



To: Loudoun County Zoning Ordinance Committee (ZOC)
(through Chris Mohn and Rory Toth, Loudoun County Department of Planning and Zoning)

From: Chris Gay and Jackie Seneschal, WSP

Date: November 20, 2020

Re: Updated Zoning Ordinance Parking Section Structure

INTRODUCTION

This memorandum presents WSP's recommended structure for an updated parking section in Loudoun County's Revised 1993 Zoning Ordinance (Zoning Ordinance). This represents our draft primary deliverable for Subtask 1 in our scope of work. This recommended structure is based upon our review of the Section 5-1100, Section 5-600 and other relevant sections of the Zoning Ordinance that contain parking-related regulations, review of the 2019 General Plan (2019 GP), feedback received from the focus group meeting dated August 24, 2020, feedback received on our parking update objectives memorandum, a conference call with County staff on September 23, 2020, a follow-up conference call with County staff on November 12, 2020 and an assessment of best practices elsewhere.

The recommended structure is presented in outline format with notes shown in *italics* to describe what we envision for the content of each section. Here are some general observations to consider when reviewing this outline:

- This outline is intended to guide subsequent research and recommendations regarding parking standards in Section 5-1100 and consolidation of parking standards located throughout other sections of the Zoning Ordinance and administrative processes related to parking. As this research proceeds and further feedback is obtained from staff and the ZOC, the outline presented herein may evolve further.
- Parking design standards and requirements in Loudoun County currently found in Section 4.400 of the County's Facilities Standards Manual (FSM) will continue to be located in the FSM and will not be included in the updated Zoning Ordinance. However, it is understood that the parking design standards and other parking-related items located in the FSM may need to be updated as a separate effort as a result of revisions to the Zoning Ordinance. These updates would be part of a Development Ordinance Amendment (DOAM).
- The 2019 GP includes specification of parking types (e.g., structured, surface, on-street, etc.) based upon Place Types. Rather than formally acknowledging this guidance in the updated ordinance, we propose to include a reference to consistency with the 2019 GP in the purpose and intent statement of the parking section.



RECOMMENDED PARKING SECTION STRUCTURE

5-1100 Off-Street Parking and Loading Requirements

5-1101 Purpose and Intent

This section would state the purpose and intent of this section of the ordinance. This is an opportunity to state the County's objectives and reasoning behind the parking section regulations. For example, a statement that this section is consistent with and supports the 2019 GP should be included. A sample from Albemarle County is shown below (we would recommend developing a similar statement for Loudoun County):

“These parking, stacking and loading regulations establish minimum standards applicable to new uses, structures or parking areas, or redeveloped sites, for the purposes of: (1) maximizing the safety and functionality of parking areas; (2) providing parking and loading facilities in a reasonable proportion to one or more use's needs; (3) reducing minimum parking requirements to coincide with common usage rather than peak usage; (4) minimizing the visual and environmental impacts of parking areas on adjacent lands; and (5) supporting mass transit opportunities. These regulations also encourage the application of transportation demand management strategies and allow flexibility in design to reduce traffic congestion and the amount of land that must be devoted to parking for commercial, industrial and public facility uses.” (from Section 4.12.1 Albemarle County Code)

5-1102 Applicability

Subsections (A) and (B) below would contain the same wording as Section 5-1101 (A) and Section 5-1101 (B) of the current ordinance.

(A) General Requirement

(B) Addition or Change in Use

5-1103 Compliance Required

Subsections (A) and (B) below would contain the same wording as Section 5-1101 (C) and Section 5-1101 (D) of the current ordinance. Subsection (C) would be a new subsection.

(A) Review of Parking and Loading Facilities Plan

(B) Reduction of Parking

(C) Exceptions

This subsection would be added, if needed, to account for special circumstances in which the provisions of Section 5-1101 would not apply, such as grandfathered properties or historic places.



5-1104 Number of Parking and Loading Spaces Required

(A) Standards for Computation

This subsection will be similar to Section 5-1102 (A) under the current zoning ordinance, except it will be updated to include the independent variables that are used to calculate parking requirements. For example, parking rates are generally stated as a ratio of x spaces per y units, with the unit being the most statistically valid independent variable for that particular land use. Loudoun County's current ordinance requires a multitude of independent variables for the many different land uses. In several cases, it requires multiple independent variables for the same land use. Not all of the independent variables are necessarily easy to quantify and may not be appropriate for that use. For example, the educational land use requirement has an independent variable of "students over driving age". This is a number that would be hard to determine with accuracy and would fluctuate over time. It may also make sense to identify new independent variables for some land uses, such as gross leasable area instead of gross floor area for shopping center uses, as an example.

This subsection would also consolidate any additional rules for computing parking requirements, such as those currently contained in Section 5-1102 (C).

(B) Use Groups

This subsection will provide descriptions of the uses and use groups for which parking rates will be defined. The uses and use groups will conform to the use table under development for the larger zoning ordinance update. The format for this section would be the similar in format to Section 5-1102 (B) in the current zoning ordinance, which defines specific uses under each use group.

(C) Parking Requirements by Use and Zoning District

This subsection will present updated parking rates according to use or use group and zoning district. Zoning districts will be consolidated to align with the 2019 GP place types in the updated ordinance. The objective of this subsection will be to delineate updated parking rates that are sensitive to the needs and goals of the 2019 GP policy areas and place types. For example, parking rates for the same uses may vary by zoning district. This relationship of uses to zoning districts, in the context of how the parking rates will be delineated, is shown in Table 1.

As this update process moves forward, it will be determined how best to present the updated parking rates. This will likely depend on how much parking rates for uses are projected to vary based on zoning district. If there is a lot a variation for certain uses, then a matrix format may be appropriate. On the other hand, if there is not a lot of variation for certain uses, a simple tabular format, noting any exceptions for a small number of districts, may be used.



Table 1. Example Matrix of Uses to Zoning Districts Parking Rate Table

	ZONING DISTRICTS							
	Urban Policy Area		Suburban Policy Area		Transition Policy Area		Etc.	
	District "A"	District "B"	District "A"	District "B"	District "A"	District "B"		
USES								
<u>Residential</u>								
Single Family								
Multifamily								
etc.								
<u>Retail</u>								
Convenience								
Hard Goods								
etc.								
<u>Office</u>								
General								
Financial								
Etc.								

(D) Loading Requirements by Use and Zoning District

A loading requirements section similar to the previous subsection showing parking requirements will be provided but will not be as extensive given some uses do not require loading spaces. Also, loading space requirements for particular land use(s) will likely not vary according to zoning district.

(E) Bicycle Parking Requirements by Use and Zoning District

Similar to subsection (C) showing parking requirements but may not need to be tabular or as involved.

(F) Motorcycle/Scooter Parking Requirements by Use and Zoning District

Similar to subsection (C) showing parking requirements but may not need to be tabular or as involved.

5-1105 Zoning District-Specific Parking Requirements

This section would be where we consolidate any parking-related requirements that are currently located outside of Section 5-1100 in the current ordinance but cannot be included in the new Section 5-1104 described above. This section would also allow flexibility for the County to incorporate additional district-specific parking requirements that may be identified in the future by adding them into this section. The ultimate objective is to have all parking-related requirements located within one section of the updated ordinance,



5-1106 Administrative Adjustments to Parking Requirements

This section would describe the administrative procedures for adjusting, or seeking waivers from, the parking standards defined above in Section 5-1104 (C). It would also include the guidelines and criteria that should be used to support such requests.

This section would roll-in and include the administrative adjustments to parking requirements subsection currently in Section 5-1102 (F), and would be expanded to include criteria for administrative adjustments related to current best practices, alternative transportation availability, shared parking, availability of public parking, availability of on-street parking, captive market and car-share spaces.



To: Chris Mohn, Rory Toth and Marie Genovese, Loudoun County
From: Chris Gay, WSP
Date: August 17, 2020
Re: Parking Section Framework – Best Practices Research

INTRODUCTION

This memorandum presents the results of a review of best practices in context-sensitive parking regulations. Such regulations are based on place types and development patterns instead of conventional parking requirements predicated solely on land use. The objective of this effort was to identify parking frameworks that Loudoun County could consider when drafting specialized parking regulations to policy areas and place types as defined in the *Loudoun County 2019 General Plan (2019 GP)*.

The 2019 GP calls for a planning approach that promotes pedestrian and transit-oriented development in urban areas, preserves the rural character of the western 2/3 of the County, provides quality development, protects the County's growing economic and cultural diversity, practices good infill and redevelopment methods, improves infrastructure, and addresses housing affordability. The 2019 GP identifies five policy areas:

- Urban
- Suburban
- Transition
- Rural
- Joint Land Management Areas

These policy areas have their own unique development policies and preferred development patterns (referred to as *place types*). Each policy area is disaggregated into unique place types, which entail land use types, preferred development patterns, streetscapes, landscaping, and design features to make places and environments visually distinctive and functional. Each policy area and their place types provide critical insight to support specialized development standards within the zoning ordinance.

Given the range of policy areas and place types in the 2019 GP, the parking section of the updated ordinance will need to be re-structured to better provide context-sensitive parking supply and design guidance to support ongoing and future implementation of the 2019 GP. Accordingly, the WSP team performed a review of best practices across the country to identify case studies that may inform this update effort.

CASE STUDIES

Portland, OR

The City of Portland, OR uses a parking approach for different development patterns. The City utilizes parking minimums, maximums, and reductions to effectively park different development styles. Instead of a one-size-fits-all parking approach that assigns required parking by use, Portland incorporates standards in concert with zoning districts and uses. Parking maximums are most noted for areas that are zoned for more intense development or are easily reached by alternative modes of transportation. These areas have lower maximums than areas where less intense development is anticipated or where transit service is less frequent. Higher maximums are appropriate in areas that are more than a 1/4 mile walk from a frequently served bus stop or more than a 1/2 mile walk from a frequently served transit station.



Portland also assigns special transit street designations in its transportation plan to accommodate better context-sensitive development. Transit streets have bus, streetcar, or light rail routes in their rights-of-way, with frequent peak hour transit service. There is no minimum parking requirement for sites located within 500 feet of a transit street with frequent service. Developers may also reduce parking requirements by providing a transit plaza if the site is located on a transit street. The plaza must be at least 300 square feet, landscaped, and provide a shelter and sitting area.

Additionally, Portland further classifies parking in particular situations, which are subject to a review process. The City identifies growth parking and preservation parking to help account for the differences between parking for existing and new buildings. Growth parking is associated with all new non-residential development. Developers may build parking up to the set parking maximums. Most parking demands are met through growth parking. On the other hand, preservation parking is associated with existing non-residential development. This category is intended to augment parking needs for uses that did not provide enough parking at the time the development was built. Such parking is subject to review where the developer must present documentation of their parking proposal.

Seattle, WA

The City of Seattle, WA utilizes a hybrid parking approach. The City requires parking minimums according to use in most parts of the City except for select zoning districts. For instance, in highly urbanized zoning districts, Seattle requires no minimum parking for non-residential uses. Developments outside of these select zones have required parking minimums that align with traditional parking practices where each use has a specific parking ratio (e.g., medical services – 1 space per 500 sf). Also, Seattle uses parking maximums to help promote walkability and encourage multiple transportation mode usage. Most notably, no more than 145 spaces per surface parking lot or flexible use parking are permitted in all commercial zones. To further increase the City’s goal to provide pedestrian-friendly development patterns, the City also applies parking waivers that reduce required parking. These parking reductions apply to all non-residential uses except for drive-thru restaurants, theaters, offices, and institutions (see table below).

Table 1. Seattle Parking Zones

Zone Type	Reduction for Non-Residential Use
Commercial	No parking required for the first 1,500 sf
Pedestrian-Designated Areas	No parking required for the first 1,500 sf
Other Zones	No parking required for the first 2,500 sf

Fort Worth, TX

The City of Fort Worth, TX uses a traditional parking code in most parts of the City, except for select areas. Fort Worth identifies a specific area – Camp Bowie Boulevard – that uses special development regulations, including parking requirements. The Camp Bowie area ties parking ratios to development patterns. Certain areas of Camp Bowie have different parking requirements (see table below).

Table 2. Fort Worth Parking Zones

District	Use
Highway Commercial	<u>Non-residential Uses</u> : 1 space per 300 sf



	<u>Residential Uses:</u> 1.5 space/unit
Ridglea Gateway	<u>Non-residential Uses:</u> 1 space per 300 sf
	<u>Residential Uses:</u> 1.5 space/unit
Ridglea Urban Village Core North	<u>Non-residential Uses:</u> 1 space per 300 sf
	<u>Residential Uses:</u> 1.5 space/unit
Ridglea Urban Village Core South	<u>Non-residential Uses:</u> 1 space per 300 sf
	<u>Residential Uses:</u> 1.5 space/unit
General Core Mixed Use	<u>Non-residential Uses:</u> 1 space per 300 sf
	<u>Residential Uses:</u> 1.5 space/unit
Industrial Arts	<u>Non-residential Uses:</u> 1 space per 500 sf
	<u>Residential Uses:</u> 1.5 space/unit
Western Business	<u>Non-residential Uses:</u> 1 space per 400 sf
	<u>Residential Uses:</u> 1.5 space/unit
Transition	<u>Non-residential Uses:</u> 1 space per 300 sf
	<u>Residential Uses:</u> 1.5 space/unit

These parking regulations are catered to the district and are more flexible than the City’s conventional parking requirements. For developments outside of this area, more parking is required.

San Antonio, TX

San Antonio utilizes a traditional parking approach throughout the City except for in select urbanized areas. The City has no minimum parking requirements in the downtown area to encourage walkability, transit use, and pedestrian-oriented development. Although there are no parking minimums in downtown San Antonio, developments are required to provide bicycle spaces to promote alternative modes of transportation. Additionally, the *San Antonio Downtown Design Guide* supplements the parking regulations expressed in the Zoning Ordinance. This guide primarily aims to minimize off-street parking visibility by:

- Locating off-street parking behind or below buildings,
- Hiding ground floor parking by building façades, and
- Providing on-street parking for visitors and customers.



Even though these few exceptions in San Antonio are context-sensitive, most of the parking regulations follow an approach where land use dictates parking ratios. These ratios tend to favor automobile-oriented development patterns seen in suburban areas instead of vibrant, walkable patterns noticed in the City's core areas.

San Diego, CA

San Diego has right-sized parking requirements for developments within the core of the City. Commercial parking requirements are determined by the level of commercial use and proximity to transit. The amount of spaces required varies between 4 different districts: basic, low-income, transit area, and parking impact areas. Fewer parking spaces are required in transit area overlay zones, where there is a reduced demand for parking. A commercial use outside a transit area is required to provide a minimum of 2.5 spaces for every 1,000 square feet and a maximum of 6.5 spaces per 1,000 square feet. A commercial use in a transit area is required to provide a minimum of 2.1 spaces per 1,000 square feet and a maximum of 6.5 spaces per 1,000 square feet. A parking impact area is an overlay zone with high parking demand and increases the off-street parking requirements accordingly (e.g., colleges and coastal beach areas). Parking requirements are higher in these areas.

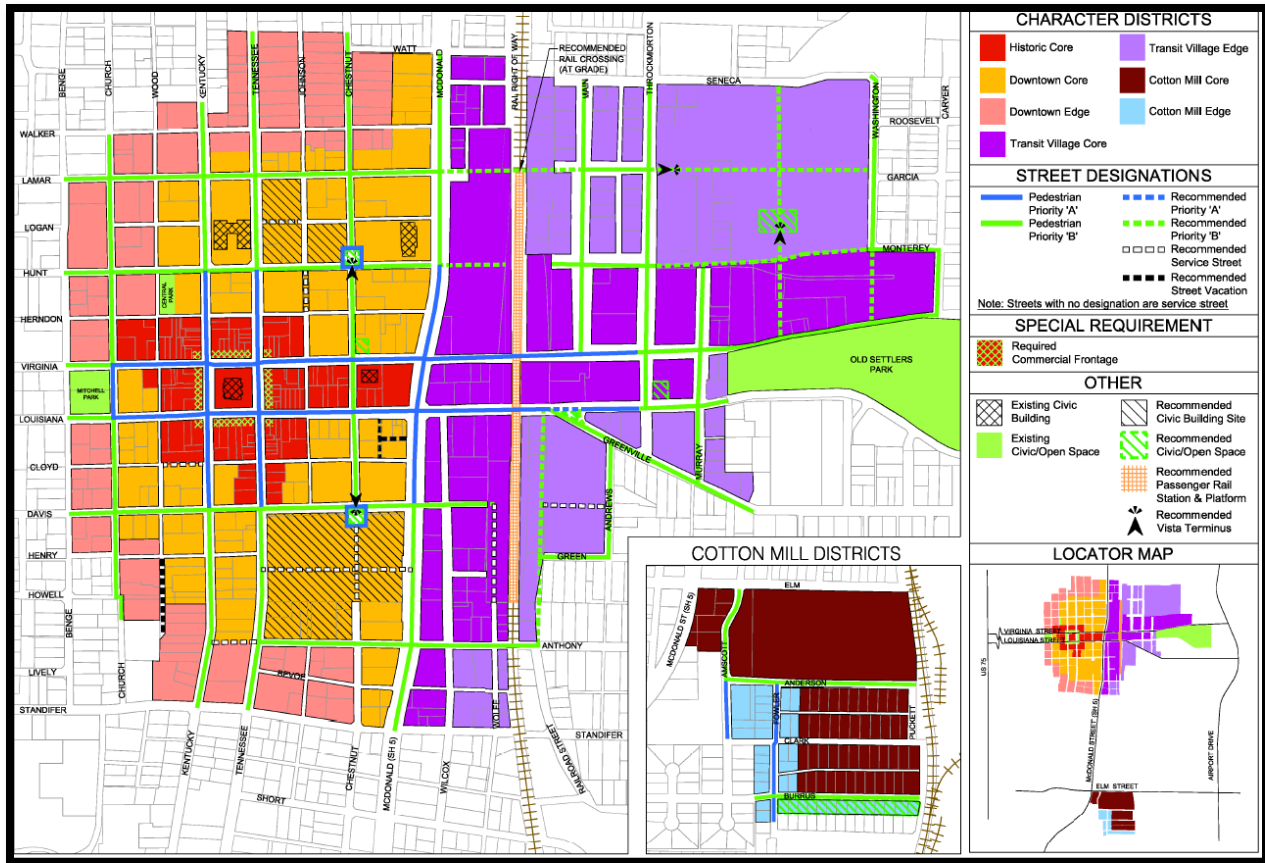
San Francisco, CA

San Francisco uses parking maximums in the Central Business District and downtown areas. The City also moved toward eliminating parking minimums throughout the City. Most of the districts are well-served by mass transit so vehicle parking for commercial uses is not the best use of land in such a dense environment. There are minimum parking requirements for all uses outside the Central Business District. For residential uses, one parking space is required for every dwelling unit in low-density districts and 0.25 parking spaces is required per dwelling unit in high-density districts. Office uses are required to provide a minimum of 1 parking space per 1,000 square feet, depending on the district. Parking requirements can vary in districts that are well-served by public transportation.

Additionally, San Francisco mitigates for congestion in downtown mixed-use districts through a transportation demand management program. Such programs are submitted to the Planning Department and approved by the planning director for all new buildings and conversions of existing buildings greater than 100,000 square feet of floor area. Developers are required to provide a strategy for minimizing adverse transportation impacts in the area. This is often accomplished by discouraging single-occupancy vehicle commuter trips and creating incentives to encourage people to commute by public transportation, carpool, or bicycle.

McKinney, TX

The City of McKinney, TX uses a traditional parking code in most parts of the City, except for the downtown area. For instance, most retail/commercial uses require 1 parking space for every 250 square feet of floor area irrespective of zoning classification. The downtown area – the McKinney Town Center District (MTC) – does not calculate parking ratios dependent on certain uses but determines parking ratios based on specific character districts within the MTC. These districts mimic the functions of the place types established in the 2019 GP. There are seven character districts in the MTC, which all have different tailored parking requirements. The districts are identified on a map of the MTC to show where certain development regulations, including parking, apply.



Parking requirements are right-sized to the character districts to improve walkability and pedestrian-oriented development.

Table 3. McKinney Parking Zones

Character District	Existing Buildings	New Construction
Historic Core	<u>Non-residential Uses:</u> No off-street parking required	<u>Non-residential Uses:</u> No off-street parking required
	<u>Residential Uses:</u> No off-street parking required	<u>Residential Uses:</u> 1 off-street space per DU
Downtown Core	<u>Non-residential Uses:</u> No off-street parking required	<u>Non-residential Uses:</u> No off-street parking required
	<u>Residential Uses:</u> No off-street parking required	<u>Residential Uses:</u> 1 off-street space per DU
Downtown Edge	<u>Non-residential Uses:</u> 1 off-street space per 500 grosssf – the first 2,000 grosssf of every non-residential building is exempt	<u>Non-residential Uses:</u> 1 off-street space per 500 grosssf – the first 2,000 grosssf of every non-residential building is exempt



	<u>Residential Uses</u> : 1 off-street space per DU	<u>Residential Uses</u> : 1 off-street space per DU
Transit Village Core	<u>Non-residential Uses</u> : No off-street parking required	<u>Non-residential Uses</u> : 1 off-street space per 500 grosssf <u>Light Industrial Uses</u> : 1 off-street space per 1,000 sf
	<u>Residential Uses</u> : No off-street parking required	<u>Residential Uses</u> : 1 off-street space per DU
Transit Village Edge	<u>Non-residential Uses</u> : 1 off-street space per 500 grosssf – the first 2,000 grosssf of every non-residential building is exempt <u>Light Industrial Uses</u> : 1 off-street space per 1,000 sf – the first 2,000 grosssf of every non-residential building is exempt	<u>Non-residential Uses</u> : 1 off-street space per 500 grosssf – the first 2,000 grosssf of every non-residential building is exempt <u>Light Industrial Uses</u> : 1 off-street space per 1,000 sf – the first 2,000 grosssf of every non-residential building is exempt
	<u>Residential Uses</u> : 1 off-street space per DU	<u>Residential Uses</u> : 1 off-street space per DU
Cotton Mill Core	traditional parking ratios applied by use	traditional parking ratios applied by use
Cotton Mill Edge	traditional parking ratios applied by use	traditional parking ratios applied by use

Montgomery County, MD

Montgomery County, MD uses a progressive parking approach that determines parking ratios by use, intensity, and zoning district. The number of required spaces is based on a metric specific to each use. If the proposed intensity of the use is less than the metric, then the baseline minimum is calculated using a fraction of that metric. Additionally, the required number of parking spaces depend if a development is located within a *Parking Lot District* or a *Reduced Parking Area*. The *Parking Lot District* program allows Montgomery County to own and operate more than half of the public parking in Bethesda, Sliver Spring, and Wheaton. This shared-parking resource allows developers to reduce their on-site parking needs and allows the county to impose stricter maximums. *Reduced Parking Areas* have both a minimum parking requirement and a maximum parking requirement but a developer may exceed the maximum or fail to meet the minimum if certain requirements are met. *Parking Lot Districts* and *Reduced Parking Areas* are the areas the County has designated to be the most appropriate for flexibility in parking requirements.

St. Petersburg, FL

St. Petersburg has parking regulations that are context-sensitive to help encourage walkable development patterns. In particular, the City reduces parking minimums if a project is near high-frequency transit routes. A 10% parking reduction is permitted if the development is within 1/8 mile of a high-frequency transit route. Additionally, the City allows off-street



parking reductions for tree preservation, drainage and surface water management, bicycle parking, and workforce/affordable housing. St. Petersburg also permits alternatives to off-street parking if there are parking challenges on-site. For instance, off-site parking is allowed within 1,000 feet in downtown center zoning districts and 300 feet in other zoning districts.

Boston, MA

Although Boston, MA is a large and dense metropolitan city, certain aspects of their parking regulations could apply to Loudoun County regarding particular policy areas and place types. Boston originally enacted a parking freeze in 1978 with the most recent amendments occurring in 2006. The freeze is implemented for developments in Downtown, East Boston, and South Boston. The intent of the freeze is to reduce vehicular traffic, minimize air pollution, promote the use of public transit, and encourage transit-oriented development by restricting the number of off-street parking spaces. Although the City has enacted a parking freeze, certain uses are exempt.



The parking freeze has 2 components - the cap and the parking bank. Each district has a cap on the number of parking spaces that can be built. The difference between the amount of existing parking spaces and what the parking cap allows is included in the parking bank. Developers must apply to withdraw parking spaces from the parking bank for non-exempt uses.

The parking cap and parking bank are different for each parking freeze area. Downtown Boston has a cap of 35,556 parking spaces and none are available in the parking bank. South Boston has a cap of 30,389 and 1,834 parking spaces available in the parking bank. The East Boston parking freeze operates differently from the Downtown and South Boston freezes in that the goal is to manage parking at Logan International Airport. There are no spaces available in the East Boston parking freeze



area. Parking requirements for commercial uses (office and retail) that are not subject to a parking freeze follow certain standards (see table below).

Table 4. Boston Parking Requirements

If the Maximum Floor Area Ratio is Specified	1 Space			
	For each		And also for each	
0.3 or 0.5	300	Square feet of gross floor area on ground floor	600	Square feet of other gross floor area
0.8 or 1.0	350		700	
2.0	500		1,000	
3.0	900		1,800	
4.0	1,200		2,400	
5.0	1,200		2,400	

Somerville, MA

Somerville, MA is a small, but dense city outside of Boston. The City relies heavily on various modes of transportation which reduces the overall city’s car dependency. Somerville’s parking regulations are traditional with the caveat of development near transit or public parking. Developments within 650 feet of municipal parking garages/lots are permitted a 10% reduction in parking. Developments within 1000 feet of rapid transit stations are permitted a 20% reduction in parking.

Prince George’s County, MD

Prince George’s County, MD provides conventional parking requirements except for certain mixed use and transit zones. Unlike most other jurisdictions, these areas do not have either parking minimums or maximums but do have required parking. The amount of parking is determined through a formula specified by the Planning Board with evidence provided by an applicant. This formula is calculated on uses, trip generation, and traffic demands.

Buffalo, NY

The City of Buffalo, NY embraced radical parking changes and is the first city in the nation to not have established off-street parking minimums. All parking is not eliminated in the City, as certain developments may require parking per a transportation demand management plan. Buffalo does not require new development to have parking; however, buildings greater than 5,000 square feet require a transportation demand management (TDM) plan study to assess the development’s impact on the surrounding area. This study determines adequate parking for the development. TDM plans are not approved by planning staff, but by the city’s planning board. One challenge of Buffalo’s parking regulations is that there are no specified parking maximums. This is important to note because developers have significant discretion to determine the necessary amount of parking for a development. Although most developers want to maximize the building footprint, some will want an excess amount of parking to guarantee customers have easy access to the development.



Loudoun County could consider an approach that uses Buffalo's no parking minimums and TDM plan requirements, but with established parking maximums.

Philadelphia, PA

Philadelphia, PA is a large and dense metropolitan city. Certain parking regulations could apply to Loudoun County regarding particular policy areas and place types. Philadelphia right-sizes parking by tying parking ratios to the intensity of different zoning districts. Commercial-based zoning districts are known as "commercial and commercial mixed-use districts", which all vary in intensity and form. For instance, Neighborhood Commercial Mixed-Use, Neighborhood Commercial Mixed-Use, and Center City Commercial Mixed-Use districts have tailored required parking ratios. Although there are specialized parking ratios, most are the same, especially for commercial developments.

CASE STUDY EVALUATION

The case studies provide Loudoun County with examples of how other jurisdictions have effectively regulated parking throughout different development areas. Next we examine how each of these case studies rate in the context of a range of criteria that are important to the Loudoun County zoning update. Each criterion was rated on a scale of 0 to 5, with 0 representing a very low level of intent with respect to the criteria and 5 representing a very high level of intent with respect to the criteria.

Flexibility

Flexibility is an important feature of any modern zoning code, but particularly for parking regulations. Rigid standards and a lack of options can hinder a jurisdiction's ability to encourage desired development. It also can prove challenging to the development community. Flexibility was assessed as parking regulations that provide a developer with parking options and/or avenues for negotiation. Out of the 14 jurisdictions, 4 had a flexibility rating of 4 or higher. These 4 jurisdictions - Seattle, Montgomery County, Buffalo, and St. Petersburg - best provided a developer with increased discretion, parking alternatives, and reductions/waivers/variances. St. Petersburg relies heavily on reductions to satisfy parking requirements while Buffalo encourages developers to determine their own parking amounts. Places with low flexibility ratings promote strict conformance, thus hindering desired quality development and potentially resulting in excessive parking.

Clarity

Clarity is another crucial component of any regulation. Without clear and concise language that is easily understood, regulations become difficult to comprehend, interpret, and apply. Clarity was defined as regulations that are clear and concise, with allocations that are consistent and easy to understand. All 14 jurisdictions rated at a 3 or higher, which means that their regulations are effectively clear. The highest clarity rating is Buffalo's code as it is simple, short, in a coherent format, and less legalistic sounding. The reader can easily comprehend that there are 2 parking options for new developments in Buffalo.

Context-Sensitive

As more jurisdictions are moving away from conventional codes derived from separated land uses, new codes are emphasizing placemaking and context-sensitive regulations. Context-sensitive regulations are not only important for new codes, but critical for Loudoun County, as the 2019 GP calls for regulations that coincide with unique policy areas and place types. Out of the 14 jurisdictions, 4 had a 5 rating. These jurisdictions - Portland, Seattle, Montgomery County, and Buffalo - have regulations that are applied to different zoning districts and land use types to manage parking needs. They best balance parking demands for residential and commercial uses in urban and suburban contexts by rightsizing parking.



Commercial uses in urban contexts require less off-street parking whereas commercial uses in suburban settings require more parking. Places like San Antonio and McKinney rated the lowest with context sensitive regulations as most of their parking codes are comprised of a “one-size-fits-all approach” with high parking ratios (although San Antonio does utilize parking maximums). These cities would have been rated lower if there was not the downtown area exception in San Antonio and no downtown form-based code in McKinney.

Parking Minimum/Maximum Usage

Parking minimums and maximums are an effective way to control parking supply. Nearly every jurisdiction uses parking minimums, but not many use maximums. Well-intentioned and reasonable parking minimums and maximums can provide practical parking ratios, while no maximums and high car-oriented parking minimums can create parking oversaturation. This category is defined by how well jurisdictions use minimums and maximums to regulate parking. 6 out of the 14 jurisdictions received a rating of 4 or higher, with Portland, Seattle, and Buffalo receiving a 5 rating. These 3 cities use parking minimums and maximums effectively to create development patterns that are context-sensitive and more reliant on pedestrian activity. Lower rated jurisdictions used parking minimums but not maximums, thus incentivizing car-oriented development patterns.

Graphic Support Provided

Graphics are becoming increasingly important features within modern codes because they can help communicate information effectively. This category means regulations that have charts, tables and illustrations to communicate standards. Philadelphia, Buffalo, and St. Petersburg were ranked the highest as they had the most graphics and illustrations with color, clarity, and pop and clear and understandable matrixes. No jurisdiction received a 5 rating because there was not an exceptional use of graphic displays. All jurisdictions can improve readability and effectiveness of their parking regulations if they incorporate sharp, communicative graphics.

Transit Sensitive

Transit-oriented development is becoming more prominent in urban and suburban jurisdictions. Modern parking regulations need to serve a variety of transportation modes. In this exercise, regulations that account for and accommodate transit-oriented development were assessed. Numerous jurisdictions scored high with parking regulations that serve high transit areas and future transit-oriented development, while others scored at the lower end of the spectrum. High scoring jurisdictions effectively linked reduced parking requirements and pedestrian access points to developments near or serving public transportation. Low scoring jurisdictions were mostly noted in Texas (Fort Worth, McKinney, and San Antonio) where transit development is lacking and emphasis is on car-oriented development. Transit sensitive parking regulations, particularly in the Urban and Suburban Policy Areas, should be considered for Loudoun County.

Use of Landscaping

Landscaping cannot be overlooked when it comes to parking regulations. High landscaping standards improve the aesthetic conditions of developments, serve crucial drainage functions, and reduce the urban heat island effect. Portland and Montgomery County scored the highest for their use of landscaping. These parking regulations heightened landscaping requirements for new developments. There is a focus on ensuring that trees and landscape areas are linked to parking areas.



Evaluation Summary

Table 5 presents a summary of this evaluation of the various case studies vs. these criteria. Green highlighted cells represent the highest scoring (i.e., 4 or 5) jurisdictions against each criterium. Buffalo, Portland and Seattle rate highest against multiple criteria. Overall, these ordinances have parking requirements that are progressive, reasonable, and context-sensitive, which aids an assortment of development patterns in different locations of a jurisdiction. Buffalo, Portland, and Seattle perform well with parking minimums and maximums and emphasize parking that fits the type of development and the existing community fabric. Reductions and waivers increase flexibility with the development community and allows the developer to rely on the market to drive parking demands. Also, Portland and Seattle provide car-sharing (Uber, Lyft, etc.) parking regulations to account for the growing demand to use such services. For instance, in Portland, car-sharing must be indicated on the site plan and has specific requirements. The City requires that “for every car-sharing parking space that is provided, the motor vehicle parking requirement is reduced by 2 spaces, up to a maximum of 25 percent of the required parking spaces”. Buffalo’s no parking minimums and parking study requirements for developments of more than 5,000 square feet is interesting. Instead of requiring arbitrary parking minimums that tend to over-park developments, developers and the market drive parking demand for new development.

This evaluation helps identify how different jurisdictions have developed parking standards that could be used to inform the Loudoun County update. We are not proposing that Loudoun County adopt any of these case study ordinances in total; rather, elements of the various case study ordinances can be applied to craft an ordinance structure sensitive to the County’s needs.

The objective is develop parking regulations that are flexible, clear, concise, and context-sensitive to the full range of policy areas and place types to help achieve the desired development patterns envisioned by the 2019 GP.

Table 5. Evaluation Summary Matrix

Jurisdiction	Flexibility	Clarity	Context-Sensitive	Parking Min./Max. Usage	Graphic Support Provided	Transit Sensitive	Use of Landscaping
Buffalo, NY	5	5	5	5	4	4	4
Portland, OR	3	4	5	5	3	5	5
Seattle, WA	4	4	5	5	2	5	3
San Diego, CA	3	3	4	4	3	4	3
Philadelphia, PA	3	3	4	3	4	3	4
San Francisco, CA	3	3	4	4	2	4	3
St. Petersburg, FL	4	3	3	2	4	3	4
Montgomery County, MD	4	3	5	4	2	0	5
Somerville, MA	3	3	3	3	2	3	3



Prince George's County, MD	3	3	3	2	2	3	3
Fort Worth, TX	3	4	3	3	3	0	3
Boston, MA	2	3	3	3	2	2	2
San Antonio, TX	2	3	2	4	2	0	3
McKinney, TX	2	4	2	2	3	0	1

CASE STUDY RELATIONSHIP TO POLICY AREAS AND PLACE TYPES

Finally, we examine how elements of some of these case studies could inform an updated parking ordinance framework in Loudoun County. The current vision is to develop and consolidate parking standards within the updated ordinance such that they can relate to and support develops in the full range of policy areas and place types. None of the case studies described are as robust as that envisioned for Loudoun County; however, they can still be informative for a number of policy area/place type combinations.

In the tables below we examined the case studies in the context of how each may relate to the range of policy area/place type combinations. Case study jurisdictions were rated from 0 to 3 (0: not applicable, 1: somewhat applicable, 2: applicable, and 3: highly applicable). Jurisdictions with more urban context fared better than ones with a more suburban context. As with the table above, green highlighted cells represent a high rating (i.e., 3). This exercise did not specifically look at JLMA's, but these will be addressed separately in the ordinance update.

Portland, Seattle, San Diego, San Francisco, Philadelphia, and Buffalo rated the highest for applicability to Loudoun County's Urban Policy Area's place types. Low parking ratios, minimums and maximums, parking demand studies, and transit requirements make these cities the most applicable to the type of parking regulations in Urban Policy Areas. These jurisdictions, plus Montgomery County, also have the most applicable parking standards for Suburban Policy Area place types. Regarding applicability to the Transition Policy Area place types, Buffalo, Philadelphia, Montgomery County, and San Diego scored the highest. Components of the regulations from these jurisdictions appear to align best with different areas within Loudoun County where transition is necessary. With respect to the Rural Policy Area place types, most jurisdictions scored poorly because rural context is not emphasized, since many of the examples are inherently urban. Montgomery County fared the best because parking for agricultural and rural uses are specifically regulated. Buffalo's approach could potentially apply to these Rural Policy Areas since required parking is mostly determined by the developer. This type of approach could best incentivize context-sensitive parking regulations that can protect the rural environment.

Urban Policy Area

Policy Area	Urban		
Place Type	Transit Center	Mixed Use	Employment
Portland, OR	3	3	3



Seattle, WA	3	3	3
San Diego, CA	3	3	2
San Francisco, CA	3	3	2
Fort Worth, TX	0	2	1
San Antonio, TX	0	1	1
McKinney, TX	0	1	0
Prince George's County, MD	2	2	2
Montgomery County, MD	2	3	2
Boston, MA	1	1	1
Somerville, MA	2	1	1
Philadelphia, PA	2	3	3
Buffalo, NY	2	3	3
St. Petersburg, FL	0	2	1

Suburban Policy Area

Policy Area	Suburban					
	Neighborhood	Compact Neighborhood	Mixed Use	Employment	Industrial/Mineral Extraction	Commercial
Portland, OR	2	3	3	2	2	3
Seattle, WA	2	3	3	2	1	3
San Diego, CA	2	3	3	2	3	2
San Francisco, CA	2	3	3	2	2	2
Fort Worth, TX	1	1	2	1	1	1
San Antonio, TX	2	1	0	1	1	2
McKinney, TX	1	1	1	1	1	1



Prince George's County, MD	2	2	2	2	1	1
Montgomery County, MD	2	3	3	2	3	3
Boston, MA	2	1	0	1	1	1
Somerville, MA	2	2	2	1	2	1
Philadelphia, PA	3	3	2	2	3	3
Buffalo, NY	2	2	3	3	2	3
St. Petersburg, FL	1	1	1	2	1	2

Transition Policy Area

Policy Area	Transition					
Place Type	Large Lot Neighborhood	Small Lot Neighborhood	Compact Neighborhood	Community Center	Light Industrial	Industrial/Mineral Extraction
Portland, OR	2	2	2	3	1	0
Seattle, WA	1	2	2	3	1	0
San Diego, CA	2	2	2	2	2	2
San Francisco, CA	0	1	2	3	1	0
Fort Worth, TX	2	1	1	1	2	1
San Antonio, TX	2	2	1	1	2	1
McKinney, TX	1	1	0	1	2	1
Prince George's County, MD	1	1	2	1	2	1
Montgomery County, MD	2	2	3	2	2	2
Boston, MA	0	0	0	1	2	1



Somerville, MA	1	2	2	1	1	1
Philadelphia, PA	2	2	2	2	2	2
Buffalo, NY	2	2	2	3	3	2
St. Petersburg, FL	1	1	1	1	2	1

Rural Policy Area

Policy Area	Rural		
	Rural North	Rural South	Rural Historic Village
Portland, OR	0	0	0
Seattle, WA	0	0	0
San Diego, CA	0	0	0
San Francisco, CA	0	0	0
Fort Worth, TX	0	0	0
San Antonio, TX	0	0	0
McKinney, TX	0	0	0
Prince George's County, MD	0	0	0
Montgomery County, MD	2	2	1
Boston, MA	0	0	0
Somerville, MA	0	0	0
Philadelphia, PA	0	0	0
Buffalo, NY	1	1	1



St. Petersburg, FL	0	0	0
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In conclusion, this memorandum identifies a number of case studies that will help inform the Loudoun County zoning ordinance update. It also illuminates some areas that will need further research, particularly with respect to parking standards in the transition, rural, and JLMA policy areas.