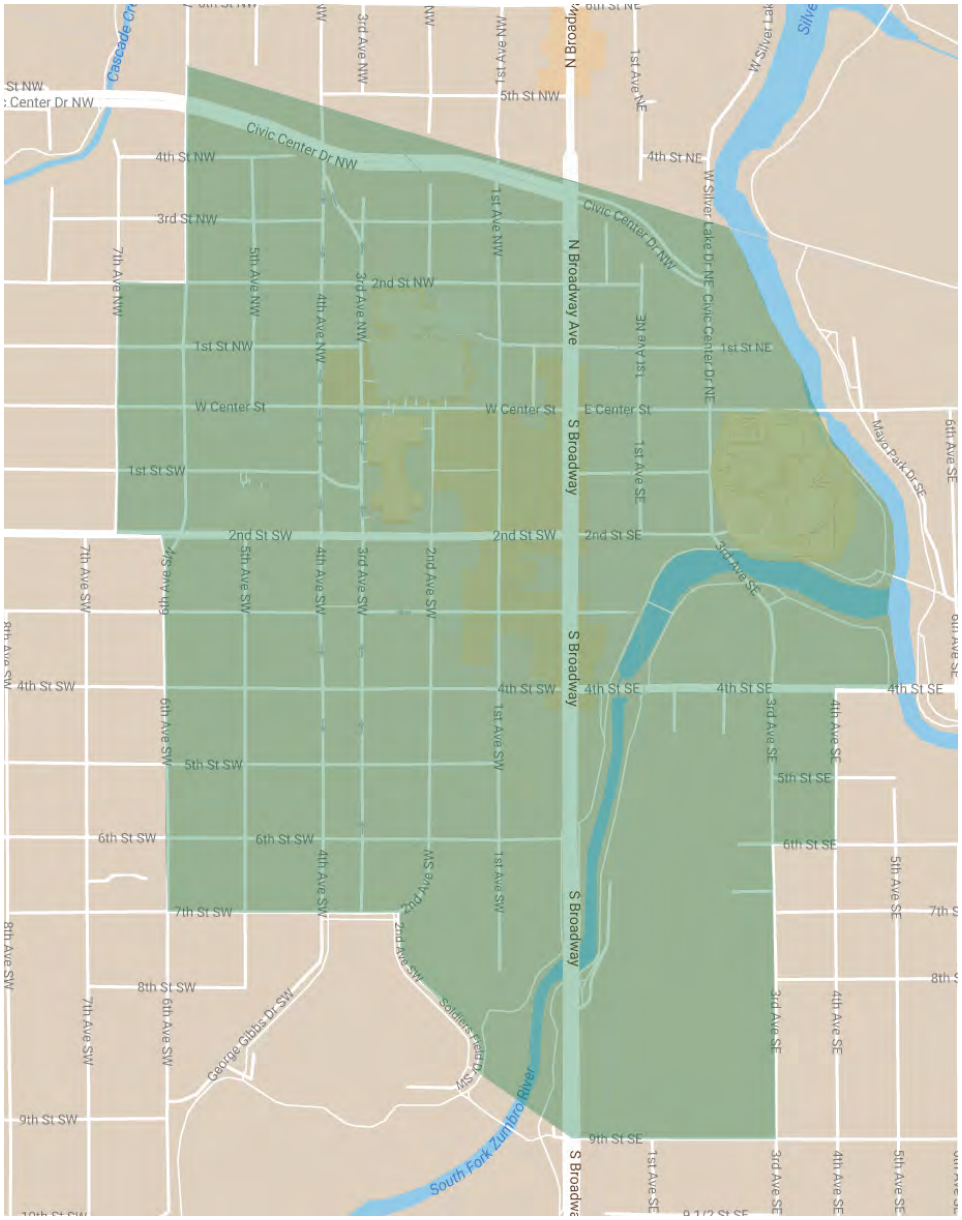
# Current Code

Relevant sections of the current code, including those outlining parking requirements for the DMC are summarized below.

## 63.427. Downtown Parking Overlay Zone

The Downtown Parking Overlay Zone (DPOZ) was created in response to this directive. One of its primary objectives is to "reduce the predominance of off-street parking as a land use in the fringe area of the downtown and release more land for redevelopment".

**Figure 5. Downtown Parking Overlay Zone**




## Amount of Off-Street Parking

### Central Business District Exemption

Developments in the Central Business District area of the Central Development Core (CDC-CBD) are exempt from the provisions of providing off-street parking, except that parking and loading spaces voluntarily established shall comply with the size and location requirements of this ordinance.

### Minimum Requirements

- The minimum required number of accessory off-street parking spaces for an existing or a new non-residential use required by the underlying, established zoning district, are reduced by 50 percent.
- The maximum number of accessory off-street parking spaces that can be provided for a non-residential use shall be no more than 75 percent of the minimum number required by the established zoning district.
- The minimum required number of accessory off-street parking spaces for an existing or new residential use as prescribed by the established underlying zoning district may be reduced to one parking space per residential dwelling unit.
    - Rooming units with no cooking facilities and congregate housing units as defined by this Code may provide no more than one-half a parking space per unit.

### Key Requirement-Reduction Options

The above requirements for off-street accessory parking spaces may be reduced:

- by ten percent for new non-residential uses situated within 1,320 feet of a publically owned parking structure,
- by ten percent for new residential uses located within 600 feet of the right-of-way for a street that is used as a weekday service bus route and/or within 1,320 feet of a signed bus stop or bus shelter serving a weekday bus route,
- by ten percent for new residential uses located within 750 feet of a pedestrian entry point into the skyway and/or subway system available for use by the general public,
- if a shared or community vehicle is available for use by residents of a new residential development by ten percent if the new development provides a needed, adequately designed, sheltered transit stop within the development,
- by providing mixed-uses, and/or "small storefront retail business" uses, on-site,
- relative to the amount of public, metered on-street parking spaces lying adjacent, in whole or in part, to the property line of the zoning lot, and

- relative to off-street bicycle parking provisions located in a public space on the street level of a new development.

### Bicycle Parking

- Developments with 24 or more parking spaces must include off-street bicycle parking on site, at a rate of 1 bike space per 10 auto parking spaces for the first 10 required bike parking spaces, and at a rate of 0.5 bike spaces per 10 auto spaces beyond that.
- Where public bicycle parking spaces are located on the same block, the requirement may be reduced or waived.

### Design Parameters

Parameters are identified for the following elements off-street parking facility design.

1. The percentage of spaces set aside for small cars, from 30% to 50%, increasing with the number of spaces in the facility.
2. The percentage of spaces designed for long-term and short-term parking, which varies by land use.
3. Space dimensions for small-car and standard spaces.
4. Aisle widths, which vary according to the angle of parking spaces.
5. Screening and setbacks.

# The Interim Code

The Rochester Downtown Interim Parking Ordinance (adopted September 2016) provides guidance for continued implementation of the Downtown Master Plan while parking regulations are being reassessed as a part of a set of multi-year transit studies being undertaken by the City and the Downtown Medical Center (of which this review is one component). Short-term needs are the focus of the ordinance, which is structured around the following objectives:

- Give current and short-term development proposals clarity in terms of city expectations for parking regulations.
- Provide a parking maximum for all developments to limit the construction of excess parking capacity, which may significantly reduce areas available for redevelopment opportunities as identified in the Downtown Master Plan.
- Provide a parking minimum for all developments so that new development can be self-supporting until more long-term traffic and parking solutions can be identified as part of the Destination Medical Center Plan.
- Ensure flexibility is permitted for unique development situations for which proof of reduced parking demand is provided.

## Key Provisions

Key, strategic changes to the provisions of the DPOZ are outlined below.

### Destination Medical Center Overlay Zone

The title of the overlay zone was changed, from the Downtown Parking Overlay Zone, to the Destination Medical Center District Overlay Zone. The name change was intended to reflect the need "to provide parking guidance unique to the DMC-POZ to allow for the continued implementation of the Rochester Downtown Master Plan and Destination Medical Center Vision."

### Emphasis on a Park Once Philosophy

A statement is included to reflect the opportunity and objective to establish a Park Once environment in this zone.

*"Many downtown land uses serve downtown employees, hotel guests, medical outpatient service users, hospital visitors or others who park their vehicle once for their primary trip and then patronize other business or services without an additional vehicle trip either as pedestrians or through use of shuttle or transit services. The DMC District has the highest concentration of land uses that attract persons via pedestrian travel, either after having parked a car or directly from other locations."*

## Removal of the CBD Exemption

The exemption for Central Business District is removed.

## Updated Parking Minimums and Maximums

The code establishes both minimum and maximum parking ratios for an extensive list of land use types. The table below presents the minimum and maximums for an abbreviated list of common downtown land uses.

**Table 1. Table of Minimum and Maximum Standards**

| Land Use | Spaces Required/Allowed | | |
|---|---|---|---|
| | City's Baseline Requirement | Interim Minimum Requirement | Interim Maximum Limit |
| Multi-Family Housing | 1 to 3 per dwelling unit, increasing by # of bedrooms | 1 per dwelling unit | 2 per dwelling unit |
| Offices | 1 per 200 SQ FT FA - 1 per400 SQFT FA | 1 per 500 SQ FT FA in excess of 4,000 sq. ft. | 1 per 200 SQ FT FA |
| Medical Facilities | 1 per 4 Planned Bed sites, or 300 SQ FT. | 1 per 3 beds; may be superseded by parking study (TMDP) | 1 per 2 beds; may be superseded by parking study |
| Standard Restaurant | 1 per 4 seats, plus 1 per employee on largest shift | 1 per 300 SQ FT FA | 1 space per 75 SQ FT FA |
| Retail Trade | 1 per 150 SQ FT FA | 1 per 500 SQ FT FA in excess of 4,000 sq. ft. (minimum of 4 spaces) | 1 per 150 SQ FT FA |
| Drinking & Entertainment | 1 per 4 persons based on building's maximum capacity | 1 per 250 SQ FT FA | 1 per 100 SQ FT FA |

## In Lieu Fee Option Added

The Interim Code provides an option for payment in lieu of parking.

- Payment can be made to the City of Rochester in-lieu of some or all of a project's minimum parking requirement.

- Fee will be set, based on "fair market value" and other factors, to be determined by the Director of Public Works.
- Fees will be deposited into an executive fund, "to be used solely for expenses (land acquisition, design/engineering services and construction costs, but not maintenance costs) related to adding parking spaces, improving the utilization of existing parking spaces, or reducing the need for new parking to serve the Destination Medical Center District (emphasis added)".

### Shared-Parking Reduction

A shared parking clause, modeled on similar ones in Minneapolis and Madison, Wisconsin was added to better capture the efficiencies created by mixed-used developments and shared-parking management.

### Public Parking in Private Development

New provisions set out parameters for the city to negotiate with a developer to acquire and subsequently manage public parking spaces within a private parking facility. Within two weeks from the time preliminary parking plans are submitted for review, the City has the option to secure a portion of the parking facility (that which is in excess of the minimum parking requirement for the proposed development) for public parking.

Providing public parking is also a primary means of exceeding parking maximums in proposed projects. Any parking facility with public parking must include technology to monitor space availability, such as street-front electronic message signage or mobile phone applications that provide availability notifications.

## Travel Demand Management Plan

All developments containing more than 15,000 square feet of new or additional commercial gross floor area, or containing more than 50 residential units, shall include a Travel Demand Management Plan (TDMP) that addresses the transportation impacts of the development on air quality, parking and roadway infrastructure. All TDMP's must contain the following components:

- A description its goals and its relationship to applicable city policies and programs.
- A description of the transportation impacts of the development, including, but not limited to:

  - overall and peak period employment forecasts
  - trip generation and mode split forecasts
  - parking demand and availability of parking supply
  - ability to meet city parking requirements
  - transit demand and availability of transit supply

- A description of measures designed to mitigate the transportation impacts of the development, including, but not limited to:
  - on-site transit facilities and transit use incentives
  - preferential location of parking for carpool and vanpool vehicles
  - on-site bicycle facilities including secure storage areas and amenities
  - use-appropriate TDM strategies to minimize adjacent roadway impacts and parking supply needs (which can include marketing unused, unbundled spaces to other users)

At a minimum, the following proposed strategies must be included within the TDMP's descriptions of mitigation measures:

- A proposal to offer the Transit Pass Program to onsite residents and/or employees, subject to independent agreement with the City
- In new residential developments, one or more shared or community vehicles (with a minimum of one vehicle per 50 residential units) must be made available on-site with an established procedure for private use by residents
- A description of bicycle parking provisions, as required in the earlier bicycle parking section

# Leading Practices Survey

A Leading Practices survey was completed to:

- Address issues and opportunities presented in the background and current conditions affecting mobility and access in the DMC;
- Evaluate the Interim Code; and
- Guide recommendations for establishing a final set of parking recommendations for the DMC district.

## Public Parking in Private Development

### Arlington County, VA

The private sector provides most of the public, off-street parking in Arlington County. County planning staff is reluctant to develop stand-alone public parking facilities, in part, as a response to decades of minimum parking requirements that have created a consistent surplus of parking in most of its transit and mixed-use, commercial corridors. In most cases, market opportunities have led the owners of over-parked developments to find ways to open up their parking to the public — either during off-peak hours, or even during peak-use hours when there has been capacity.

County Planning staff has responded by encouraging, and when possible rewarding or even requiring, such practices as a means of generating well-distributed pubic parking across its key commercial corridors without having to invest in new facilities. The County's success has focused on two areas of opportunity:

- Incentivizing owners of existing privately-controlled facilities to provide public parking, and
- Incentivizing new development to provide public parking in their on-site facilities.

The cumulative impact of this concerted effort has been to allow much of the County's key commercial corridors to benefit from the significant advantages of a shared parking system, without the County directly controlling any off-street parking facilities.

### Incentivizing Public Access to Existing Private Parking

The first step taken by the County was to address the challenges and opportunities of the many oversupplied private parking facilities that remained in its primary growth corridors as a legacy of long-standing zoning codes. In most cases, market opportunities led the owners of over-parked developments to find ways to open their parking to the public — either during off-peak hours or during peak-use hours when there is capacity. As such, the County was able to secure significant shared-parking gains simply by allowing shared and public access to parking that had been required to be exclusive to "on-site" demand – see text extraction below.

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*Parking spaces in C, C-O, M, RA-H or R-C districts which are required by this zoning ordinance may be used by persons other than persons engaging in uses on the site, provided that said spaces shall be made available at all times to persons engaging in uses on the site at least at the same rates as to persons not engaging in uses on the site, and provided that there is no demand for said spaces by persons engaging in uses on the site.*

---

While a strong profit opportunity eased the path to converting private parking to public commercial management, it did not ensure that facilities were always managed as the County planners had hoped. Over the ensuing years, the County has become more involved in ensuring basic management parameters are met, to ensure optimal public access to these facilities.

### Requiring/Incentivizing Public Parking in New Development

Going further, in 2005, the County developed a form-based code to create a shared parking district in its Columbia Pike District, a planned streetcar corridor attracting development interest akin to the County's established rail lines. Like other areas of the county, the private sector is left to manage the shared parking they provide, and the County does not directly provide any shared and public parking. The County does, however, regulate how shared parking is provided and managed to ensure that these parking resources function as public parking resources, shared among all district uses, and accessible to all drivers.

The Columbia Pike District form-based zoning code outlines minimum requirements for shared-parking for all private development, as well as a maximum standard for parking that is reserved only for on-site uses. The County chose to emphasize "flexible" maximums in the Columbia Pike code, in part, to avoid anticipated public resistance to eliminating minimum parking requirements altogether. The flexibility of the maximum standards,

applicable only to parking that was managed as reserved parking for the development, allowed the County to set these maximums at a similar level as its minimums, much lower than a typical "hard cap" maximum could be set. This both discouraged excessive supplies and expanded shared parking within a critical, mixed-use, multimodal redevelopment corridor.

### Flexible Maximums

The County chose to emphasize "flexible" maximums in the Columbia Pike code, in part, to avoid anticipated public resistance to eliminating minimum parking requirements altogether. The flexibility of the maximum standards, applicable only to parking that was managed as reserved parking for the development, allowed the County to set these maximums at about the same level as its minimums, much lower than a typical, "hard cap" maximum could be set. This both discouraged excessive supplies and expanded shared parking within a critical, mixed-use, multimodal redevelopment corridor.

**Code Details**

- Sites under 20,000 square feet in land area have no minimum parking requirements.
- Sites over 20,000 square feet in land area have the following requirements:
    - A minimum of 1 and 1/8 parking spaces per residential unit, of which a minimum of 1/8 parking space per residential unit shall be provided as shared parking.
    - A minimum of one space per 1,000 square feet of non-residential Gross Floor Area (GFA) shall be provided as shared parking.
    - New on-street parking spaces created in conjunction with the development, which did not previously exist, may be counted toward the minimum requirement for shared parking.
    - A maximum of one space per 1,000 square feet of non-residential GFA or two spaces per residential unit may be made available for reserved parking.
- Reserved parking above the maximum may be provided upon payment to the County.

## Joint Development

Public Parking programs are increasingly using use joint-development to ensure that the parking facilities they build are part of mixed-use buildings designed to enhance their surrounding contexts, with prominent and active, street-oriented businesses along their perimeters. A primary advantage of a joint-development project is that both parties gain, through shared-use efficiencies, more parking capacity per construction dollar than would be financially feasible for a stand-alone public facility or a private, accessory parking garage. Each gains significant access to "overflow" capacity by allowing demand to flow freely toward space availability, rather than according to an assortment of parking restrictions.

Furthermore, when built in lieu of accessory parking, joint-development helps to emphasize the municipal parking system, and the inherent efficiencies and shared-benefits it offers, to support area growth. When the municipal system is coordinated with TDM programs, parking customers also benefit from increased awareness of benefits, programs, and events that can make non-driving alternatives cheaper, more appealing, and easier to use. Combined, these benefits suggest joint-development as the ideal model of supply expansion for shared parking districts.

### The Flats at Bethesda Avenue, Montgomery County

The Flats at Bethesda Avenue, located in Bethesda, Maryland, is a mixed use development on 1.4 acres of land, completed as a joint-development between a private developer and Montgomery County, through its Parking Lot District program. The project includes 162 residential units, including 38 affordable workforce-housing units. It also includes 28,000 square feet of retail on the ground floor, primarily occupied by restaurants and food and beverage retailers.

**Figure 6. Flats at Bethesda Avenue, Bethesda, MD**

Source: http://www.flatsatbethesdaavenue.com/gallery/

## Meeting County Objectives

The County's primary goal for the development was to increase the public parking supply without creating stand-alone parking facilities. Following a 2010 study to update the County's Parking Lot District (PLD) program, which seeks to provide public parking in Bethesda and other commercial centers, the County decided against building any more stand-alone parking facilities in these areas, and to seek joint-development opportunities when new supplies where needed. Following this policy shift in 2015, the County released a Request for Proposal inviting private developers to proposed plans to purchase two PLD lots, which contained 279 public spaces, and build 980+ public parking spaces underground as part of a mixed-use development.

The request stipulated the development of private residences and retail above the parking facility, as well as a requirement for 15% of housing to be offered as affordable units. The four-level underground garage that was part of the winning Bethesda Flats proposal is owned and managed by the County, while everything above it is owned and managed privately.

The Bethesda Flats project realized these minimum criteria, and brought benefits beyond these efficiencies, using location, programming, and design to emphasize non-driving mobility and access which allows the project to extract even greater value from each of its 980 parking spaces.

### Going Beyond Supply Expansion

A distinctive point of appeal for the Flats at Bethesda is its location directly on the 11-mile Capital Crescent Trail. This trail connects with many other regional trails, and also feeds directly into Washington, D.C., which serves those who wish to commute to work via bicycle. When the development was built, the trail was widened from 10 feet to 14 feet along the development. Additionally, the developers implemented wider sidewalks and shorter crosswalks for an improved pedestrian environment. In addition to its direct trail access, the development also provides secure bicycle storage and a bicycle drop-0ff area to use while parking.

The design of the garage takes into account both motorists and pedestrians, especially those carrying bicycles. Four of six elevators are oversized, allowing cyclists to easily bring their bicycles up to the Capital Crescent Trail. The garage also provides 24/7 security, energy-saving fluorescent lighting, six electric vehicle charging stations, wayfinding and signage, and hand-made art glass windows, all creating a welcoming, safe, and secure pedestrian environment.

## Progressive "In Lieu Fee" Rate

### Berkley, California

The City of Berkley, California recently adopted an In Lieu, including an increasingly recommended "graduated" fee scale, based on development size and the number of required parking spaces waived. A key advantage of a graduated fee scale is that it makes the fee option particularly affordable for infill projects, while creating an incentive for larger projects to provide on-site parking. This latter incentive can be particularly effective when combined with joint-development opportunities and/or zoning code provisions that encourage shared parking at private developments.

The fee schedule and proposed uses for the collected funds of the program were developed in a workshop with city staff and the Metropolitan Transportation Commission (MTC). After considering a variety of approaches and fee levels, the fee schedule was set in the following graduated range:

- $15,000 per space for spaces 1-5 waived or reduced,
- $20,000 per space for spaces 6-15 waived or reduced,
- $25,000 per space for spaces 16-25 waived or reduced, and
- $30,000 per space for spaces 26 and greater waived or reduced.

Such a graduated, or progressive, fee structure creates a strong incentive for "infill" projects to opt for the fee option, while encouraging larger projects, most of which will have sites more amenable to efficiently-scale parking facilities, to provide on-site parking. If complemented by a municipal parking program positioned to develop joint-use projects, with public parking in private development, this approach can be particularly promising.

## TDM Integration

### San Francisco, CA

In early 2016, the City and County of San Francisco adopted a resolution to initiate Code amendments that would require development projects to comply with a proposed TDM program[8], with the intent to reduce vehicle miles traveled (VMT), and to make it easier for people to get around by sustainable travel modes such as transit, walking, and biking.

The proposed TDM program is part of the Transportation Sustainability Program (TSP), a multi-agency initiative that aims to improve and expand San Francisco's transportation network to accommodate new growth. Under the proposed TDM program, the City would set a target TDM score, based on the number of accessory vehicle parking spaces included with the proposed project. Developers can meet the target by selecting TDM measures – each with a specified number of points – from a menu of options.

**Figure 7. San Francisco DRAFT TDM Checklist**

8 Unanimously approved by the Planning Commission on August 4, 2016, the Planning Code Amendment for the TDM Ordinance will be heard at the Land Use and Transportation Committee on Monday, November 28.

| CATEGORY | MEASURE | POINTS |
|---|---|---|
| ACTIVE-1 | **Improve Walking Conditions:** Option A - B<br>Provide streetscape improvements to encourage walking. | 1 |
| ACTIVE-2 | **Bicycle Parking:** Options A - D<br>Provide secure bicycle parking, more spaces given more points. | 1 - 4 |
| ACTIVE-3 | **Showers and Lockers** | 1 |
| ACTIVE-4 | **Bike Share Membership:** Locations A - B<br>Provide a bike share membership to residents and employees for one point, another point given for each project within the Bike Share Network. | 1 - 2 |
| ACTIVE-5A | **Bicycle Repair Station** | 1 |
| ACTIVE-5B | **Bicycle Maintenance Services** | 1 |
| ACTIVE-6 | **Fleet of Bicycles** | 1 |
| ACTIVE-7 | **Bicycle Valet Parking** | 1 |
| CSHARE-1 | **Car-share Parking and Membership:** Options A - E | 1 - 5 |
| DELIVERY-1 | **Delivery Supportive Amenities** | 1 |
| DELIVERY-2 | **Provide Delivery Services** | 1 |
| FAMILY-1 | **Family TDM Amenities:** Options A - B | 1 |
| FAMILY-2 | **On-site Childcare** | 2 |
| FAMILY-3 | **Family TDM Package** | 2 |
| HOV-1 | **Contributions or Incentives for Sustainable Transportation:** Options A - D | 2 - 8 |
| HOV-2 | **Shuttle Bus Service:** Options A - B | 7 - 14 |
| HOV-3 | **Vanpool Program:** Options A - G | 1 - 7 |
| INFO-1 | **Multimodal Wayfinding Signage** | 1 |
| INFO-2 | **Real Time Transportation Information Displays** | 1 |
| INFO-3 | **Tailored Transportation Marketing Services:** Options A - D | 1 - 4 |
| LU-1 | **Healthy Food Retail in Underserved Area** | 2 |
| LU-2 | **On-site Affordable Housing:** Options A - D | 1 - 4 |
| PKG-1 | **Unbundle Parking:** Locations A - E | 1 - 5 |
| PKG-2 | **Short Term Daily Parking Provision** | 2 |
| PKG-3 | **Parking Cash Out: Non-residential Tenants** | 2 |
| PKG-4 | **Parking Supply:** Option A - K | 1 - 11 |

NOTE: A project sponsor can only receive up to 14 points between HOV-2 and HOV-3.

Image source: SFMTA

In general, if a project proposes more parking, then the target and number of TDM measures the developer must implement would increase. Selected TDM measures must be incorporated into the project proposal, and analyzed in Draft 1 of the Transportation Impact Study (TIS) or Transportation Circulation Memo. Property owners will be required to implement TDM measures selected in the TDM plan for the life of the project. The image below presents an overview of how this process fits into the overall development-approval process.

**Figure 8. TDM Approvals Process Overview**

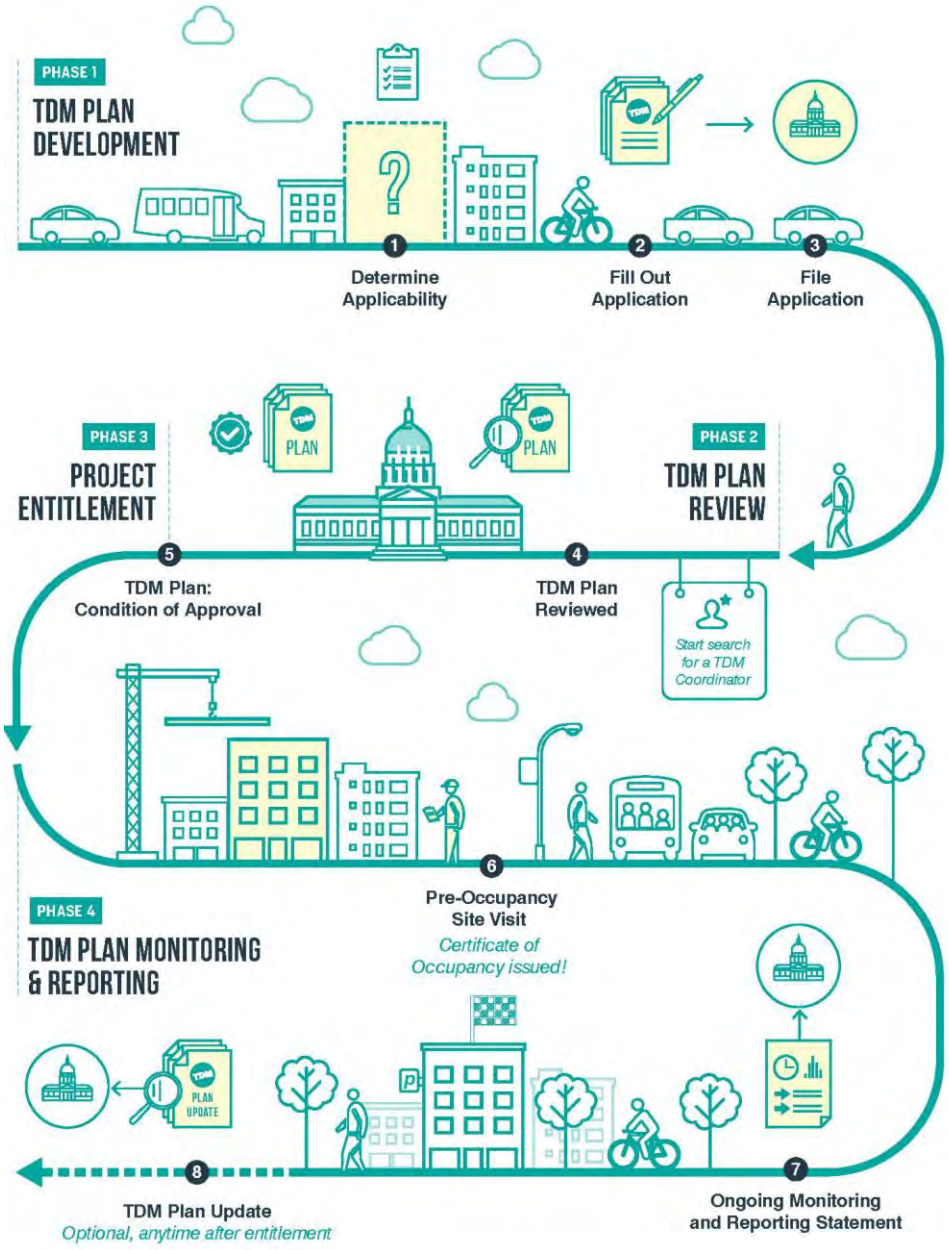


Image source: SFMTA

## Bicycle Parking Requirements

### Cambridge, MA

Linking bike-parking requirements to the number of on-site auto parking spaces is at cross purposes with reduced parking requirements, parking maximums, and other provisions intended to reduce on-site auto parking at new development. In such circumstances, bike parking needs should be expected to increase in direct proportion to declines in auto dependency. For

these reasons, places like Cambridge, MA have recently updated their bike parking requirements to untether them from auto parking capacities.

By separating bicycle parking into short and long-term parking as well as setting parking design standards, the City of Cambridge is also positively promoting the use of bicycles as an alternative transportation option. The following are some key concepts from the Cambridge zoning code.

- Bicycle parking for both short and long-term parking have minimum requirements for primary uses.
- Long-term bicycle parking must be enclosed and within 200 feet of a pedestrian entrance. Parking may also be shared between nearby uses or buildings.
- Short-term parking must be reasonably located within 50 feet of a pedestrian entrance, but if not feasible, an in-lieu fee may be paid towards a public facility.
- Bicycle racks and lockers must meet certain design guidelines including size and number of bicycles for each type of parking facility.
- Bicycle parking access must meet standards such as minimum width, maximum grade change, and be lighted in addition to the parking spaces

## Car-share Parking Requirements

### Montgomery County, MD

As car-sharing becomes a more prominent local mobility option, an updated code can support the expansion of car-share access by providing free parking within larger private parking facilities included in new development projects. Montgomery County, MD recently did so by adding requirements for car-share parking in its key commercial centers. Key concepts from the County's new zoning code are listed below.

- Any accessory parking facility with 50 to 149 parking spaces must have a minimum of one car-share parking space.
- One additional car-share parking space is required for each 100 parking spaces more than 149, up to a maximum requirement of 5.
- If the property owner cannot find a car-share organization willing to make use of the spaces, the property owner may use the spaces for publicly-available parking.

- If a County-recognized car-share organization notifies the property owner that the organization wants to use the car-share spaces, the property owner must make the spaces available to the car-share organization within 90 days after receiving written notice of interest from the County recognized car-share organization.

## Unbundled Parking Credits

### Montgomery County, MD

In the County's key commercial centers, offering residential parking only as an option, and at an added cost, from the purchase or lease of a residential unit, reduces the baseline minimum parking requirement to the following.

- Efficiencies and 1-Bedrooms – 0.5 spaces/unit
- Larger units and Townhouses – 0.75 spaces/unit

## Multimodal Mobility-Amenity Credits

Many cities have begun providing parking requirement credits/reductions in exchange for the inclusion of amenities that improve and/or expand on-site mobility options.

### Car-Share Parking

#### Code Example: Bozeman, MT

- A car-sharing agreement may be used to meet the required number of parking spaces in developments with more than five dwellings.
- Each vehicle provided through a car-sharing agreement (with its corresponding space) will count as five standard spaces.
- The maximum reduction is set at 50% of the total.

### Bike-Share Facilities

#### Portland, OR

Substitution of a bike sharing facility for required parking is allowed if all of the following are met:

- A bike sharing station providing 15 docks and eight shared bicycles reduces the motor vehicle parking requirement by three spaces. The

provision of each addition of four docks and two shared bicycles reduces the motor vehicle parking requirement by an additional space, up to a maximum of 25 percent of the required parking spaces;

- The bike sharing facility must be adjacent to, and visible from the street, and must be publicly accessible;
- The bike sharing facility must be shown on the building plans; and
- Bike sharing agreement.
    - The property owner must have a bike sharing agreement with a bike-sharing company;
    - The bike sharing agreement must be approved by the Portland Bureau of Transportation; and
    - A copy of the signed agreement between the property owner and the bikesharing company, accompanied by a letter of approval from the Bureau of Transportation, must be submitted before the building permit is approved.

### Changing Facilities

#### Montgomery County, MD

- The required number of vehicle parking spaces may be redued by 3 spaces for each additional changing facility provided above the minimum required.
- A changing facility must include a shower and lockers provided separately for each gender.

## Preparing for Uncertainty

Predicting how much parking will be needed to support future land use developments has always been a fraught exercise. For decades, the major concern was that "enough" parking be in place, while the risks of "too much" parking was underappreciated. More recently, many cities have reversed this, and implemented codes that sought primarily to ensure against excessive parking supplies, particularly in areas where the risks of too much parking were highest. Despite this paradigm shift, one factor has remained virtually unchanged; it has not gotten any easier to predict what the "right amount" of parking will be for any particular use, building, or district. An

increasingly common response to this is to emphasize flexibility in codified parking standards. A particularly innovative example of such a response is a code update recently proposed, with final council approval pending, in Aspen, Colorado.

## Aspen, CO

The City of Aspen is preparing for a future into which it is becoming increasingly tenuous to predict rates of parking-demand generation, particularly in walkable, urban centers. It is seeking to integrate parking regulations and TDM into a Mobility Requirement, which will replace all parking requirements in its downtown. To satisfy the Mobility Requirement, developers will have three primary options.

1. Provide on-site parking.
2. Commit to on-site mobility amenities and/or TDM programs, beyond the minimum required for the project's Transportation Impact Analysis.[9]
3. Contribute funding to the provision of public parking, mobility, and TDM programs.

This is designed to generate direct provision of private amenities and programs, as well as funding for public amenities and programs. It also provides optimal levels of flexibility for private and public investments to respond to changes in parking demand and mobility opportunities, as modal options and preferences evolve.

9 http://www.aspenpitkin.com/Business-Navigator/Get-Approval-to-Develop/Transportation-Impact-Analysis-Guidelines/

# Recommended Code Updates

## Broaden the Focus to Access & Mobility

### Reframe Parking Requirements as Access Management Requirements

Using the existing framework for calculating minimum parking requirements, reframe the "requirement" as a requirement to manage the project's access needs and impacts, measured as Access Management Requirement (AMR) points.

**Table 2. Examples of Access Management Requirements (in AMR points)**

| Land Use | Minimum Requirement |
|---|---|
| Multi-Family Housing | 1 to 3 per dwelling unit, increasing by # of bedrooms |
| Offices | 1 per 200 SQ FT FA -<br>1 per400 SQFT FA |
| Medical Facilities | 1 per 4 Planned Bed sites, or 300 SQ FT. |
| Standard Restaurant | 1 per 4 seats, plus 1 per employee on largest shift |
| Retail Trade | 1 per 150 SQ FT FA |
| Drinking & Entertainment | 1 per 4 persons based on building's maximum capacity |

### Provide Three Options to Satisfy AMR

Allow developers to meet a project's AMR through any combination of

- On-site parking,
- Bonus TDM measures, and
- ILF payments.

### Credit Parking Spaces Based on How They Will Be Managed

Calculate credits for on-site parking spaces included in a proposal according to the management of those proposed spaces, and based on the following space-type categories.

#### Defining Space Types

Defining the following space types in the code will help the City link parking management to development approvals, by providing more credit when parking is managed to emphasize efficiency, and less credit when parking will

necessitate more redundancy – and induce more driving in the process. This will also allow the City to build several best practices into this process (streaming the code and reducing the need for prescriptive explanation) including the following.

- Public Parking in Private Development: Management approaches that facilitate shared-parking efficiencies increase space credits toward an AMR. Those that reduce these efficiencies increase the project's AMR.
- Unbundling: Spaces that are priced receive more credits toward an AMR.
- Flexible Maximums: Rather than assigning a "hard cap" on parking, spaces in excess of the project's baseline AMR actually increase the AMR, thus necessitating increased TDM commitments, fee payment, or inclusion of public parking. While this adds flexibility in how much parking can be provided, it adds a "cost" to each space built above the AMR, in the form of public-benefit contributions.

**Reserved Parking Space**

A parking space that is managed to limit access to specified individuals or individuals engaged with specific on-site uses (residents, tenants, and their guests/customers).

- AMR Credit per space: -0.25

**Accessory Parking Space**

A parking space that is managed to limit access to individuals engaged with specific on-site uses (residents, tenants, and their guests/customers), but are shared between all on-site land uses.

- AMR Credit per space: 0.75

**Public Parking Space**

A parking space that is managed to provide at least 12 hours of public parking in any 24-hour period, with approved signage to effectively identify these hours of public access.

- AMR Credit per space: 1

**Priced Parking Space**

A parking space – whether reserved, accessory, or public – that is priced comparable to rates charged by the City for nearby off-street facilities.

- AMR Credit per space: 0.25 (added to underlying space-type credit)

### Municipal Parking Space

A parking space that is provided within City facilities, or directly managed by the City, whether located in a private or City-owned parking facility.

- AMR Credit per space: 1.5

### Excess Parking Space

Any reserved and accessory parking space provided in excess of the project's AMR, calculated as the total number of reserved and accessory spaces, minus the project's AMR.

- AMR Credit per space: -0.25 (added to underlying space-type credit)

## Assigning Credits

The table below summarizes proposed credits to be assigned to the space types defined above.

**Table 3. Parking Credits Table**

| Parking Space Types | Credit Toward AMR (points) |
|---|---|
| Reserved Spaces | -0.25 |
| Accessory Spaces | 0.75 |
| Public Spaces | 1.0 |
| Priced Spaces | 0.25 (additive) |
| Municipal Spaces | 1.5 |
| Excess Spaces | -0.75 (additive) |

## Notes

- Reserved and Excess spaces receive "negative" credits, reflecting the fact that these management approaches work against supply efficiencies, and tend to induce more driving.
- Public spaces are treated as the "baseline" credit (1.0), emphasizing that this is preferred as the normative form of management in the DMC.
- Accessory spaces, by contrast receive less credit, reflecting the reduced efficiency of this management approach.

- Credits for Priced and Excess spaces are assigned additive to the credit assigned to their primary space type (Reserved, Accessory, or Public), so, for example:
    - Reserved spaces provided in excess of the project's AMR would be credited at -1.0 per space;
    - Public spaces that are priced would be credited at 1.25 per space; and
    - Accessory spaces provided in excess of the project's AMR would be credited at 0.0 per space.
- Municipal spaces are, by definition, priced and public, so pricing and "excess" factors are not assigned to these spaces.
- Municipal spaces are credited to reflect the optimal efficiencies made possible by incorporating their management into the overall City program.
- ILF payments will be credited at the same rate as Municipal spaces, as that is the only form of parking ILF revenue can fund.

## Let Math Do the Explaining

Provide developers with a web-based app to calculate a project's AMR, and to assess their options for meeting it, including a calculator that will tally points toward meeting the AMR, based on specific parking, TDM, and ILF payment assumptions. Working with such a calculator quickly makes clear the "cost" of inefficient forms of parking, the benefits of pricing and sharing, as well as options to reduce or eliminate parking altogether, through TDM commitments or ILF payments.

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*Scenarios*
*The following table provides examples of how a developer whose project receives an AMR of 150 points might calculate options for accumulating sufficient points, assuming various combinations of on-site parking, bonus TDM points, and ILF payments.*

| Scenario | # Parking Spaces Proposed by Type | | | | | | Bonus TDM Points | ILF Payments | Tally |
|---|---|---|---|---|---|---|---|---|---|
| | Reserved | Accessory | Public | Priced | Municipal | Excess | | | |
| 1 | 200 | 0 | 0 | 0 | 0 | 50 | 12 | 150 | 150 |
| 2 | 200 | 0 | 0 | 200 | 0 | 50 | 0 | 125 | 150 |
| 3 | 125 | 0 | 0 | 0 | 121 | 0 | 0 | | 150 |
| 4 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | | 150 |

| Scenario | # Parking Spaces Proposed by Type | | | | | | Bonus TDM Points | ILF Payments | Tally |
|---|---|---|---|---|---|---|---|---|---|
| | Reserved | Accessory | Public | Priced | Municipal | Excess | | | |
| 5 | 0 | 150 | 0 | 0 | 0 | 0 | 20 | 12 | 151 |
| 6 | 0 | 150 | 0 | 150 | 0 | 0 | 0 | | 150 |
| 7 | 0 | 0 | 100 | 100 | 17 | 0 | 0 | | 151 |

### Calculate Bonus TDM Credit

There are two options for setting up a system of bonus TDM credit for proposed DMC area projects.

1. Expand the Interim Code's TDM requirements, moving toward the San Francisco model, with an expanded "menu" of options, each of which is assigned a range of points that are calculated toward a required, minimum score. Any points accumulated beyond the minimum required score can be credited toward the AMR.

2. Leave the Interim Code's TDM requirements as is, while creating a menu of options for accumulating TDM credits beyond the minimum required in the code.

## Emphasize Municipal Parking to Prepare for Uncertainty

One of the most important potential benefits of the framework outlined above is the opportunity to discourage privately built and managed parking facilities, so that most of the parking added within the district is built and managed as part of the Municipal system. Shared Mobility services like car-sharing and TNCs are already disrupting the relationship between mobility and parking-generation. The much-anticipated advent of driverless vehicles may make such services profoundly more expansive, efficient, and affordable to the point that they begin to function like transit. Predicted impacts to parking demand from these disruptive changes are wide ranging, but are sure to be both significant and difficult to predict from city to city, district to district.

Municipal parking structures provide two distinct advantages over private parking facilities in such an environment, advantages that will be all the more meaningful to the extent that parking demand does broadly decline in the coming years. The most basic advantage lies in the fact that such facilities tend to be highly accessible and strategically positioned, so that declining parking demand simply means that the same set of facilities can support

more growth, rather than fall into obsolescence as an accessory facility would likely do. The second is the capacity to apply emerging design strategies that facilitate the adaptive re-use of parking facilities with significant excess capacity, and facilitate the potential efficiencies of self-parking and self-driving vehicles as they become more common.[10]

## Allow Required Parking to Be Shared

Adopt code language similar to the Arlington County example provided above to:

- Allow parking spaces provided to meet parking requirements to be shared, and
- Make this retroactive for existing developments.

## Update Bike Parking requirements

Decouple bike parking ratios from auto-parking requirements. The City of Minneapolis does this, providing an example of ratios from a comparable location.

**Table 4. Bike Parking Requirements in Minneapolis**

| Land Use | Minimum Bicycle Parking Requirement |
|---|---|
| Non-Residential Uses under 1K SF | Exempt |
| Residential: Single Family – 4 Units | Exempt |
| Multifamily – 5 Units or more | 1 space per 2 dwelling units |
| Schools (K-12) | 3 spaces per classroom |
| Community Centers | 6 spaces |
| Theaters | 3 spaces |
| General Retail | 3 spaces or 1 space per 5K SF |
| Offices | 3 spaces or 1 space per 15K SF |
| Restaurant or Coffee Shop | 3 spaces |
| Recreational Facility | 3 spaces |
| Sports & Health Facility | 3 spaces or 1 space per 10K SF |
| Medical Clinic | 3 spaces |

[10] http://www.curbed.com/2016/8/8/12404658/autonomous-car-future-parking-lot-driverless-urban-planning

| Land Use | Minimum Bicycle Parking Requirement |
|---|---|
| Industrial Uses | 2 spaces or 1 space per 20/30/40K SF |
| Post Office | 3 spaces |

## Require Car-Share Parking

Require that larger private parking facilities set aside a modest number of spaces, to be offered to recognized car-sharing services. The Montgomery County, MD example provided above is modeled on a similar requirement in place in parts of San Francisco. The same or similar parameters would help to expand access to car-share vehicles in the DMC, something that has been shown to reduce rates of private-vehicle ownership and use.

## Add Credits for Key Multimodal Amenities

Added credits toward a project's AMR for the following.

- **Car-share Parking**, including required spaces, but linked to signed agreements with a car-share provider to occupy credited spaces
- **Bike-Share Facilities**, similar to the example provided from Portland, OR
- **Showers and Changing Facilities**, to help facilitate active-mobility commutes

## For Further Consideration

### Consider a Progressive In-Lieu Fee Rate Structure

This may be particularly important if discouraging on-site parking at smaller development sites is a priority. It can also help generate interest in joint-development partnerships among developers with larger-scale projects on sites likely to be more accommodating of efficient parking facilities, folded into mixed-use projects.

### Adopt A Joint-Development Policy

Defining the optimal-outcome potential of the In Lieu Fee program, highlighting better-designed facilities that offer more broadly shared benefits, will clarify the intent of the ILF program, and encourage developers to rethink assumptions about the relative benefits of accessory parking. Thinking beyond parking, the joint-development model of supply expansion can evolve toward a means of implementing innovative mobility solutions,

such as Uber rooms[11] and bikestations[12], that bring the same scales of efficiency and emphasis on shared benefits.

[11] https://www.washingtonpost.com/news/local/wp/2016/08/17/this-new-apartment-building-has-an-uber-room-to-wait-for-your-ride/

[12] http://home.bikestation.com/what-is-bikestation

# Mobility Hubs: Concept Overview and Implementation Guide

## *Rochester DMC Implementation Studies*

*Report Version 2*

**Prepared for:**

**DMC Transportation & Infrastructure Program**
City of Rochester, MN

Prepared by:

Date: July 2017
DMC Project No. J8618-J8622 Parking/TMA Study

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# Overview

## The Mobility Hub Concept

Mobility hubs are multimodal transportation nexus points intended to integrate various transit and emerging mobility services to facilitate a wide range of linked trips. The mobility hub concept originated as branded public spaces designed and programmed to integrate travel modes with information to guide trip planning and mode-selection. An initial emphasis on on-site information kiosks soon eased as smartphones became widely adopted.

The first mobility hubs were also largely focused on addressing "first-mile/last-mile" gaps, particularly related to connections to and from mass transit services. Providing immediate access to taxis, car-share services, and bike facilities gave those alighting buses and trains reliable options for completing their trips. Likewise, these options provided a range of options for getting to stops and stations without driving/parking.

**Figure 1. Customers Using Information Kiosk in Bremen, Germany**


Image Source: www.carsharing.de

The concept has proven broadly useful, however, to call attention to points of intersection between two or more travel modes, and to reduce barriers to their use. As emerging mobility options increasingly diversify travel options in more places, and as technology makes it increasingly easier to find immediate information on and access to these options, informal mobility hubs are emerging across many of our communities. A bus rider who hails a Lyft ride when a next-bus-arrival sign indicates a trip delay is one example of an informal mobility hub in action. Mobility hubs can include a variety of multimodal infrastructure components customized for their location within the

transportation network, and they can range from simple to complex in their range of features.

**Figure 2. Mobility Hubs Can Be as Simple or as Complex as they Need to Be**


Image Source: SANDAG

For the purposes of this document, the term "mobility hub" refers to any intentional co-location of two or more publicly accessible travel modes within a public space or facility, complemented by information/services to make these options broadly useful and accessible.

## Parking and Mobility Hubs

From the beginning, parking has been a common component of mobility hubs. Depending on the place and circumstance, mobility hubs are typically viewed either as a means of reducing the need for parking, or as an opportunity to make use of existing parking facilities to facilitate non-driving travel modes for longer stages of a trip. In the former case, parking will be minimized, eliminated, or restricted to shared cars or ride-service vehicles. In the latter case, however, placing alternative modes and services near concentrations of parking can greatly increase awareness of the transportation alternatives.

## Mobility Hubs and the Future of Parking

As uncertainty regarding the future of parking[1] (and of parking garages in particular[2]) increases, it is becoming clear that the evolution of the parking garage must accelerate to address the risk that such change might present for the financial investment in infrastructure meant to provide 40-plus years of value.[3] In this context, the mobility hub concept has emerged as a promising means of diversifying the functional role of parking facilities, and of directly accommodating many of the travel modes and services likely to reduce personal-vehicle travel in many city centers.[4]

# Case Studies

## Early Adopter: Bremen, Germany

Since 1998, the City of Bremen has offered an integrated smart-card fare payment system that provides access to all area transit services as well as the City's car-share program. In 2003, the City expanded this strategy, seeking to integrate the full range of mobility services available within the city. The City's objectives for the mobility hub program were to reduce vehicular congestion and emissions from auto travel, especially as a means of meeting citywide targets set forth in its 2025 sustainable mobility plan.[5] These targets were to remove 6,000 cars from its streets by 2020; enroll 20,000 people in various car-sharing programs; and reclaim 30 linear kilometers of curbside road space from parking.

Central to this strategy today is the distribution of mobility hubs across the city. Known locally as "Mobil Punkt," these hubs typically combine a transit stop with access to car-sharing, taxis, bicycle lanes, and parking facilities, and a digital information kiosk that provides information on available mode options, including mode-specific arrival time estimates. While the modes that these hubs bring together are familiar ones, the seamless integration of each at a

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[1] Rao, Santosh. 2017. "Managing the Parking Transition — A Call for More Data." *Medium*. January 5. https://medium.com/uber-under-the-hood/managing-the-parking-transition-a-call-for-more-data-afb76772d36c.

[2] Marshall, Aarian. 2016. "It's Time to Think About Living in Parking Garages." *WIRED*, November 2. https://www.wired.com/2016/11/time-think-living-old-parking-garages/.

[3] Rusch, Emilie. 2016. "Denver Developers Have Seen the Future of Parking, and It Is No Parking at All." *The Denver Post*, October 16. http://www.denverpost.com/2016/10/15/denver-developers-future-parking-self-driving-cars/.

[4] Bouton, Shannon, Stefan M. Knupfer, Ivan Mihov, and Steven Swartz. 2017. "Urban Mobility at a Tipping Point | McKinsey & Company." Accessed May 19. http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/urban-mobility-at-a-tipping-point.

[5] http://www.vegvesen.no/_attachment/853889/binary/1028162?fast_title=03++SUMP+%2B+Car+Sharing+Bremen.pdf

single point of access coupled with information has been pivotal in encouraging higher rates of transit use and lower rates of driving.

**Figure 3. Car-Share Parking at Bremen Mobility Hub**


Image Source: www.carsharing.de

Implementing the city's mobility hub concept required augmenting each individual mode to create a seamless user experience when connecting from one mode to another.

- Transit – Real-time information on waiting times for trams and buses is updated via digital displays at stops. Trams receive signal priority at signalized intersections, as sensors trip signal timers to give trams the right-of-way as they approach.
- Bikes – Bike parking at transit stops are supported by in-street infrastructure. All streets follow a Complete Streets approach and allow two-way bicycle traffic, often with protected lanes, even on one-way streets. Additionally, the city's main train station contains a full service bike station with options for rental, supplies and repairs, secure storage, and bike washing, further supporting bike mobility across the city.
- Car Sharing – Car sharing membership passes used to unlock the shared vehicles are purchased as a fully integrated add-on to the city's transit pass, the Bremer Karte. This fare payment integration encourages car share users to use transit when they are not using shared cars. In a city of roughly 500,000 residents, nearly 9,000 use the service.

The most important achievement of the program was a reduction in private car ownership. Estimates from the European Union state that the car share component of the mobility hub program has reduced demand for on-street

parking by about 700 private vehicles.[6] Other research on European car sharing behavior found that 50 percent of new car share users owned a car before joining the scheme and only 13 per cent kept it – which means that 37 per cent replaced the private car with a shared car.[7] This survey also showed that every car-sharing vehicle in Bremen replaces 11 private cars.

### Lessons for the DMC

- The original mobility hubs were relatively unassuming spaces offering connections between just a few mobility options.
- Parking was central to these hubs, although typically reserved for car-share and/or taxi vehicle parking/standing.

## Mobility and Public Services Hub: Ann Arbor, Michigan

**Figure 4. Bike-Share Above Parking and Across from a Transit Center**


Image Source: Google Maps

The City of Ann Arbor constructed the Library Lane parking structure on the site of a surface lot adjacent to the City's main library. Completed in 2012 as part of the municipal parking system, the facility consists of four underground levels of parking and contains over 700 spaces. Built to support high-rise

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[6] European Platform on Mobility Management. "The Moses Guide: Keys to car-sharing – Chapter 2: What's in it for Society?" http://www.epomm.eu/old_website/docs/Moses_final_report_.pdf

[7] Glotz-Richter, Michael. 2015. "Bremen Car-Sharing Scheme Takes Cars off the Road (Germany) | Eltis." April 8. http://www.eltis.org/discover/case-studies/bremen-car-sharing-scheme-takes-cars-road-germany.

development at the ground level, a surface lot was constructed to add more parking until a development plan is approved.

While not planned as a mobility hub, the structure's location across the street from the regional transit service's main bus center has placed it at the center of mobility innovation. On-site services include a bike-share station, bike parking, and three car-share stalls, all prominently located at the ground level. Between the structure and the transit center is an on-street bus-stop for express-bus service to Detroit Metro Airport, a popular option that removes a common rationale for students bringing cars with them to college.

This area has become downtown's epicenter for accessing non-driving mobility services and networks. In addition, many of the mobility hub services extend the effectiveness of the adjacent parking facilities (a second, large parking structure is located opposite the transit center) by providing first-/last-mile connections to area destinations. This has allowed the overall downtown parking system function with increased efficiency, as more parking facilities can now serve as a point of access to more downtown destinations.

These mobility hub services are complemented distinctively by public amenities, including public restrooms, drinking fountains, public seating, and the City's main library. Such amenities add public vitality to this area, and raise the profile of non-driving mobility options, as those who might never have sought out information on bike-share or express transit options encounter these services as they pass through this open-air hub.

### Lessons for the DMC

- Incorporating public amenities like drinking fountains and public restrooms, and civic destinations like libraries, can raise the profile of mobility hubs and the services and amenities they offer.
- Mobility hub programming on the site of large parking facilities can increase driver awareness of non-driving options.
- Mobility hub programming and services can expand the area served by municipal parking facilities, by providing on-site first-/last-mile options that generally support a Park Once environment.

## Park and Pedal Mobility Hub: Bethesda, MD

**Figure 5. Parking with Mixed Use Development & Direct Regional Trail Access**


Image Source: Robert Dyer

The Flats at Bethesda Avenue project provides a model for mobility hub development, as it is an example of how Montgomery County is looking to diversify the functions of its parking facilities. By placing housing and parking directly adjacent to a regional, off-road, shared-use trail, the County has greatly expanded the viability of an already-popular option for bike commuting into the District of Columbia.

To emphasize trail access as an amenity for building tenants and garage users, the County widened the adjacent section of the trail, and incorporated trail access into facility design and programming. Four of six elevators are oversized, providing cyclist/parkers with an easy means of getting their bicycles up to the level of Capital Crescent Trail. There is also designated bicycle drop-off area at garage entrance, allowing drivers to leave their bikes while they park and pick them near the trail entrance.

### Lessons for the DMC

- Opportunities for park-and-pedal amenities exist at several of Rochester's mobility hub candidate sites that are adjacent to the Douglas, Cascade Creek, and Zumbro River Trails.

## Mobility Hub as "Plan B": Cleveland, OH

The Bike Rack is a bike-oriented mobility hub located in what was planned to be retail space within a public garage in the heart of downtown Cleveland. The retail space failed to attract commercial tenants, becoming a forgotten corner of a large parking structure lacking any other active frontage along its perimeter. What proved to be a poor location for a commercial business has thrived as a center for bike-commuters and bike advocates in the heart of downtown.

**Figure 6. Bike Commuter Service Center near Transit Hub**


Image Source: The Bike Rack

The City of Cleveland and the Downtown Cleveland Alliance collaborated with the bike advocacy non-profit Bike Cleveland in creating the Bike Rack to occupy this space. The City spent $600,000 to convert the 1,400-square-foot former retail space into the Bike Rack. The Bike Rack provides a state-of-the art bike-commuter facility that includes secure indoor parking for 50 bikes, lockers, showers, bike rentals, repair services, and a staffed information kiosk. Indoor showers, lockers, and parking are available to members for a monthly fee.

While the "back door" location of this storefront space is less than ideal for a commercial business, its location on a heavily pedestrianized route between large sports venues and a popular restaurant row provides high visibility for the bike service. The Bike Rack's strategic location, just two blocks from the multimodal transit hub at Public Square – where bus, bus rapid transit, and commuter rail services converge – facilitates a variety of potential linked trips.

### Lessons for the DMC

- A single mobility hub amenity can transform a stand-alone parking facility into an essential mobility resource, particularly if the location is optimal for the mode involved and a high level of service/amenity is provided.
- Mobility hub elements may represent the "highest and best use" of a facility's "liner" space.
- Even if these uses provide minimal or no revenue for the facility, they can activate ground-floor perimeters, improving the function and feel of facilities that might otherwise present "dead zones" in the public realm.

## A Hub Evolves: Boston, MA

The Massachusetts Department of Transportation has announced plans to create a mobility hub in Boston's South End neighborhood that combines structured parking, bike facilities, and open space. The mobility hub is planned as part of the "Ink Underground" open space, beneath an overpass of Interstate 93, roughly parallel to Albany Street between Herald Street and Randolph Street.

MassDOT is developing Ink Underground with National Development, the developer of an adjacent mixed-use project under construction, "Ink Block," which includes a 205-room Marriott hotel, a Whole Foods grocery store, and seven residential buildings. The Ink Underground is a series of public space improvements implemented in collaboration with the Ink Block mixed-use development.

These improvements include a 175-space parking garage, a bike storage facility, and an eight-acre public park. The public park will serve as a connector between the South End and South Boston neighborhoods with bike and pedestrian paths, art installations, and temporary spaces for food vendors. The parking structure will include parking for car-share vehicles and electric vehicle charging stations. The mobility hub is within walking distance of MBTA's Red and Silver Lines at Broadway and Washington & Berkeley and is located along the South Bay Harbor Trail, a key north-south bike connection. Ink Underground is expected to open to the public in June 2017.

**Figure 7. Bike Storage Facility Integrated with Multipurpose Urban Park**

Image Source: National Development

## Lessons for the DMC

- Incorporating public amenities like park- and open-space areas can raise the profile of mobility hubs and the services and amenities they offer.
- This can also create a genuine public-gathering place focused on mobility services and first-/last-mile mobility options, and increasing the awareness and appeal of these options among a broad population.

## Implementation Guide

Three levels of mobility hub implementation are recommended for consideration for DMC-focused parking facilities.

### Priority Hub Elements by Location Relative to DMC Core

#### At Remote Facilities (Parking located a few to several miles outside the DMC)

For facilities planned to function as remote parking options, mobility hub features should focus on amenities that help enable a primarily-transit commute – or a park-and-pedal commute, if regional trails are present – with parking located closer to the home end of the commute trip.

**Bike Parking**

Ensure that these park-and-ride facilities do not overlook bike parking. Whether provided as low-cost bike racks, which should nonetheless be sheltered and secure as appropriate for long-term parking, or a high-amenity "bike rooms", accommodating bikes on site will reduce car-parking demand while also underscoring healthy commutes as a core DMC objective.

**Kiss-and-Ride**

Kiss-and-ride facilities consist of dedicated, time-limited stopping areas or parking spaces at transit stops/stations that allow commuters to be picked up or dropped off and begin or complete their trips via public transit.

**Park and Pedal**

Regional-trail connections linking to the proposed Rochester City Loop could expand the market base for remote parking facilities, and facilitate more bike commuting into the DMC.

**On-Site Trip Chaining**

Co-locating goods and services commonly included in chained-trip commutes can increase the viability of remote parking facilities, simplifying daily routines for those connecting to on-site transit. Some uses to consider include the following.

- Daycare
- Pet services
- Bank
- Copy/mail services
- Dry cleaning and laundry

- Pharmacy
- Coffee shop
- Wine and beverage store

### At Peripheral Facilities (Parking offering first/last-mile connectivity to the DMC core)

For facilities designed to intercept driving commuters just outside the DMC, mobility hub features should focus on "first-mile/last-mile" solutions, such as those listed below. The primary mobility connection is assumed to be high frequency transit, offering short rides into the DMC, complemented with distinctive first-mile/last-mile components, as indicated below.

**Bike House**

Offering a more active alternative to transit, a bike house can provide a safe and convenient location for personal bike storage for those looking to end a mostly-driving commute with a physically-active last mile.

**Bike-share**

Offering a more active alternative to transit, and the convenience of not having to own a bike or securing parking options for one.

**Kiss-and-Ride**

Kiss-and-ride facilities consist of dedicated, time-limited stopping areas or parking spaces at transit stops/stations that allow commuters to be picked up or dropped off and begin or complete their trips via public transit.

**One-way car-sharing**

Offering more flexibility, in terms of point-B locations and schedules, particularly during times of reduced circulator frequencies.

**Ride-sharing**

Facilitating formal and ad hoc carpools (prime spaces reserved for registered carpools + spaces/lanes for drivers to await passengers) can accommodate those primarily seeking to reduce parking costs within the DMC.

**Ride-services**

Passenger pick-up/drop-off spaces for TNC services and traditional taxis.

### At Downtown Facilities

Most of those parking within the DMC will presumably be within walking distance of their destination, and thus not seek to make modal connections. However, DMC-located mobility hubs can provide an ideal location for a "one-stop shop" for learning about and accessing non-driving "primary mode" commute options, with the on-site population of drivers as the primary target audience. Primarily, this is about using garage space, and particularly the ground-floor spaces that interact with surrounding sidewalks, to accommodate and display the diversity of mobility options available throughout the DMC. This can be particularly valuable in locations and within facilities that might otherwise struggle to attract/retain private retail uses to "liner" spaces.

Mobility hub implementation in these locations, therefore, should focus on the following.

- Raising awareness of non-drive-alone mobility options among drivers likely using some of the most expensive parking in Rochester.
- Raising awareness of all non-drive-alone mobility options among all those who pass by these parking structures, including those who might not otherwise know about car-sharing, bike-sharing, or ride-matching services.
- Providing retail storefront space for the DMC TMA.
- Providing staffed assistance to make "shared mobility" services, which tend to rely heavily on smartphone apps and credit-card payments, more broadly accessible.
- Seek synergies with public facilities and gathering spaces, such as outdoor plazas, Skyways, libraries, public wifi hotspots, etc.

Key components of a DMC-located mobility hub include the following.

#### Bike House

In these locations, showers and lockers will be a more-critical component compared to those serving at Peripheral locations.

#### Bike-share Station

Including the important opportunity for staff-assisted access if accompanying a TMA storefront location.

#### Car-share Parking

More traditional car-share as well as one-way services should do well at these central locations.

**Transit Fare Purchases**

DMC locations would offer the broadest access to mobility hub services, thus offering ideal locations for offering direct transit-fare purchases, via TMA staff or vending kiosks.

**Ride-share Waiting Lounges**

Sheltered and comfortable spaces in which to await hired TNC, taxi, or other shuttle/on-demand-service rides.

**Commuter Store**

A staffed kiosk that includes real-time, multimodal trip-planning displays to complement the personalized trip-planning assistance offered by the staff person. The kiosk may also sell transit passes and provide information on shared mobility options available.

**Table 1. Hub Elements Overview**

| Hub Elements | Most Appropriate Hub Locations | Typical Space Requirements | Essential Infrastructure Needs | Owner/Operator |
|---|---|---|---|---|
| Bike Parking | All | Minimum set-aside of 240 square feet (SF) | Shelter, bike racks, bike lockers | Rochester Downtown TMA, Rochester Bureau of Parking |
| Park and Pedal Amenities | Remote Facilities | Varies | Oversized elevators to accommodate bicycles<br>Bike drop-off zone | Rochester Bureau of Parking |
| On-Site Trip Chaining Land Uses | Remote Facilities | • Coffeehouse – 1,000-2,000 SF<br>• Daycare – 1,500 SF<br>• Bank – 3,000 SF<br>• Copy/mail services – 1,500 SF<br>• Pet services – 3,500 SF<br>• Cleaners – 2,000 SF<br>• Wine and beverage - 2,000 SF<br>• Pharmacy – 2,000 SF | Standard retail-space amenities | Rochester Downtown TMA, leased as commercial space |
| Bike House | Peripheral Facilities, Downtown Facilities | 1,500 SF | Repair station, restrooms, showers/lockers<br>Class B retail-space amenities | Rochester Downtown TMA, Rochester Bureau of Parking, Local bike non-profit |
| Bike-share Station | Peripheral Facilities, Downtown Facilities | Minimum of 300 SF | 10-20 bikes, wayfinding/signage, mobile app | NiceBike |
| Kiss-and-ride | Remote Facilities, Peripheral Facilities | Circulation space<br>200 SF per dedicated parking space | Circulation lanes, Dedicated parking spaces, Signage | Rochester Bureau of Parking, Rochester Public Transit |
| One-way car-sharing | Peripheral Facilities | 200 SF per space | Dedicated parking spaces, Signage | Rochester Bureau of Parking + car-sharing vendor (e.g. car2Go, Maven, Zipcar) |
| Ride-sharing | Peripheral Facilities | 200 SF per space | Signage, mobile app to facilitate ride-matching (e.g. Scoop) | Rochester Downtown TMA, Rochester Bureau of Parking, ride-matching technology vendor (e.g. Scoop) |
| Ride-services | Peripheral Facilities | 200 SF per space | Signage | Uber, Lyft |
| Car-Share Parking | Downtown Facilities | Minimum of three spaces | Signage | Rochester Bureau of Parking + car-sharing vendor |
| Transit fare Purchases | Downtown Facilities | 500-1,000 SF | Standard retail-space amenities | Rochester Downtown TMA, Rochester Public Transit |
| Ride-share Waiting Lounges | Peripheral Facilities Downtown Facilities | 250 SF | Standard retail-space amenities + Real-time transit information (e.g. TransitScreen, Roadify) | Rochester Downtown TMA, Rochester Bureau of Parking |
| Commuter Store | Downtown Facilities | At least 200 SF | Utility hookups (e.g. electric, Internet) | Rochester Downtown TMA |

## Mobility Hub Implementation Sites

Rochester DMC has identified six candidate sites for potential mobility hub implementation, including four Peripheral Facilities and two Remote Facilities. Certain candidate sites, notably Sites 3, 5, and 6, are under consideration as transfer locations for regional commuter bus and downtown circulator services. The candidate sites are described in Table 2.

**Table 2. Mobility Hub Implementation Site Characteristics**

| Site | Name/Address | Existing Stalls | Acres | Parking Capacity | Facility Type |
|---|---|---|---|---|---|
| 1 | A&A Mini-Storage Facility, 2301 US-14 | 0 | 14 | 1,000 – 7,000 | Remote Facility |
| 2 | 645 16th Ave NW | 170 | 8 | 1,000 – 3,000 | Peripheral Facility |
| 3a<br>3b<br>3c | 700-798 Civic Center Dr NW<br>499 6th Ave NW<br>504 6th Ave NW | 75 | 3<br>1<br>2 | 500 – 3,000 | Peripheral Facility |
| 4 | 515 3rd Ave SE | 860 | 10 | 1,750 – 4,750 | Peripheral Facility |
| 5 | Kmart, 201 9th St SE | 900 | 10 | 1,000 – 2,500 | Peripheral Facility |
| 6 | Rochester Fairgrounds, 1318-1324 S Broadway | 532 | 5 | 1,000 – 4,500 | Remote Facility |

Following is an assessment of mobility-hub implementation issues and opportunities at each candidate site, based on ground conditions, input from City staff, and a review of the following related planning materials:

- *Parking Site Assessment Summary*– A parallel DMC-team planning effort that describes the existing conditions of each candidate site, along with proposed site plans;
- *Integrated Transit Studies* – The parallel DMC-team planning effort for short- and long-term transit and bike/pedestrian improvements in Rochester. These improvements include the Comprehensive Plan Primary Transit Network Concept (comprised of regional transit corridors) and the Downtown Transit Circulator (transit solutions focused on the DMC district and immediate surroundings). Five transit service scenarios are presented along with a no-build scenario. A "City Loop" consisting of coordinated bike/pedestrian improvements is also proposed in various configurations.

**Site 1: A&A Mini-Storage Facility, 2535 N Frontage Rd**

Site 1 is currently occupied by the A&A Mini-Storage facility, on the North Frontage Road of US-14. The site has 27 oblong, rectangular self-storage buildings and a commercial property with a large storage area in the rear. The property is located at the terminus of the North Frontage Road and has no connectivity with the primary carriageway of US-14. The nearest connection to the rest of the roadway network from North Frontage Road is at Wilder Road NW, about ½ mile from the entrance of Site 1. The surrounding area is industrial, with few points of interest nearby.

Site 1's location on North Frontage Road presents challenges for bicycle and pedestrian access. There are no sidewalks, pedestrian crossings, or bike facilities of any kind on North Frontage Road. A pedestrian bridge over US-14 is present at the eastern edge of the site, but the elevated structure offers no connection to either the site or North Frontage Road. The bridge can only be accessed from 7th Street NW or from the Cascade Lake Trail, which require circuitous paths to reach from Site 1.

Site 1's development as a mobility hub will necessitate enhanced personal-vehicle and transit connections. These connections, described in Kimley-Horn's Parking Site Assessment Report, include direct highway access to US-14 and the development of the proposed Downtown Transit Circulator in a right-of-way parallel to the existing rail line.

**Service via Local Bus**

The only Local Bus Service route currently within ½ mile of the site is Route 9, with a stop at 7th Street NW & Valleyhigh Drive. Route 9 offers hourly service between 6 am and 1 pm and 30-minute frequencies from 1 pm to 6 pm. However, this stop location requires a circuitous walk of 1.2 miles to reach from Site 1, due to the site's isolated location along North Frontage Road.

**Proposed Primary Transit Network Service**

The Comprehensive Plan Primary Transit Network Concept has identified a potential transit corridor along Valleyhigh Drive, with a potential transit stop near the intersection of 7th Street NW & Valleyhigh Drive.

**Proposed Transit Circulator Service**

The Downtown Transit Circulator's Scenario A includes a terminus near 7th Street NW & Valleyhigh Drive.

To enhance rider connections, transit improvements of either the Comprehensive Plan Primary Transit Network or the Downtown Transit Circulator would require bike/pedestrian access improvements across the rail right-of-way that borders Site 1.

Because of this site's remote location – a 10-minute drive, 55-minute walk, or 15-minute bike trip from the DMC[8] – Site 1 is categorized as a Remote Facility. While retail facilities to encourage on-site trip chaining are typically recommended at Remote Facilities (Table 1), Site 1's poor access to the rest of the roadway network makes these opportunities unviable. To facilitate bicycling and pedestrian elements of the mobility hub, a level-grade crossing from the existing bike/pedestrian bridge to the second or third deck of the parking structure is recommended. This level-grade crossing would provide a less circuitous connection for residents of neighborhoods north of Site 1. A direct pedestrian/bike connection to the parking structure would increase the "park and pedal" potential of this site. Further enhancements could include a bike-share station or the provision of secure bike parking for people who might drive to the site and then grab their bike to complete a trip into downtown.

It is likely that the majority of travelers will access Site 1 via private vehicles for the foreseeable future, functioning as a park-and-ride facility. However, to reduce parking demand in the long-term and facilitate Site 1's transition from park-and-ride facility to mobility hub, two modifications to the Site are recommended:

1) Retrofit the elevated pedestrian bridge over US-14 to allow bike/pedestrian access from North Frontage Road; and
2) Add sidewalks and bike facilities to North Frontage Road to encourage bike and pedestrian access to the site.

As a Remote Facility, Site 1 could support three mobility hub components: kiss-and-ride, bike parking, and park-and-pedal amenities, provided the bike/pedestrian improvements above are implemented. If implemented in conjunction with the Comprehensive Plan Primary Transit Network Concept, these improvements could help transform Site 1 from a more conventional park-and-ride facility to a multimodal mobility hub.

**Site 2: Surface Parking Lot, 645 16th Ave NW**

Site 2 is currently a surface parking lot, accessed by 16th Avenue NW just north of Civic Center Drive NW. The properties immediately surrounding the lot include a U-Haul moving and storage center and a funeral home. However, within ¼ mile there is significant strip-style retail activity, including a grocery store, post office, coffeehouse, hotel, and numerous restaurants. 16th Street NW ends in a cul-de-sac, with no access from points north. Site 2's location within an established commercial area creates opportunities to include trip-chaining land uses as a mobility hub component. This would enhance the appeal of this site for many commuters, while also allowing on-site businesses

[8] Throughout this section, "DMC" is defined as Peace Plaza at 2nd Avenue SW.

to success with far less dedicated customer parking than would normally be required.

While 16th Avenue NW has sidewalks on both sides, there are significant gaps in pedestrian connectivity to nearby destinations. Civic Center Drive to the west of 16th Avenue transitions to the limited-access highway Trunk Highway 14 within the Highway 52 interchange area and will not have sidewalks or other non-motorized facilities available. Sidewalks are also missing along a portion of the south side of Civic Center Drive between 16th Avenue NW and 11th Avenue NW. Additionally, there are no marked pedestrian crossings at either the northwest or southwest sides of the intersection of Civic Center Drive NW and 16th Avenue NW. There are no in-road bicycle facilities on any of the surrounding streets near Site 2. However, Site 2 is ¼ mile north of the terminus of the Cascade Creek Trail, at about 420 16th Avenue NW, which connects to Silver Lake to the northeast.

**Service via Local Bus**

The closest current Local Bus Service to Site 2 is Route 9, with stops about 1,000 feet south at 431 and 432 16th Street NW. Route 9 offers hourly service between 6 am and 1 pm and 30-minute frequencies from 1 pm to 6 pm. Alternatively, bus service is available from Route 18, which shares a stop with Route 9 at 6th Street NW and 11th Avenue NW, behind the Hy-Vee grocery store. Route 18 provides peak period service at 10-20 minutes headways in the inbound direction, between 5:30 am and 8:30 am, weekdays only. In the outbound direction, Route 18 operates at 10-20 minute headways between 3 pm and 6 pm, weekdays only.

**Proposed Primary Transit Network Service**

The Comprehensive Plan Primary Transit Network Concept proposes a transit corridor about 450 feet from the northeast corner of Site 2. This Concept is unlikely to be completed before 2030, so it is not considered a near term option.

However, because Site 2 is currently cut off from the 7th Street NW by the freight rail right-of-way and row of properties on the south side of the street, significant pedestrian enhancements such as an elevated pedestrian bridge or easement would be needed to connect Site 2 with the Comprehensive Plan Primary Transit Network Concept.

**Proposed Transit Circulator Service**

The Downtown Transit Circulator includes transit travelling along the freight rail right-of-way to the north of the property, and then turning south onto 16th Avenue NW. The Circulator would provide easy access to Site 2 from a connection on either 16th Avenue NW or the portion of the rail right-of-way immediately north of the site. A pedestrian/bike crossing over Civic Center

Drive may be necessary if the option for an elevated Downtown Transit Circulator is considered at Site 2.

Alternatively, in the "DMC Modified Scenario", the Downtown Transit Circulator begins at roughly 300 16th Avenue NW, about ¼-mile southeast of Site 2, before turning onto 2nd Street SW and ending at DMC. This service alignment provides considerably greater transit connectivity to Site 2.

Site 2 has relatively short access times to DMC, about 7 minutes by car, 15 minutes by bus, 9 minutes by bike, and 25 minutes by walking. Site 2 is considered a Peripheral Facility, with a broader range of viable mobility hub components than those available at Remote Facilities. An elevated pedestrian/bike bridge to connect the northwestern corner of the parking structure to 7th Street NW would greatly improve pedestrian and bike access to Site 2. This dedicated pedestrian/bike corridor could potentially connect the facility to 16th Avenue NW. It would also enhance access to the Downtown Transit Circulator and the commercial area along Civic Center Drive NW for residents north of 7th Street NW. The DMCC Board has discussed the potential for Site 2 to be primarily or fully dedicated to commuter parking for St. Mary's Hospital, given that the site is within walking distance of the hospital.

The following mobility hub components are recommended at Site 2:

- Bike parking
- Bike House
- Bike-share Station
- Kiss-and-ride
- On-Site Trip Chaining Land Uses
- One-way car-sharing
- Ride-sharing
- Ride-services
- Ride-share Waiting Lounge

**Site 3: Surface Parking Lots 700-798 Civic Center Dr NW, 499 6th Ave NW, and 504 6th Ave NW**

Site 3 consists of three adjacent surface lots. Current uses of the property include an ambulance service, an auto parts store, and a freight yard. Areas to the south of this site are mostly comprised of single-family residences, although the apartment community and daycare facility at Civic Center Drive NW & 6th Avenue NW contribute additional travel demand to the area. A small retail corridor, including a restaurant, ethnic market, and mosque, is present along 6th Avenue NW north of the railroad tracks.

Civic Center Drive NW lacks sidewalks on the north side of the street between 8th Avenue NW and its terminus at W Silver Lake Drive NE, compromising pedestrian access to the site. Pedestrian facilities that are missing along the

north side of Civic Center Drive would need to be built as part of parking ramp site development. 6th Avenue NW has sidewalks on both sides. However, long crossing distances (about 90 feet and six lanes of vehicular traffic) on Civic Center Drive NW impede pedestrian safety at the intersection with 6th Avenue NW. No in-road bike infrastructure is present. However, in transit improvement Scenarios A-D and the DMC Modified Scenario, a protected bike lane is proposed along 4th Avenue NW between Civic Center Drive and 8th Street SW. This improvement may encourage travelers to bike between Site 3 and the DMC. Site 3 has direct access to the Cascade Creek Trail, providing connectivity for bicyclists at the south side of the Civic Center Drive bridge over Cascade Creek. In addition, Site 3 will be connected to the proposed City Loop facility a short distance away on the south side of Civic Center Drive, providing good pedestrian/bike access into DMC area.

**Service via Local Bus**

Site 3 is currently accessible to transit through service from Route 11, at an inbound stop at the northwest corner of 6th Avenue NW and 4th Street NW, about 250 feet south. Route 11 provides service at 30-minute headways between 6 am and 5 pm, weekdays only.

**Proposed Transit Circulator Service**

The Downtown Transit Circulator's "DMC Modified Scenario" would terminate at Civic Center Drive NW and 4th Avenue NW, about 500 feet east of the easternmost parcel of Site 3. However, accessing the Downtown Transit Circulator at this location from Site 3 would be more challenging given the lack of sidewalks on the north side of Civic Center Drive NW.

Site 3 has the shortest access times to DMC of all candidate sites, about 4 minutes by car, 7 minutes by bus, 3 minutes by bike, and 10 minutes by walking. Site 3 is considered a Peripheral Facility, with the following mobility hub components recommended:

- Bike parking
- Bike House
- Bike-share Station
- Kiss-and-ride
- One-way car-sharing
- Ride-sharing
- Ride-services
- Ride-share Waiting Lounge

**Site 4: Surface Lot, 515 3rd Ave SE**

Site 4 consists of a large surface parking lot, a warehouse at the southwest corner of the site, a small hotel, and several smaller commercial/retail buildings at the northeast corner of the site. It is bordered by the South Fork of the Zumbro River to the west, an industrial facility to the south, single-

family residential neighborhood to the southeast, and the Olmsted County Government Center to the north. The site faces the significant intersection of 4th Street SE and 3rd Avenue SE. Compared to other candidate sites, Site 4 is located in an area with high land use diversity and moderate density. Construction recently began on a six-story apartment building at 406 3rd Avenue SE, immediately east of the site. A medium-density apartment community, Village on 3rd, sits immediately east of Site 4 on 3rd Avenue SE. The Rochester Downtown Farmers Market, operating on Saturdays 7:30 am to 12 pm between May and October, is located northeast of the site.

Pedestrian access to Site 4 is adequate, with sidewalks on both sides of 4th Street SE and 3rd Avenue SE. Crosswalks are present on all four sides of the intersection of these streets, with crossing distances of about 70 feet on each side. Neither 3rd Avenue SE nor 4th Street SE have in-road bike facilities. However, Site 4 has immediate access to the off-street bike/pedestrian path that parallels the South Fork of the Zumbro River through connections on both sides of 4th Street SE. Site 4 is in close proximity to the proposed City Loop facility, offering enhanced pedestrian/bike access to districts within DMC area.

**Service via Local Bus**

Site 4 is well connected to Local Bus Service, with stops of Routes 3, 4M, 5, 6M, and 16 within ¼ mile. Spans of service and frequencies for these routes are provided below:

- Route 3: 30-minute headways, 7 am – 6 pm, weekdays only
- Route 4M: 60-minute headways, 9:45 am – 3:15 pm, weekdays only
- Route 5: 30-minute headways, 5:30 am – 6 pm, weekdays only
- Route 6: 60-minute headways, 8:15 am – 3:15 pm, weekdays only
- Route 16: 45-minute headways, 6:45 am – 6:45 pm, weekdays only

**Proposed Primary Transit Network Service**

The Comprehensive Plan Primary Transit Network Concept would provide service at 4th Street SE and 3rd Avenue SE, at the northeast corner of Site 4.

**Proposed Transit Circulator Service**

The Downtown Transit Circulator's "DMC Modified Scenario" provides Site 4 with even greater connectivity with transit, however. In this scenario, transit would serve both 3rd Avenue SE and 6th Street SE on a new bridge and easement over the River in a short loop to connect with the DMC. The easement at 6th Street SE would form the southern boundary of Site 4, allowing opportunities to enhance transit access to the site. Alternatively, the Downtown Transit Circulator's Scenario A would serve Site 4 at the intersection of 3rd Avenue SE and 4th Street SE, traveling north along 3rd Avenue to reach the DMC. In Scenario D, the Downtown Transit Circulator

originates at 3rd Avenue SE and 4th Street SE but connects Site 4 with the DMC via a new easement and bridge at 6th Street SE.

Site 4 has the second-shortest access times to DMC of all candidate sites, about 3 minutes by car, 12 minutes by bus, 4 minutes by bike, and 13 minutes by walking. As a result, Site 4 is considered a Peripheral Facility, with the following mobility hub components recommended:

- Bike parking
- Bike House
- Bike-share Station
- Kiss-and-ride
- One-way car-sharing
- Ride-sharing
- Ride-services
- Ride-share Waiting Lounge

**Site 5: Kmart, 201 9th St SE**

Site 5 consists of a big-box format retailer, currently occupied by Kmart, surrounded by about 3 acres of surface parking. It is bordered by a strip-style retail development to the west, facing South Broadway, an industrial facility to the north, single-family residential neighborhood to the southeast, and the Olmsted Medical Center to the south. The site faces the intersection of 9th Street SE and 3rd Avenue SE. Compared to other candidate sites, Site 5 is located in an area with moderate land use diversity, although not to the same degree as Site 4.

Given Site 5's location in a commercial area, on-site trip-chaining land uses may be viable, as these land uses could attract more than just commuter parking; employees and others associated with Olmsted Medical Center across the street and the neighborhood to the east could expand the customer market for existing businesses.

Pedestrian access to Site 4 is adequate, with sidewalks on both sides of 9th Street SE and 3rd Avenue SE. Crosswalks are present on all four sides of the intersection of these streets, with crossing distances of about 70 feet on 3rd Avenue SE and 50 feet on 9th Street SE. Site 5's large surface parking area, which occupies the majority of the site, does not have any demarcated pedestrian paths between the surrounding streets and the store entrance. 9th Street SE has in-road bike facilities, while 3rd Avenue SE does not. However, Site 5 has two distinct pedestrian/bike access options. Currently, there is a path running parallel to Broadway on the east side of the street that connects to the existing River Trail system to the northwest of Site 5. The second option is to cross Broadway at 9th Street SE to access trails in Soldier's Field Park, which provides bridge access across the Zumbro River and into the south end of the DMC district.

**Service via Local Bus**

Site 5 is currently connected to the transit network through Routes 6M, at 9th Street SE & 3rd Avenue SE, and 7A, at South Broadway north of 9th Street SE. Route 6M has 60-minute headways and operates 8:15 am – 3:15 pm, weekdays only. Route 7A operates at 60-minute headways, between 7:45 am and 5:45 pm, weekdays only.

**Proposed Transit Circulator Service**

The Downtown Transit Circulator's Scenario A, would provide service along 3rd Avenue SE, with a stop at 9th Street SE, near the southeast corner of Site 5. The Downtown Transit Circulator would travel north along 3rd Avenue SE before turning west onto 2nd Street NW to reach DMC. Scenario D and the DMC Modified Scenario do not provide transit service to Site 5 and would only reach Site 4 at 6th Street SE, about ¼ mile north of Site 5.

Site 5 has somewhat longer access times to DMC than Sites 3 and 4, about 5 minutes by car, 9-12 minutes by bus (9 minutes by Route 6M, 12 minutes by Route 7A), 5 minutes by bike, and 18 minutes by walking. As a result, Site 5 is considered a Peripheral Facility, with the following mobility hub components recommended:

- Bike parking
- Bike House
- Bike-share Station
- Kiss-and-ride
- On-site Trip-Chaining Land Uses
- One-way car-sharing
- Ride-sharing
- Ride-services
- Ride-share Waiting Lounge

**Site 6: Rochester Fairgrounds, 1318-1324 S Broadway**

Site 6 consists of a 6-acre portion of the Olmsted County Fairgrounds property, along South Broadway just south of 12th Street SW (US-14). The site is bordered by a strip-style retail development to the west, on the west side of South Broadway, a Denny's restaurant and Super 8 motel to the north, freight rail tracks to the east, and the active portions of the Olmsted County Fairgrounds to the south. The site can be entered from the south, at 14th Street SW and South Broadway, or from a driveway at 1318-1324 South Broadway, about 400 feet to the north. Compared to other candidate sites, Site 6 is located in an area with moderate land use diversity, though development density is relatively low.

Pedestrian access to Site 6 contains some notable gaps. While the east side of South Broadway has a well-maintained sidewalk that crosses 12th Street SW, there is no sidewalk present on the west side of the street. However, the City

has allocated funding to build a trail/path along the west side of Broadway from 14th Street SW northward. Accessing the retail development on the west side of South Broadway by walking is therefore challenging. 14th Street SW has sidewalks on both sides of the street west of South Broadway, but no sidewalks are present east of South Broadway. Apart from the sidewalk on the east side of South Broadway, there are no clear pedestrian routes connecting Site 6 with the rest of the roadway network. Pedestrian connections to the sidewalk/path on the east side of Broadway would be part of site development efforts. 12th Street SW has on-street bike lanes on both sides of the street between Marion Road SE and the South Fork of the Zumbro River, a 1.5-mile segment. Bike connections are already available between Site 6 and 12th Street SW, via the sidewalk/path along the east side of Broadway.

**Service via Local Bus**

Site 6 is currently connected to the transit network through Routes 6A, at South Broadway and the frontage road entrance (about 1316 South Broadway) and 6M, at 14th Street SW adjacent to the Fairground Lots A. Route 6A has 30-minute headways and operates peak hours only (6 – 10:15 am, 3:15 – 6:15 pm), weekdays only. Route 6M has 60-minute headways and operates 8:15 am – 3:15 pm, weekdays only.

**Proposed Primary Transit Network Service**

The Primary Transit Network's Scenario A includes plans for a future transit corridor to terminate at the southern portion of the Olmsted County Fairgrounds, where pedestrian access could be coordinated with Site 6.

**Proposed Transit Circulator Service**

Under all scenarios, including the Comprehensive Plan Primary Transit Network Concept, Site 6 would be served by the Downtown Transit Circulator along South Broadway, on its western border.

Site 6 has the second-longest access times to DMC after Site 1, about 7 minutes by car, 12-24 minutes by bus (12 minutes by Route 6M, 24 minutes by Route 6A), 11 minutes by bike, and 30 minutes by walking. As a result, Site 6 is considered a Remote Facility, with the following mobility hub components recommended:

- Bike parking
- Kiss-and-ride
- Park-and-pedal amenities
- On-Site Trip Chaining Land Uses

## Mobility Hub Implementation Scenarios

The following section offers three scenarios of space allocation requirements based on the characteristics of the potential mobility hub sites reviewed above. The space allocation requirements are considered general industry standards

and are constrained by the needs of the site plan of each mobility hub location. Three scenarios correspond to high, medium, and low levels of implementation of mobility hub components. The "high" scenario (Table 3) assumes that all of the suitable mobility hub components of each site are implemented, and that each of the various partnerships necessary (e.g. car-share programming, Bike House operations) are established. The "medium" scenario (Table 4) assumes that some of the more space-intensive components, such as the Bike Houses, are reduced in scope of implementation from four sites to just one. The "low" scenario (Table 5) assumes that neither the Bike Houses nor the on-site trip chaining land uses are implemented.

**Table 3. Mobility Hub Space Requirements: "High" Scenario**

| Site | Components | Square Footage Requirements |
|---|---|---|
| Site 1 | Bike parking | 240 |
| Site 1 | Kiss-and-ride | 400 |
| Site 1 | Park-and-pedal amenities | N/A |
| Site 2 | Bike parking | 240 |
| Site 2 | Bike House | 1,500 |
| Site 2 | Bike-share Station | 300 |
| Site 2 | Kiss-and-ride | 400 |
| Site 2 | One-way car-sharing | 200 |
| Site 2 | Ride-sharing | 200 |
| Site 2 | Ride-services | 200 |
| Site 2 | Ride-share Waiting Lounge | 250 |
| Site 3 | Bike parking | 240 |
| Site 3 | Bike House | 1,500 |
| Site 3 | Bike-share Station | 300 |
| Site 3 | Kiss-and-ride | 400 |
| Site 3 | One-way car-sharing | 200 |
| Site 3 | Ride-sharing | 200 |
| Site 3 | Ride-services | 200 |
| Site 3 | Ride-share Waiting Lounge | 250 |
| Site 4 | Bike parking | 240 |
| Site 4 | Bike House | 1,500 |
| Site 4 | Bike-share Station | 300 |
| Site 4 | Kiss-and-ride | 400 |
| Site 4 | One-way car-sharing | 200 |
| Site 4 | Ride-sharing | 200 |
| Site 4 | Ride-services | 200 |
| Site 4 | Ride-share Waiting Lounge | 250 |
| Site 5 | Bike parking | 240 |
| Site 5 | Bike House | 1,500 |
| Site 5 | Bike-share Station | 300 |
| Site 5 | Kiss-and-ride | 400 |
| Site 5 | One-way car-sharing | 200 |
| Site 5 | Ride-sharing | 200 |
| Site 5 | Ride-services | 200 |
| Site 5 | Ride-share Waiting Lounge | 250 |
| Site 6 | Bike parking | 240 |
| Site 6 | Kiss-and-ride | 400 |
| Site 6 | Park-and-pedal amenities | N/A |
| Site 6 | On-Site Trip Chaining Land Uses | 2,000 |
| **Total** | | **16,440** |

**Table 4. Mobility Hub Space Requirements: "Medium" Scenario**

| Site | Components | Square Footage Requirements |
|---|---|---|
| Site 1 | Bike parking | 240 |
| Site 1 | Kiss-and-ride | 400 |
| Site 1 | Park-and-pedal amenities | N/A |
| Site 2 | Bike parking | 240 |
| Site 2 | Kiss-and-ride | 400 |
| Site 2 | Ride-sharing | 200 |
| Site 2 | Ride-services | 200 |
| Site 2 | Ride-share Waiting Lounge | 250 |
| Site 3 | Bike parking | 240 |
| Site 3 | Bike House | 1,500 |
| Site 3 | Bike-share Station | 300 |
| Site 3 | Kiss-and-ride | 400 |
| Site 3 | One-way car-sharing | 200 |
| Site 3 | Ride-sharing | 200 |
| Site 3 | Ride-services | 200 |
| Site 3 | Ride-share Waiting Lounge | 250 |
| Site 4 | Bike parking | 240 |
| Site 4 | Bike-share Station | 300 |
| Site 4 | Kiss-and-ride | 400 |
| Site 4 | One-way car-sharing | 200 |
| Site 4 | Ride-sharing | 200 |
| Site 4 | Ride-services | 200 |
| Site 4 | Ride-share Waiting Lounge | 250 |
| Site 5 | Bike parking | 240 |
| Site 5 | Bike-share Station | 300 |
| Site 5 | Kiss-and-ride | 400 |
| Site 5 | Ride-sharing | 200 |
| Site 5 | Ride-services | 200 |
| Site 5 | Ride-share Waiting Lounge | 250 |
| Site 6 | Bike parking | 240 |
| Site 6 | Kiss-and-ride | 400 |
| Site 6 | On-Site Trip Chaining Land Uses | 2,000 |
| **Total** | | **11,240** |

**Table 5. Mobility Hub Space Requirements: "Low" Scenario**

| Site | Components | Square Footage Requirements |
|---|---|---|
| Site 1 | Bike parking | 240 |
| Site 1 | Kiss-and-ride | 400 |
| Site 1 | Park-and-pedal amenities | N/A |
| Site 2 | Bike parking | 240 |
| Site 2 | Kiss-and-ride | 400 |
| Site 2 | Ride-sharing | 200 |
| Site 2 | Ride-services | 200 |
| Site 2 | Ride-share Waiting Lounge | 250 |
| Site 3 | Bike parking | 240 |
| Site 3 | Bike-share Station | 300 |
| Site 3 | Kiss-and-ride | 400 |
| Site 3 | One-way car-sharing | 200 |
| Site 3 | Ride-sharing | 200 |
| Site 3 | Ride-services | 200 |
| Site 3 | Ride-share Waiting Lounge | 250 |
| Site 4 | Bike parking | 240 |
| Site 4 | Bike-share Station | 300 |
| Site 4 | Kiss-and-ride | 400 |
| Site 4 | One-way car-sharing | 200 |
| Site 4 | Ride-sharing | 200 |
| Site 4 | Ride-services | 200 |
| Site 4 | Ride-share Waiting Lounge | 250 |
| Site 5 | Bike parking | 240 |
| Site 5 | Bike-share Station | 300 |
| Site 5 | Kiss-and-ride | 400 |
| Site 5 | Ride-sharing | 200 |
| Site 5 | Ride-share Waiting Lounge | 250 |
| Site 6 | Bike parking | 240 |
| Site 6 | Kiss-and-ride | 400 |
| **Total** | | **7,540** |