



May 26, 2023

TO: Planning Commission

FROM: Comprehensive and Neighborhood Planning Committee

SUBJECT: Parking Landscaping and Design Zoning Study

Summary

This memo summarizes the Parking Landscaping and Design Zoning Study, which proposes amendments to Section 63.314, Landscaping, of the Legislative Code, including comments and responses from the Planning Commission Public Hearing. Planning staff is currently reviewing proposed amendments to the *Ford Site Zoning and Public Realm Master Plan* (Master Plan) and Zoning Code associated with a proposed University of Saint Thomas (UST) project in Highland Bridge. This study is intended to ensure all surface parking areas citywide, including the surface parking area proposed as part of the UST development, are subject to high-quality landscaping standards that diminish the impact of auto-oriented space on the environment and pedestrian-oriented places.

Background

Zoning Code [Article III - Section 63.300](#), Off-Street Parking Facility Standards and Design, provides provisions for how parking facilities shall be laid out, constructed, and maintained, including regulations for minimum layout dimensions, maneuvering space, wheel stops, screening, landscaping, lighting, and stormwater runoff. Some sections of this article were amended consistent with the removal of minimum parking requirements per [Ord. 21-27](#), adopted August 18, 2021, and some will likely be amended again as part of the City's 1-4 Unit Housing Study.

[Section 63.314](#), Landscaping, subjects surface parking facilities that adjoin public streets or sidewalks to landscaping and buffer requirements to reduce the visual glare and heat effects of large expanses of pavement and provide areas for and absorption of stormwater runoff. This section addresses landscaping of parking lot perimeters and interiors, as well as screening and tree planting requirements. Parking facilities over 125,000 square feet are required to provide internal walkways in addition to the other

landscaping elements. Section 63.314 also requires that all landscaped areas be compliant with the landscape, species, size, location, spacing, and maintenance standards in Section 63.115, Landscaping and Plant Materials.

Public Hearing Comments and Response

On March 17, 2023, the Planning Commission provided feedback on the proposed Zoning Code text amendments (below) while simultaneously releasing this staff report for public review. On April 28, 2023, the Planning Commission held a Public Hearing on the proposed Zoning Code text amendments. One piece of written testimony was provided in support of the Zoning Study. The testimony included detailed comments and recommendations on the proposed Zoning Code text amendments. City staff reviewed the written comments concurrently with the verbal input received by Planning Commissioners and addressed the feedback in this memo and as part of the revised text amendments proposal (below). Key comments and staff responses are summarized below.

- **Threshold for Internal Walkways.** The proposed Zoning Code text amendments were originally intended to include minimal changes to content of Sec. 63.314, focusing primarily on reorganizing existing standards for clarity. Planning Commission and a community member communicated interest in decreasing the threshold for the size of parking lots required to include internal pedestrian walkways. Upon further research, staff agrees that the threshold should be lowered to 75,000 square feet to provide increased opportunities for improved pedestrian connections through surface parking lots, with no additional distinction for parking lots proximal to transit stations, as reflected in the updated proposed text amendments below.
- **Additional Pedestrian Walkway Standards.** Planning Commission and a community member communicated interest in additional pedestrian walkway standards for design and safety. Based on additional research, staff changed optional provisions related to connections and design to mandatory and improved options for walkway materials and safety, as reflected in the updated proposed text amendments below.
- **Consistency with Legislative Code.** Planning Commission expressed interest in ensuring internal walkways and perimeter landscape provisions were not in conflict. Staff added an exception to the perimeter landscape requirement related to internal walkways to clarify that walkways may interrupt perimeter landscape areas. Planning Commission also communicated interest in additional ADA standards. The proposed Zoning Code text amendments state, “internal sidewalks must meet the requirements of applicable accessibility standards and other design and construction standards adopted by the city.” Staff considers this sufficient and recommends deferring to other City codes for ADA standards to avoid conflicts and/or duplication.

Analysis

The existing provisions in Section 63.314, Landscaping, typically apply to larger, suburban-style parking lots with limited applicability to rear parking areas commonly found as part of incremental urban development. There are two primary challenges with the existing language in Section 63.314, as explained below.

Limited Applicability

The provisions in Section 63.314 apply only to parking facilities that *adjoin* public streets or sidewalks (i.e., parking facilities that are located in the front portion of a lot or on a corner). Incremental urban development is typically defined by buildings that have a strong relationship to the public realm and sidewalk, with accessory auto-oriented space located to the rear or side of buildings. The 2040 *Comprehensive Plan* provides policy direction that supports buildings being placed in the front of lots with parking in the rear, including:

- Policy LU-9. **Promote high-quality urban design that supports pedestrian friendliness** and a healthy environment, **and enhances the public realm.**
- Policy LU-10. **Activate streetscapes with active first-floor uses**, street trees, public art, outdoor commercial uses and other uses **that contribute to a vibrant street life.**
- Policy LU-28. **Support pedestrian-friendly streetscapes** and visual interest through commercial building design.
- Policy LU-30. Focus growth at Neighborhood Nodes [to] **prioritize pedestrian-friendly urban design and infrastructure that emphasizes pedestrian safety.**

The Zoning Code includes several provisions ([Section 66.343](#), Traditional Neighborhood (T) District Design Standards, applicable to T districts) that recommend and/or require buildings to be located in the front portion of a lot with parking in the rear, including:

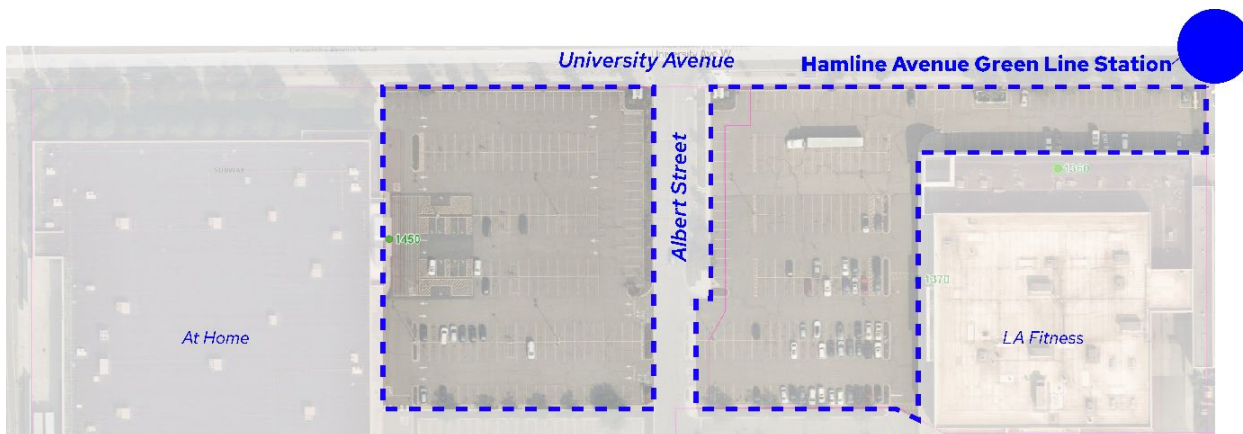
- Section 66.343(b)(5): Use established building facade lines. **New buildings shall relate to the established building facade line** on the block where they are located. On most nonresidential or mixed use blocks, this is the inside edge of the sidewalk. For corner buildings, each facade that fronts a public street shall maintain the established building facade line. Portions of the facade may be set back a greater distance to emphasize entries or create outdoor seating and gathering areas.
- Section 66.343(b)(6): Buildings anchor the corner. **New buildings on corner lots shall be oriented to the corner** and both public streets. On corner lots at light rail transit station platforms, no portion of a structure shall be permitted in the triangular area of the lot included within fifteen (15) feet of the corner along each lot line.
- Section 66.343(b)(18): Parking location and design.

- A. **Off-street parking shall be provided** within a principal structure, underground, or **to the rear of buildings** to the greatest extent possible. Limited side yard parking may be appropriate. Entrance drives and garage doors for underground or structured parking may face the street, except adjacent to light rail transit platforms, but shall be designed for pedestrian convenience and safety.
- B. **Surface parking shall not be located within thirty (30) feet of a corner. Buildings shall be located to emphasize and "anchor" the corner whenever possible.**

Requiring buildings to be placed in the front of a lot with parking to the rear contributes to the maintenance of urban, walkable streetscapes. However, Section 63.314 only applies to parking facilities that *adjoin* the public street or sidewalk, virtually exempting all rear surface parking areas from being required to provide landscaping. The Zoning Code should be internally consistent so that all parking areas of a certain size or scale are subject to high-quality landscaping requirements. By addressing this issue concurrently with the Master Plan amendments application as part of the proposed UST development, the City will ensure that the proposed surface parking lot is also required to provide robust landscaping and screening elements.

Inadequate Pedestrian Connections

In addition to landscaping and screening standards, Section 63.314 includes a standard that requires parking facilities with more than 125,000 square feet of paved area (over 400 parking spaces) to provide internal walkways that divide the parking lot into smaller areas. This requirement ensures large surface parking lots include safe pedestrian connections to onsite buildings and adjacent public sidewalks. Saint Paul, being a predominantly urban area, rarely sees new development with surface parking lots of this size. The existing threshold is too generous to ensure pedestrian connections are adequately provided through surface parking lots. The *2040 Comprehensive Plan* (see below) supports lowering the internal walkways requirement threshold so it applies more frequently in the city. Note: the proposed approximately 330-space surface parking lot as part of the UST development would not be subject to this internal walkway requirement because it does not adjoin a public street or sidewalk.



Example of existing surface parking lots along University Avenue that could have been required to provide internal walkway connections to transit if constructed after the adoption of the proposed Zoning Code text amendment (see below)

Relevant 2040 *Comprehensive Plan* policies include:

- Policy LU-9. Promote high-quality urban design that **supports pedestrian friendliness** and a healthy environment, and enhances the public realm.
- Policy LU-14. **Reduce the amount of land devoted to off-street parking** in order to use land more efficiently, accommodate increases in density on valuable urban land, and **promote the use of transit** and other non-car mobility modes.
- Policy LU-18. **Support facilities outside public rights-of-way to support pedestrian** and bicycling activity, such as **sidewalk access to building entrances**, adequate lighting, trails and bicycle parking/storage.
- Policy LU-30. Focus growth at Neighborhood Nodes [to] **prioritize pedestrian-friendly urban design and infrastructure that emphasizes pedestrian safety.**
- Policy T-10. **Design sidewalks, trails and transit stops for personal safety** (real and perceived), including by providing lighting and boulevards.
- Policy T-22. **Shift mode share towards walking**, biking, public transit, carpooling, ridesharing and carsharing in order to reduce the need for car ownership.

Proposed Zoning Code Text Amendments

The following draft text amendments reorganize Section 63.314 so that all parking lots are subject to interior landscaping and tree planting requirements, and others, that adjoin a public street or sidewalk, are subject to additional standards. The proposed text amendments change the organization and applicability of the standards, with the most substantial amendments related to the internal walkways requirement.

Sec. 63.314. Landscaping.

For any parking facility, other than structured parking, landscaping ~~shall~~must be provided to buffer the facility from adjacent properties and from the public right-of-way; reduce the visual glare and heat effects of large expanses of pavement; and provide areas for the retention and absorption of stormwater runoff. All required yards and any underdeveloped space ~~shall~~must be landscaped using materials such as trees, shrubs, sod, groundcover plants, or stormwater landscaping as required in section 63.319, stormwater runoff, and defined in section 60.213.

Any landscaped area ~~shall~~must be planted and maintained in accordance with section 63.115, Landscaping and plant materials. All parking and loading areas ~~(including drive-through facilities, outdoor auto sales and rental, pump island service areas and stacking spaces) adjoining public streets or sidewalks with more than twenty (20) parking spaces shall~~must provide:

- ~~(a) — Perimeter landscape. A landscaped yard at least four (4) feet wide along the public street or sidewalk. If vehicles overhang the yard, an additional three (3) feet of width shall be provided.~~
- ~~(b) — Screening landscape. In all districts except industrial districts, screening shall be provided consisting of a masonry wall or decorative fence (not including chain link) supplemented with landscape material, forming a screen a minimum of three (3) feet in height, a maximum of four and one-half (4½) feet in height not including trees, and not less than fifty (50) percent opaque.~~
- ~~(c)~~ (a) *Interior landscape.* Parking facilities ~~with more than twenty (20) parking spaces or six thousand (6,000) square feet of paving, whichever is less, shall~~must provide fifteen (15) square feet of interior landscaped area for every one hundred (100) square feet of paving. Interior landscaping may not substitute for perimeter landscaping ~~(if applicable, see below)~~, but may join perimeter landscaping as long as it extends at least four (4) feet into the parking area from the perimeter landscape line.
- ~~(d)~~ (b) *Tree plantings.* A minimum of ~~at least~~ one (1) shade tree ~~shall~~must be planted for every five (5) parking spaces in a surface parking lot. Trees ~~shall~~must be planted within the perimeter landscaping ~~(if applicable, see below)~~ and any required interior landscaping. Each tree ~~shall~~must be planted in landscaped areas or in the center of unpaved tree wells of at least three (3) feet in soil depth and one hundred (100) square feet in area as measured from the interior edge of curbing or paving, with a minimum dimension of four (4) feet wide. A soil volume of greater than five hundred (500) cubic feet per tree with a minimum planting dimension of eight (8) feet is recommended for improved tree health and survival.

- ~~(e) *Internal walkways.* Parking facilities with more than one hundred twenty-five thousand (125,000) square feet of paved area shall provide internal walkways that divide the parking lot into smaller areas no greater than fifty-five thousand (55,000) square feet. Internal walkways shall be a minimum width of four (4) feet and should connect primary buildings on the site with access to parking areas and the public sidewalk system on adjacent streets. With the exception of walkway/driveway crossings, walkways should be separated from vehicle parking or maneuvering areas by grade, different paving material, or landscaping. Internal sidewalks shall meet the requirements of applicable accessibility standards and other design and construction standards adopted by the city.~~

In addition to the above, all parking and loading areas adjoining public streets or sidewalks must provide:

- (c) *Perimeter landscape.* A landscaped yard at least four (4) feet wide along the public street or sidewalk. If vehicles overhang the yard, an additional three (3) feet of width must be provided. Internal walkways may interrupt perimeter landscape areas to connect to the public sidewalk system, if applicable.
- (d) *Screening landscape.* In all districts except industrial districts, screening must be provided consisting of a masonry wall or decorative fence (not including chain link) supplemented with landscape material, forming a screen a minimum of three (3) feet in height, a maximum of four and one-half (4½) feet in height not including trees, and not less than fifty (50) percent opaque.
- (e) *Internal walkways.* Internal walkways must be provided in parking facilities with more than two hundred fifty (250) parking spaces. Walkways must divide the parking lot into smaller areas no greater than one hundred fifty (150) parking spaces. Walkways must be a minimum width of five (5) feet and must connect primary buildings on the site with access to parking areas, the public sidewalk system on adjacent streets, and transit stations, if applicable. With the exception of walkway/driveway crossings, walkways must be separated from vehicle parking or maneuvering areas by grade, low maintenance surface materials such as pavers, bricks, or scored concrete, other markings, weather protection features such as awnings or arcades, and/or landscaping. Internal sidewalks must meet the requirements of applicable accessibility standards and other design and construction standards adopted by the city.

Timeline

- March 1, 2023: Comprehensive and Neighborhood Planning Committee Meeting
- March 15, 2023: Comprehensive and Neighborhood Planning Committee Meeting
- March 17, 2023: Planning Commission Meeting – release for public comment, set public hearing date
- April 28, 2023: Planning Commission Public Hearing
- May 10, 2023: Comprehensive and Neighborhood Planning Committee Meeting - consider public hearing input, revised staff proposal
- May 26, 2023: Planning Commission Meeting - consider public hearing input, Committee recommendation, make recommendation to City Council
- June 21, 2023: City Council First Reading
- June 28, 2023: City Council Second Reading and Public Hearing
- July 12, 2023: City Council Third Reading and Adoption

Requested Action

Comprehensive and Neighborhood Planning Committee recommends that Planning Commission recommends approval of the Zoning Code text amendments to City Council.

Attachments

1. Written Testimony

April 26, 2023

Luis Rangel Morales, Chair, Saint Paul Planning Commission

Comments on Proposed Zoning Text Amendments for surface parking lots

Thank you for initiating these proposed revisions which I support. I do request that the Planning Commission 1) make a few changes to the proposed code as amendments as described below, and 2) initiate a process of more substantial changes to the parking code that I describe on the next page in section 2.

While surface parking is needed for commerce and access, parking lots have many negative impacts. Please a summary of impacts on pages 5-7 of the report New Approaches to Parking Management that is attached in my email to the planning commission.

1. Current proposal – my specific comments

Sec. 63.314. Landscaping.

- (a) **Interior Landscape.** This section should encourage fewer larger planting areas vs many smaller areas. Trees and vegetation do not thrive in small areas and these small tree islands are harder to plow around, often resulting in a greater use of chloride for winter deicing.

This section should prohibit the use of crushed rock and plastic landscape fabric in planted areas. Plastic landscape fabric heaves up out of the ground with the freeze/thaw cycle, it breaks down into fragments of plastic that get into water and air, and it creates areas that look blighted. See photo below of a parking lot on the edge of downtown St. Paul. Crushed rock heats up and retains heat in the sun and does not benefit plants or soil.



- (b) **Tree planting.** The code should require that at least half of the required trees be species native to southern and central Minnesota. Birds and insects have declined dramatically, and they need

native species for food and nesting. Could you require that the property owner replace the required trees when they die?

- (c) **Perimeter landscape.** This section is good. Please also add a requirement for tire stops made of cement or another material and secured in place by or some method rods (so plows don't move them) to prevent cars from encroaching into planted areas.
- (d) **Screening landscape.** This section is good. Again, prohibit crushed rock and plastic landscape cloth.
- (e) **Internal Walkways.**

(e1) These provisions should apply to parking lots much smaller than proposed (125,000 sq feet is approximately 400 parking spaces at 300 sq ft. per space including access lane). Walking through a parking lot is dangerous, especially to people who are mobility impaired. I recommend that any lot with 50 spaces (or approx. 15,000 sq feet) be required to have internal walkways.

(e2) Same comment as (e1).

2. I hope that after the adoption of this proposed round of changes, the Planning Commission will start a phase II parking reform process – following on the important transformational phase I changes that eliminated minimum parking requirements. If/when that occurs, please reduce parking maximums and implement a stormwater credit program similar to what is in place in Minneapolis. As you know, our city still has way too much underutilized off-street surface parking that should be repurposed for housing, new businesses, parks, greenspace, etc. A stormwater credit program, while reducing runoff and surface water pollution, also will hasten this conversion.

Thank you for your work on this current proposal.

Sincerely,

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New Approaches to Parking Management

A guide for Minnesota communities

October 2021



Developed for the GreenStep Cities Program

By Barb Thoman
RETAP transportation consultant

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This GreenStep guide was written by Barb Thoman, RETAP transportation consultant, with significant contributions from Lance Bernard, Hoisington Koegler Group Inc. and Lucy Galbraith, AICP, Metro Transit. The Minnesota Pollution Control Agency funded this work. Photos were taken by Barb Thoman.

Overview

The GreenStep Cities program developed this guide to help municipalities in Minnesota improve the way they regulate and manage on- and off-street parking. The guide will help cities better align their requirements with actual use and changes in how people work, live, shop, and get around. It will help cities identify opportunities for infill development or conversion of underutilized parking to other uses such as public space, farmers markets, community gardens, or art installations. It encourages new thinking about the value of on-street parking at the curb. A companion document, to be developed in 2021, will provide a summary of actions taken by cities in Minnesota and elsewhere to right-size and right-price parking.

A tremendous amount of a city's developed land is devoted to parking for vehicles – both on the street and off. Cities regulate and manage parking through the city code and city policies. For decades, city codes required ample parking and cities subsidized curb and ramp parking so it would appear to be 'free' to drivers.

Today many more cities are changing their approach to parking. Cities recognize that underutilized parking lots contribute to high costs for property owners and high impacts to the environment. Cities feel pressure to better manage curb space which is in higher demand for pick-up and delivery, outdoor dining, and bike lanes and bike parking. With strained budgets for public works departments, many cities are looking to offset some costs by charging for curb space and municipally owned off-street parking.

This guide discusses the reasons cities of all sizes are reexamining their approach to parking. It outlines the benefits of improving the way that parking is regulated and priced. It talks about the importance of surveying parking utilization and provides a checklist to evaluate a city's parking code. Finally, it outlines a step-by-step process for making improvements, provides estimated costs for consulting help, and lists resources. Updated parking policies, regulation, and management contribute to economically vibrant, sustainable, and equitable cities.

A short history of parking requirements

Richard Willson, in his book, *Parking Reform Made Easy*, provides some history on the origin of parking requirements. Columbus, Ohio was the first city to adopt parking requirements. The year was 1923. After WWII, parking requirements became widespread due to increasing suburbanization and auto ownership. By 1972, nearly all cities surveyed by the Eno Foundation had adopted parking requirements.¹

LAND USED FOR PARKING



It's estimated that there are 3.4 parking spaces for every vehicle. There were nearly 4.8 million cars, SUVs, and pick-up trucks registered in Minnesota in 2019. This would equate to 16 million parking spaces or roughly 153 sq miles of land in the state devoted to parking – an area even larger than Rochester, Minneapolis, and St. Cloud combined.

Cities establish requirements for off-street parking in their zoning code. Codes specify how many parking spaces are required for different land uses. For example, one parking stall per hotel room, for each table at a restaurant, or per square foot of floor area. Typically, codes also specify where parking must be located on a site and how parking areas should be designed.

Many cities developed their requirements from guidance in a manual published by the Institute for Transportation Engineers. Some cities adapted their requirements from other municipalities. Both ways of setting parking requirements – using national ratios and copying from other cities - have been subject to significant criticism. Sample sizes were small and local data, expertise, and context was often lacking. National parking expert Donald Shoup states that, “The belief that minimum parking requirements are based on rational city planning resembles the belief that the world is flat and balanced on the back of a giant turtle.”²

Most cities can plainly see from the high number of partially used surface parking lots that their code requires too much parking. A lack of explicit charges for parking contributes to excessive or possibly unnecessary driving and traffic congestion. Too little parking or poorly managed parking can result in vehicles cruising for a parking space, illegally parking on adjacent properties, or lost business.

Actively managing on-street parking is good for business

Demand for curb space has increased dramatically due to the proliferation of door-to-door pick-up and delivery services, ride hailing, growing demand from restaurants for outdoor dining, and space needs for bicycle and scooter parking. In downtowns and commercial corridors, new uses compete with drivers who typically prefer curb parking to parking in a ramp or garage. Employers still need to provide incentives for employees to leave high use curb space for customers.

Overall, management of parking at the curb has become more complex and demanding. When actively managed, on-street parking can be a boon for business – ensuring access and turnover and keeping roads free of vehicles cruising for parking. Customer cars parked at the curb provide a buffer for pedestrians, making the sidewalk safer for walkers and other uses. Well-managed curb parking can reduce the need to build off-street parking.

In high demand commercial areas, metered parking is becoming more common. Today’s parking technology can automatically modify parking rates by day of the week, time of day, or real-time demand. While technology allows for remote payment, a cash option for people without credit cards or smart phones will still be needed. A rule of thumb suggests setting meter rates such that 15 percent of spaces, or one in every eight spaces, will be open at any one time.³ Evidence indicates that shoppers will pay a little more at the meter for assurance of finding an open space.

INCREASED DEMAND FOR CURB PARKING



New parking management technology helps cities manage high demand for curb space.

Parking is expensive and people who don't use it still pay

In the United States, most parking for vehicles is provided at no cost to the user, but that doesn't mean that the costs are insignificant. The book *Shared Parking* estimates that constructing off-street parking ranges from \$3,500 per stall in a surface lot to \$50,000 per stall for an underground garage. Annual operating costs range from \$45 per month to \$550 per month per stall.⁴ By contrast, someone arriving on bicycle needs only one-tenth the space to park a bike.

'Free' parking is subsidized parking and there is a growing recognition that providing, maintaining, and operating parking increases the cost of everything from hardware to health care. 'Free' parking is often not equitable. The cost of providing 'free' parking is paid indirectly by everyone. Customers who arrive at a restaurant, the doctor, or the pharmacy on foot, bicycle, or public transit are still paying for parking even though they don't use it or need less of it.

Since transit riders and people who walk for transportation often have lower incomes, providing 'free' parking for drivers can be a cost to people who can least afford it. For low-income people for whom driving is a necessity, there will continue to be a need for subsidized and affordable parking. Cities shifting to more paid parking may want to consider low-cost parking options for low-income users or low wage workers.

The impacts of parking lots and the benefits of 'right-sizing'

This section discusses reasons to re-thinking parking policies and requirements and the benefits that can result.

City revenues

How much parking a city requires or allows can greatly affect its finances. In some cities, revenue from on-street parking fees, in lieu fees, or parking facility charges are an important revenue stream. When a city's code requires ample parking, buildings will be smaller and parking lots will be bigger, resulting in less property tax revenue. Parking lots for non-profit organizations provide the city no revenue and municipal lots offering 'free parking' have an opportunity cost.

Business creation; retention of historic structures

Getting parking right is essential to a healthy business climate and to access within a city. Too little parking can

LOST TAX REVENUE

Three houses on Holly Avenue in Saint Paul pay property taxes that contributes to city and county services including schools, parks, and road repair. Across the street on a similar sized parcel of land, sits a church-owned parking lot that is used infrequently.



Three houses on Portland Avenue in Saint Paul generate approximately \$28,000 annually in property tax revenue.



Church parking lot across the street from the three houses in photo above. While appreciated by parishioners, the parking lot generates runoff, heat, and no revenue for the city.

be a barrier to business creation and retention; but too much required parking can be a barrier to the creation, expansion, and operation of small businesses.⁵ This is especially true in older areas that lack the land or affordable sites for parking. In many cities, usable and historic buildings have been demolished to make way for parking lots which can reduce the appeal and economic vitality of commercial areas.

The cost of housing

Building and maintaining parking whether in a lot, a ramp, or underground is expensive. The more parking a housing developer is required to build, the higher will be the purchase price of a unit or the monthly rent. Studies have shown that the cost of structured parking can add \$140 per month or \$1,700 annually to a renter's household costs; comprising 17% of monthly rent.⁶ More broadly, the amount of parking required can directly or indirectly prevent the construction of affordable housing.⁷ Cities are beginning to reduce or eliminate parking requirements for multi-family housing. Seattle is now requiring that tenant parking be rented separately from a housing unit in buildings of ten units or more⁸. This is referred to as unbundling. These practices save money for tenants without a car while tenants with a vehicle will pay an amount closer to the true cost.

Stormwater runoff

A surprising amount of water runs off a parking lot after a rain or when snow melts. In an average year in Minnesota, precipitation on one surface parking stall can generate as much as 5,600 gallons of water.⁹ Climate change is increasing precipitation across much of Minnesota and heavy rain events that result in flooding are happening more often.

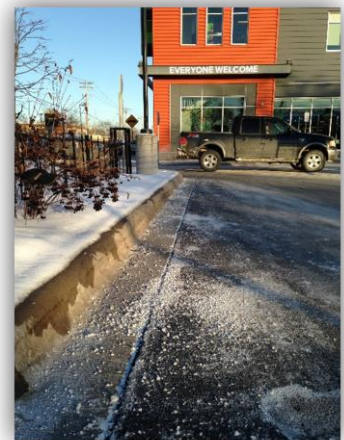
In the winter and early spring, parking lot run-off is typically laden with chloride used for deicing. Chloride permanently pollutes rivers, lakes, and groundwater. Permeable pavement can direct stormwater to groundwater rather than surface water but won't reduce chloride impacts.

In the summer, parking lot pavement can be super-heated. When it rains on hot pavement the warm run-off elevates temperatures in receiving lakes, streams, and rivers. Aquatic life can be injured or killed by water that is too warm. Warmer water can also change the type and abundance of plants and animals in Minnesota's lakes and rivers.¹⁰

Urban heat island effect

On hot sunny days, the surface temperature of parking lots (and roads) can be 50°F to 90°F warmer than the air. Impervious surfaces, including parking lots, increase the air temperature in the daytime and the nighttime at both a neighborhood and municipal level.¹¹ A research study from the University of Minnesota found that "some parts of the Twin Cities can spike temperatures up to 9°F higher than surrounding communities as a result of the 'urban heat island' effect."¹² Higher summer temperatures increase air pollution, health risks, and energy use. Five to 10 percent of community-wide demand for energy is used to compensate for the heat island effect.¹³ Replacing underutilized parking spaces with

WARM, SALTY STORMWATER



Grocery store parking lot in Minneapolis.

Deicing salts on parking lots pollute water, soils, and damage property. Often more parking means more pollution.

development topped by solar panels or by vegetation can reduce temperatures by using or deflecting the sun's radiation and releasing moisture into the air.

Degradation of the pedestrian environment

Parking lots sandwiched between buildings or located in front of buildings detract from the vibrancy of a city street. Lots can be impediments to pedestrians – providing no shelter from wind or sun and increasing the time and distance to get to destinations. Parking facilities can be perceived as unsafe by pedestrians as they provide few 'eyes on the street.' Cities are being more prescriptive about the design of parking – limiting where it can be placed in relationship to a building or building entrance, requiring dedicated walkways through parking lots, installation and maintenance of vegetation and fencing, and on-site stormwater management.

Parking requirements and 'free' parking contribute to driving

When parking is readily available and provided at no cost to the driver, it makes driving and parking more likely. 'Free' parking disadvantages other modes of transportation – often the modes that lower-income people or people with a mobility-impairment need the most. Incentivizing driving through abundant or subsidized parking, contributes to air pollution, traffic, and noise – which negatively effects walking and community livability. Many big city downtowns don't have parking requirements and workers and shoppers typically pay closer to market prices. In these places, people are more likely to choose public transit, carpooling, walking, bicycling, or scooters.

Steps to evaluate and update a city's parking practices and policies

This section outlines steps a city can take to update and modernize the way it regulates and manages vehicle parking. How much parking to require and/or allow and the 'right' price for that parking will be unique to each city. Parking needs vary by land use type and differ within zoning areas/districts. A city's topography, ease of access by various modes of transportation, and land use types, will all influence the amount of parking to require, prohibit, and how it should be priced.

Cities can revise parking requirements to incentivize opportunities for infill development (new businesses or housing) or conversion of underutilized parking to public space, farmers markets, community gardens, art space, and other desired uses. Many small cities with low parking demand will likely continue 'free' curb and off-street municipal parking. Nevertheless, there is value in actively managing city-owned parking.

Updating parking requirements may not be without controversy but the benefits will be significant. Most drivers are accustomed to ample and seemingly 'free' parking nearly everywhere they go – so a city will need to approach parking reform like any other potentially controversial effort the city would undertake. The support

MANAGING DEMAND

Cities are more actively managing curb parking because of high demand.



Lake City manages curb parking along Highway 61 to ensure access and turnover for short-term users.

of key staff, city council members, the business community, and residents will be key. A robust and equitable public engagement effort should be a part of any plan. Briefly, here are the steps the experts recommend.

Step 1. Undertake a utilization survey and ‘count the cars’

Most cities start the process of updating municipal parking requirements and practices by accessing how much parking is available and how much is being used. Locally derived data is essential. While the perception may be that parking is hard to find, usage surveys often reveal that parking is available for most land use types even during high demand periods.

A parking survey must consider utilization during different times of the day, week, and year. Determine how usage rates vary for different land use types in general and as specified by category in your code. Note locations where on-street parking or ramp parking, if it’s available, is used to handle regular or overflow parking. A city should note usage during special events or usage for winter snow storage.

A review of parking use in a small area or district can be accomplished by city staff or with interns using sound methodology. A more in-depth analysis will be needed for a larger area, or an area with more complex and varied on-street requirements. Keep in mind that societal changes, such as the pandemic, may impact parking demand and use for specific land use types for some time to come.

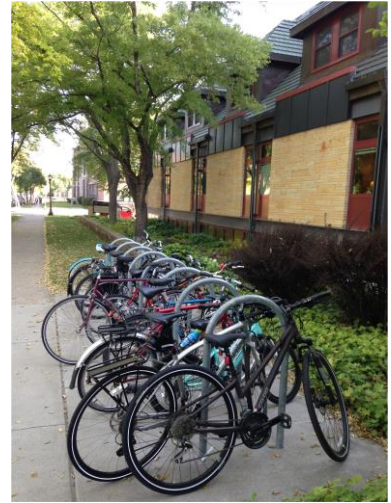
Step 2. Review the parking sections of your city code with this sample checklist

Parking requirements are typically found in a city’s zoning code; often in more than one section. A city should not rely on ratios developed by national publications or other cities. Take time to thoroughly review the code and consider these questions:

- a) Has the parking code been updated in the past five years and what feedback have you been given by developers or local property owners about the current requirements?
- b) How many categories of land uses are identified in the code? If a city plans to retain minimum parking requirements (both Minneapolis and Saint Paul eliminated minimums in 2021), then the code should differentiate among land use types (housing, commercial, retail) and uses within each (library, veterinary clinic, grocery store, elementary school, etc.) but should not be overly complex.
- c) Does the city have areas without minimum parking requirements such as the downtown or small-scale neighborhood retail areas? In many downtowns, municipal or private sector ramps and lots provide necessary parking. Some cities exempt older retail areas or the first few thousand square feet of building floor area to retain community character and prevent the loss of older or historic structures.
- d) Does the zoning code consider the availability of on-street (curb) parking in its requirements for off-street parking? In small towns, older suburbs, and urban neighborhoods, on-street parking can substitute for much and sometimes all, of the parking needed to support business and reduce vehicle cruising. With time limits, enforcement, and/or parking charges, curb parking can be managed to ensure that there are always one or two open parking spaces.
- e) Are there maximums, or a cap, on the number of off-street spaces or is a variance required for proposed parking over the minimum? Maximums help to reduce the oversupply of parking and have the benefits described in the impacts section of this report.

- f) Are there incentives (density bonuses) for affordable housing or reduced parking requirements for actions that might incentivize travel without the need for vehicle parking?
- g) Is bicycle parking required for tenants, visitors, and customers? The code should require indoor bicycle storage for tenants and exterior parking for customers or visitors in a secure enclosure or rack (not a rack that only secures a front wheel). Placement should be in a visible and accessible location to reduce theft and increase user safety.
- h) Does the code identify placement of parking relative to the building to maintain an appealing street frontage and to ensure safe pedestrian access? Are multiple curb cuts discouraged to improve traffic safety especially for bicyclists and pedestrian?
- i) Does the city allow and encourage shared parking? Is a developer or tenant allowed to reduce the amount of parking it provides if it can document shared parking with a nearby property or within a district? Consultants can help businesses and cities develop shared parking agreements.
- j) Is remote parking and shuttle service feasible for major events, festivals, etc.? Shuttle service can reduce the need to require large amounts of off-street parking for occasional uses. Ideally, cities should require event spaces to be located on transit lines/routes or in locations where walking or bicycling can accommodate a portion of trips. (Location is also important for major facilities such as medical centers, schools, etc. so that a portion of trips can be accommodated without driving and parking).
- k) Does the city require a Travel Demand Management Plan (TDM) for developments over a certain size? TDM plans outline strategies developers or property managers will use (shared vehicle on site, bike parking, transit pass included with rental agreement) to reduce the need for vehicle access and to reduce parking demand. The code can make these plans enforceable.
- l) Does the city regulate each specific land use separately or does it have form-based codes that regulate the public space? See Step 6 for more information.
- m) Is the minimum requirement tailored to the ease of walking and bicycling and transit access?
- n) Does the code require, make provisions for, or provide incentives for electric vehicle charging?

REQUIRING BICYCLE PARKING



More cities are requiring development to include secure parking for bicycles.

Step 3. Decide to act and then develop a plan with a budget and a timeline

When it's time to change how your city regulates and manages parking, put together a plan for this effort. The plan should outline your key goals, action steps including robust public engagement, and a budget and timeline. The more extensive the revisions, the longer the project will take, and the more staff time will be required. You will need the support of key city staff (planning, public works, economic development) and elected leaders. The involvement and support of the business community will be essential. Consider whether you have the resources to hire assistance from a firm with expertise in parking planning and management. See page 12 of this guide for information on consulting help.

Step 4. Evaluate your code and practices in light of survey data

There is not a formula to determine the ‘right’ amount of parking for each land use type. This is why some cities have eliminated minimums and are letting developers determine how much parking to provide. If a city is revising its minimum and maximum requirements, it will want to review each type of land use in the code. Cities typically create a spreadsheet to make these comparisons identifying:

- Your city’s current code requirements
- Suggested baseline data from national publications
- Code requirements from a few peer cities that have updated requirements in recent years
- Information from your parking utilization survey
- Note differences by zone (such as downtown, mixed-use walkable, suburban low-density no sidewalk)

PROACTIVE STAKEHOLDER INVOLVEMENT



People have strong opinions about parking so planning for public involvement should be a high priority.

Publications that are used by cities and consultants to develop initial baseline estimates of parking requirements are *Parking Reform Made Easy* by Richard Willson (2013) and *Shared Parking* from the Urban Land Institute (2020). Each document provides a step-by-step process for developing/revising parking requirements. Both publications call for comparing current requirements with national estimates, comparing this to local survey data, and then adjusting for estimated trips by bike/walk/transit and goals in local planning documents.

Step 5. Adjust parking requirements/practices in light of city plans

A city’s parking requirements and parking practice should be aspirational and forward thinking. If more parking is required than will be needed, the impacts will be felt for decades to come. When updating city parking requirements or management practices, consider your city’s long-range plans for development and transportation. Reduce required ratios if your plans call for, or expect, more walking, bicycling, carpooling, ridesharing, autonomous shared vehicles, transit ridership, or remote event parking or shuttle service. Goals in city planning documents are as important as how much parking is being used in the community today.

Don’t forget to examine city public works, economic development, and police department budgets to determine how much your community may be subsidizing parking. This information will help to make the case for change. Could curb parking or parking meters in high-use areas help to offset some of these costs and level the playing field for all modes of travel?

Step 6. Consider district-wide parking approaches vs. regulating each land use separately

A district-wide parking approach uses a combination of strategies to take full advantage of the existing parking supply, while reducing the demand to build additional spaces. This approach is commonly applied in downtown settings, redevelopment areas, and commercial corridors to encourage walkability, foster economic growth, and strengthen the urban environment. Examples are described in the table on the following page.

District wide parking approaches

Downtown Development Authority (DDA)	A typical downtown development authority oversees infrastructure projects, including parking facilities, roadway projects and physical buildings. An authority's primary goals are to increase the quality of life for residents and businesses through economic and physical revitalization of a downtown.
Enterprise Funds	A city can set up an enterprise fund to manage the physical assets and finances for parking facilities, meters, and payments in lieu of parking. Keeping parking costs separate from general revenues helps increase transparency and helps a city better manage its parking resources. Collected revenues can be used to maintain and manage the city's parking supply or can be used for other city priorities.
Parking Benefit Districts (PBDs)	Some US cities have established PBD's to allow a portion of parking meter revenue to be used within the district where it is collected. City code or policy can identify eligible expenditures for PBD funds – examples include sidewalk repair, façade improvements, street trees, seating, lighting, installation of parking technology, and public art. PBDs are typically implemented in busy commercial areas or tourist areas. Often a local business association or neighborhood association helps to determine how the revenue is spent.
Improvement Districts	Improvement districts are formal/legal partnerships among municipal departments, local organizations, private developers, and businesses. They are established to ensure a high-quality customer experience within a specific geographic area. Parking management – including signage, parking rates, merchant ticket validation, and parking education/information – can be one function of an improvement district. Parking revenue can contribute to a district's budget.
Public-Private Partnerships	These partnerships are created to maximize the sharing of parking spaces within a specific geographic area. Revenues can be generated through developer payments, user fees, charges for common area maintenance, or payment in lieu of providing parking spaces required by a zoning ordinance.
Intermittent or seasonal events	Sometimes high parking demand is tied to a season or to occasional events such as summer concerts, art fairs, sports leagues, etc. Rather than building parking that will be empty much of the time, consider using available on-street parking, shared parking arrangements, or remote or shuttle parking.

IMPROVEMENT DISTRICTS

The City of Red Wing provides and manages public parking behind the buildings in its historic business district to prevent building demolition for parking lots on its main streets.



The commercial district along Highway 61 through downtown Red Wing retains its historic character.



The city provides parking behind the buildings along the main streets in downtown Red Wing.

Getting help

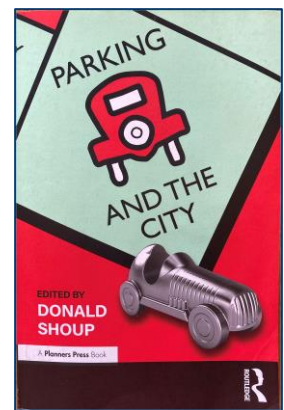
In most cities, staff expertise about parking is uncommon, which is one reason the GreenStep Cities program developed this guide. City planners are trained in only a general way about parking through their professional certifications. Consulting firms in Minnesota and nationally have expertise in parking analysis, planning, and management. Some consultants can help a city evaluate the cost-effectiveness of installing state-of-the-art parking meters.

The cost of a consulting contract for a district-wide parking evaluation will depend on the size of the study (e.g., neighborhood plan, downtown plan, or citywide) and the level of education/engagement that is needed to do the plan. Recent studies in the Minneapolis/St Paul metro area have range from \$20,000 to \$100,000. The level-of-effort will also vary depending on the amount of contracted public engagement and stakeholder outreach that is undertaken.

There are a good number of helpful publications about parking including:

- *Shared Parking*, Third Edition (2020). Book by the Urban Land Institute, 209 pages. Approximate cost \$160.
- *Parking and the City*, (2018). Book edited by Donald Shoup, 513 pages. Approximate cost \$60.
- *Parking Reform Made Easy*, (2013). Book by Richard W. Willson, 244 pages. Approximate cost \$40.
- Publications from the American Planning Association can be accessed by members. <https://www.planning.org/search/?keyword=parking>
- Reports and web information from the Victoria Transport Policy Institute. https://www.vtpi.org/park_man.pdf
- Web resources for cities from the Oregon Department of Land Conservation and Development and the Oregon Department of Transportation. <https://www.oregon.gov/lcd/tgm/pages/parking.aspx>
- The GreenStep Cities program is developing a document summarizing best-practice examples from cities in Minnesota and elsewhere.
- University of Minnesota Design Center has resources on parking ramp design for flexible reuse.
- Parking Reform Network. <https://parkingreform.org/resources/library/>

RESOURCES



Shoup's books have been highly influential in changing how cities think about parking.

Conclusions

Most American cities have ample 'free' parking, so this is what drivers expect. Few people are aware of the damaging impacts of current practices. Like many planning efforts, changing parking requirements will be controversial and will require transparency, strong leadership, and clear compelling plans. A successful effort to modernize a city's approach to parking will produce benefits – for business, for housing affordability, for natural resources, and for climate adaptation. There are a great many resources available. It's time to get started!

Endnotes

- ¹ Richard W. Willson, *Parking Reform Made Easy* (Island Press, 2013), page 11.
- ² Donald Shoup, *Parking and the City* (Routledge, 2018), page 71.
- ³ Donald Shoup, *The High Cost of Free Parking* (Planners Press, American Planning Association, 2004), pages 297-307.
- ⁴ *Shared Parking, Third Edition*, (Urban Land Institute, ICSC, National Parking Association, 2020), page 1.
- ⁵ Willson, page 41.
- ⁶ C.J. Gabbe and Greg Pierce, *The Hidden Cost of Bundled Parking*, Access magazine, University of California Los Angeles, Spring 2017, also reprinted in *Parking and the City*, page 155.
- ⁷ Willson, pages 117-121.
- ⁸ Streetsblog <https://usa.streetsblog.org/2018/04/03/landlords-in-seattle-cant-force-renters-to-pay-for-parking-anymore/>
- ⁹ Mike Trojan, Minnesota Pollution Control Agency, Stormwater section. Calculations contained in an email to Barb Thoman received in October 2019. The calculations were made using the Minimal Impact Design Standards (MIDS) calculator.
- ¹⁰ Barb Thoman conversation with Donna Perleberg, Minnesota DNR, on July 28, 2020.
- ¹¹ US Environmental Protection Agency, Urban Heat Island, <https://www.epa.gov/heat-islands/heat-island-impacts>
- ¹² University of Minnesota, on-line summary of an article in the Journal of Applied Meteorology and Climatology, September 2015, <https://twin-cities.umn.edu/new-urban-heat-island-study-shows-surprising-variation-air-temperatures-across-twin-cities>
- ¹³ US EPA website on Heat Island Impacts, www.epa.gov/heat-islands/heat-island-impacts

Calculations

Page 3 photo text calculations. Mikail Chester, Arpad Horvath, Samer Madanat, *Parking Infrastructure and the Environment*, Access, University of California, Fall 2011 (for parking space per vehicle estimate). Minnesota Department of Public Safety, MnLARS Motor Vehicle Annual County Report for 2019 (for estimate of number of vehicles in Minnesota). Donald Shoup, *Parking and the City*, page 81, for size estimate of average parking space with access isles at 330 sq ft each.