STRATEGIC PARKING PLAN

CITY OF PORTSMOUTH

SUBMITTED ON THE 29TH DAY OF JANUARY, 2025

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STRATEGIC PARKING PLAN FOR THE CITY OF PORTSMOUTH

PORTSMOUTH, NH

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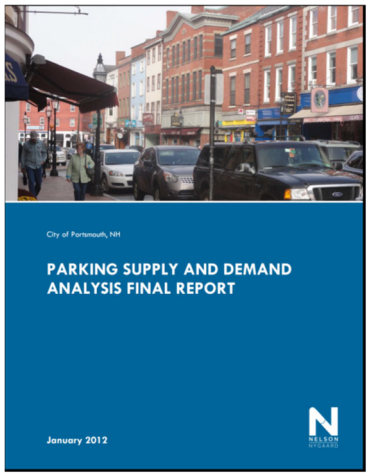
1. INTRODUCTION

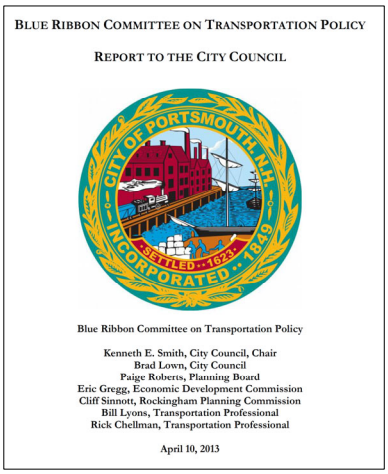
In the fall of 2022, The City of Portsmouth ("the City" or "Portsmouth") was seeking a comprehensive assessment of parking conditions and operations to support the continued renaissance of their downtown when they issued an RFP for an updated downtown parking study; the last one was done over 10 years ago at this point. The City awarded the contract to execute this study to the team of DESMAN Inc. and SLR Consulting ("the consulting team") in early 2023.

Project Background

This study is a continuation of the work that Portsmouth has completed to date in evaluating its parking supply. In 1998, the city conducted a Downtown Parking Study to assess existing conditions and project future parking requirements. The report concluded that additional downtown parking facilities were necessary to meet projected parking demand. The City then took several measures to expand the supply, including entering into a number of shared parking agreements, expanding the High-Hanover Parking Facility, and evaluating a number of private and public sites for feasibility in constructing a second public parking facility.



In 2010, the City established a focus group to compile data and evaluate existing parking supply in A Report on Parking Impacts and Downtown Vitality. This report recommended that the city plan the downtown parking supply based on a proposed ratio of 2.0 to 2.2 parking spaces per 1,000 square feet of building floor area, regardless of use, and determined that the existing parking supply shortfall was between zero and 300 spaces. The report recommended that the city move immediately to create additional off-street structured public parking, and work to identify additional areas for another future parking structure.



Following these reports, the City Council, Planning Board, and Economic Development Commission created the Downtown Parking Omnibus in 2011 that culminated in several recommendations, including zoning amendments and management strategies. The City Council implemented several ordinance changes. As a result of these recommendations, the City Council was to explore the need to assess parking supply and demand.

Most recently, parking has been a focus in the community as Portsmouth grows from a seasonal vacation area to a hub of activity year-round. In addition, the continuing development of the downtown is causing congestion and need for more parking, but with little geographical space to place it. The city leadership is also seeking ways

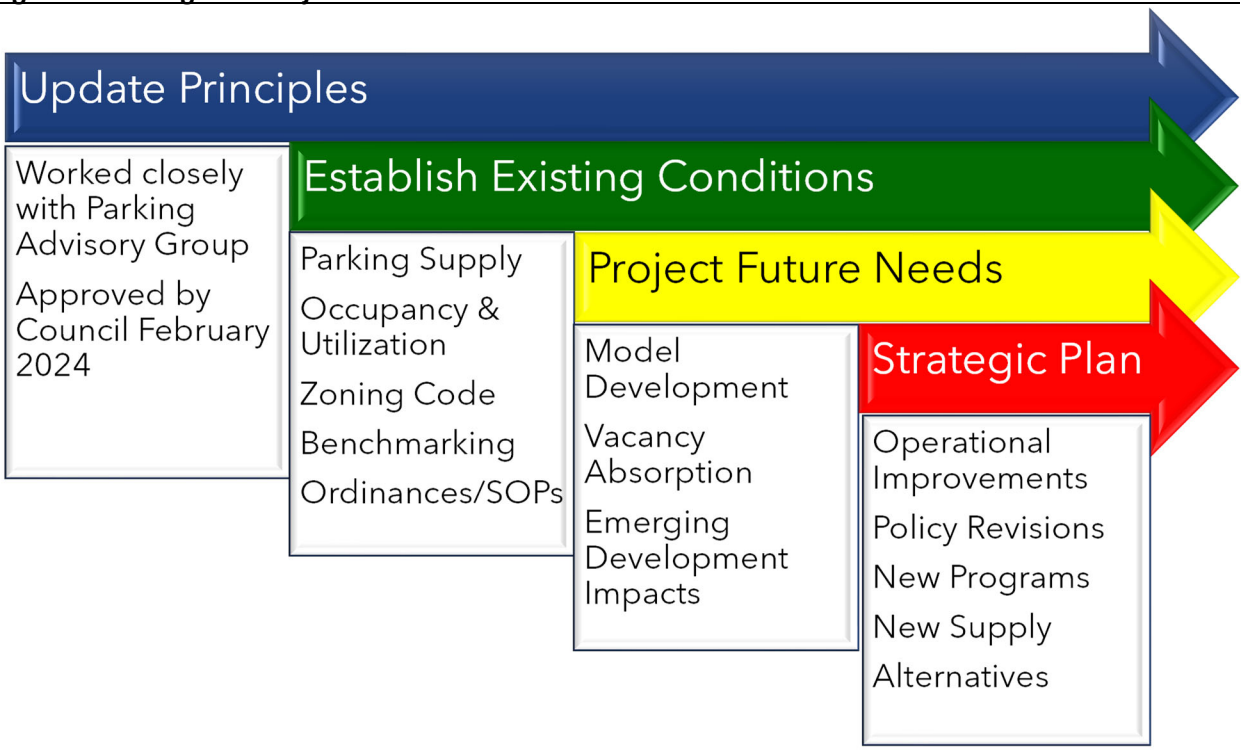
to promote less car-centric traffic and more sustainable modes of transportation to meet the community's environmental objectives.

The parking study covered under the current scope of work is an update of the studies performed in 2012 (Parking Supply and Demand Analysis Final Report and Parking Supply and Demand Strategies) and 2013 (Blue Ribbon Committee on Transportation Policy: Report to the City Council).

Project Process

To execute this study, the consulting team proposed a work plan organized into four general tasks as outlined in ***Figure 1,*** starting with the creation of the Parking Utilization Advisory Group as a means to create open and transparent communication throughout each step of the parking study process and plan for the future of Portsmouth.

Figure 1: Parking Plan Project Process



The consulting team executed the following parking study and developed the supporting plan in collaboration with the Parking Utilization Advisory Group ("PUAG"), which included the following staff members from the City of Portsmouth and key stakeholders:

- *Andrew Bagley*, City Councilor;
- *Benjamin Fletcher*, Director of Parking;
- *Eric Eby*, City Engineer;
- *Jillian Harris*, Principal Planner;
- *Mike Casad*, Parking Operations Manager;

- *Monte Bohanon*, Director of Communications and Community Engagement;
- *Peter Britz*, Director of Planning;
- *Peter Rice*, Director of Public Works;
- *Sean Clancy*, Assistant City Manager for Economic and Community Development;
- *Michael Labrie*, Owner of The Labrie Group;
- *Nicole Gagliardi*, Owner of The Spice and Tea Exchange;
- *Rick Chellman*, Owner of TND Engineering;
- *Steve Pesci*, Director of Special Projects at the University of New Hampshire; and
- *Tony Coviello*, Owner of Iron Engineering.

This working group met on a monthly basis to discuss issues, update guiding principles, brainstorm recommendations, and review task memorandums.

Plan Format

The deliverables from this work, included within the following plan, are as followed:

- The updated **Parking Principals** guiding strategic planning and policy-making for the municipal parking system. The consulting team worked closely with the Parking Utilization Advisory Group to update and solidify the newer Parking Principals which would be used as a foundation for analysis and recommendations through the parking plan process.
- The **Existing Conditions** analysis which provides a high-level review of work performed in the field establishing baseline parking conditions as well as an assessment of current zoning code as it applies to parking requirements.
- The **Future Needs** assessment which identifies emerging development likely to impact Portsmouth over the next decade and quantifies the parking impacts they will have on downtown.
- The **Strategic Plan** developed by the consultants, which lists out the individual initiatives in order of recommended implementation to guide Portsmouth in managing parking in the downtown area over the next decade.
- The **Appendices** which contain detailed technical reports for each task performed within the commission of the study and are included to provide the reader with additional supporting information and analysis.

Thank you to all the members of the PUAG, who's immense insight, feedback, and support has shaped this document and its conclusions and recommendations.

2. EXISTING CONDITIONS

The following section details work done to update the original Parking Principles adopted by the City of Portsmouth in 2013, an overall assessment of the state of the public parking system, quantification of the current parking supply, and documentation of baseline parking occupancy and utilization.

Parking Principles

The City of Portsmouth's original "Guiding Parking Principles for Central Business Districts" were adopted as part of the 2013 Blue Ribbon Committee on Transportation Policy report. The original principles were made up of two general framing remarks regarding the role of parking in the larger vision for downtown Portsmouth and twenty-one guiding statements reflecting the community's objectives and priorities for the public parking system as of 2013.

In collaboration with the Parking Utilization Advisory Group (PUAG), the consulting team reviewed the original principles statement by statement against current conditions and the most up-to-date best practices in municipal parking management. The result of this process was an updated document which encompasses the majority of the original principles into sixteen consolidated statements which reflect Portsmouth's commitments to commerce, growth, sustainability, and fiscal stability. Those changes can be seen here in the updated 2023 Parking Principals that the consulting team and the PUAG structured:

Statement #1: The City of Portsmouth will ensure an adequate supply of parking for both short-term and long-term parkers downtown associated with commercial land uses and institutions through the development of policy, programs, and infrastructure as needed.

Statement #2: Parking for long-term overnight uses such as downtown residences or hotels is primarily a private responsibility.

Statement #3: Parking management plans should consider impacts from future reuse, redevelopment, and full occupancy of buildings in the Downtown Districts (the urban core). When implementing these plans, the city should be guided by all of the principals of this document and take reasonable steps to ensure that a lack of parking is not a barrier to entry for new businesses, tenants, institutions, or developers seeking to locate in downtown Portsmouth.

Statement #4: The city should strive to play the lead role in developing and managing parking facilities in the urban core:

- Parking management and supply decisions should incorporate a holistic approach which considers impacts on the downtown parking, development, mobility, and walking environments as well as municipal development and fiscal policy in addition to addressing issues specific to a particular area or development.
- The value of private parking facilities should be recognized as a resource wherever possible and private parking property owners should be encouraged to make their facilities available to the general public where it benefits public interests. These resources are not part of the public parking supply under the City's long-term control and opportunities to manage private lots are limited.

Statement #5: The City should design policies and programs that address regular peak parking demand needs in order to avoid regular times when residents/customers cannot find parking. These programs and policies should include, but not be limited to:

- Managing peak parking demand to balance parking supply and demand across the downtown.
- As needed, increasing the supply of publicly available, convenient parking.
- Mitigating peak hour demand through the promotion of alternative modes of transportation.

Statement #6: Parking should support economic development of commercial land uses (including but not limited to office, retail, and restaurant) and accommodate institutional employees, customers, residential visitors, and tourists.

Statement #7: Parking policies and programs should recognize the differences in needs between long-term and short-term parkers and include incentives which encourage use of off-street public parking facilities for long-term parkers seeking less expensive accommodation and promote availability for short-term parkers seeking proximity for quick errands.

Statement #8: Any parking plan should recognize that the primary reason for collecting parking revenues is to provide city-wide benefits through an adequate supply of secure and attractive public parking assets; a diverse transportation network; and vibrant and welcoming walking environment. Parking fee and fine structures should be transparent, logical, and easy to understand.

Statement #9: Information on parking and transportation options should be easily accessible to citizens, businesses, and visitors, using both traditional media and new technologies.

Statement #10: Parking planning, policy and program development should adopt a comprehensive approach that considers environmental and financial sustainability; the range of costs and benefits of all decisions; and places a premium on aesthetics, security, user information, accessibility to users of all abilities, and ease of navigation and use.

Statement #11: All public parking assets should be designed and maintained to be aesthetically pleasing and integrated to the surrounding streetscape, well-lit, clean, in good repair, accessible to users of all abilities, and easy to navigate and use.

Statement #12: Parking planning and policy development should promote the use of sustainable, multimodal transportation options whenever feasible. The includes remote parking as necessary and needed.

Statement #13: Parking management policy and programs should take into consideration the downtown workforce and the full range of needs for different kinds of workers.

Statement #14: Parking planning, policies, and programs should prioritize curb management techniques to address loading, commercial, and parking needs equitably, and incorporate “Complete Streets” principles which include but are not limited to:

- Enhancing downtown walkability and local aesthetics.

- Parking facility design which includes elements to support sustainable and multimodal transportation.
- The needs of individuals with ambulatory challenges.

Statement #15: The public parking system, and the policies or programs influencing its operation, should be self-supporting and able to cover operating costs and debt service obligations without subsidy from the City's General Fund or other municipal sources.

Statement #16: Parking plans, programs, and policies should seek to encourage the use of public transit, walking, and bicycling, but recognize the limited infrastructure and preference for personal transportation options.

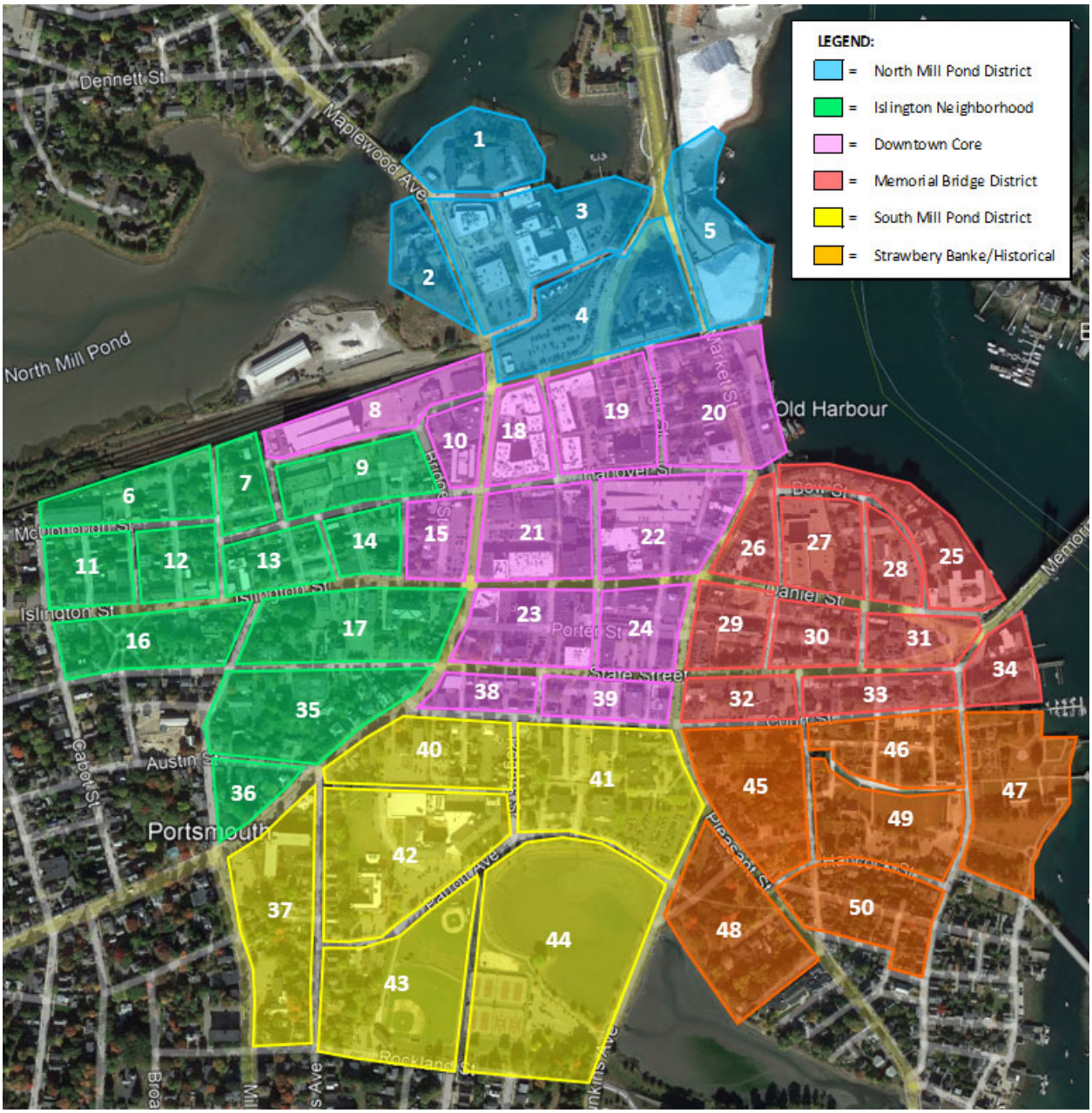
These revised principles were presented to City Council and formally adopted in early 2024.

Parking Supply

The City of Portsmouth, in collaboration with the consulting team, defined an overall study area at an initial project scoping meeting, which divided the study area into six sub-areas:

- The ***North Mill Pond District*** (NM), shown in blue in ***Figure 2*** on the following page, features hospitality, restaurant, office, retail, fitness, and light industrial uses as well as the Isle of Shoals Steamship terminal and is bounded by Maplewood Avenue, Deer Street, the Piscataqua River, and the North Mill Pond.
- The ***Islington Neighborhood*** (IN), shown in green in Figure 2, contains both single-family and multi-family housing interspersed with commercial and institutional properties. It is bounded roughly by the North Mill Pond, Cabot, State, and Summer Streets, and Maplewood Avenue with the except of three blocks containing parking asset or land uses attributed to the Downtown Core.
- The ***Downtown Core*** (DC), shown in pink in Figure 2, encompasses primarily commercial land uses with some multi-family residential properties. This area bounded roughly by Deer Street, Maplewood Avenue, Court Street, Pleasant Street, and Market Street.
- The ***Memorial Bridge District*** (MBD), shown in red in Figure 2, is a mixed-use area encompassing retail shops, restaurants, professional offices, single- and multi-family housing, and the Portsmouth Love Wall public space south of the Memorial Bridge on the riverfront. The district is bounded roughly by Market Street, Court Street, and the Piscataqua River.
- ***South Mill Pond District*** (SMP), shown in yellow in Figure 2, is defined by the mix of residential, commercial, and institutional uses which include the Connie Bean Community Center, the Portsmouth Middle School, the Portsmouth District Court, and the South Mill Pond Playground and playing fields. The area is roughly bounded by Court Street, Maplewood Avenue, Rockland Street, Junkins Avenue, and Pleasant Street.
- The ***Strawberry Banke District (SB),*** shown in orange below, includes a number of historical homes as well as the Strawberry Banke Museum, Prescott Park, the Trial Gardens, and other cultural landmarks. The area is bounded roughly by the South Mill Pond, Pleasant Street, Court Street, the Piscataqua River, and Gates Street.

Figure 2: Defined Study Area



The consulting team inventoried a total of 6,842 parking spaces as of April 2023. The largest concentration of total parking supply was in the Downtown Core (DC) at 41% of available parking, followed by the South Mill Pond District (16%) and North Mill Pond District (15%). A master inventory showing parking supply by block is included as ***Appendix A*** to this report.

The consulting team examined the inventoried parking supply according to *Ownership* and *Access*, as well as *Type of Facility*.

Spaces or facilities under public *ownership* belong to the municipality or some other kind of public agency; private facilities are owned by a business, individual, etc. Most publicly-owned parking spaces are also *accessible* to the general public on a first-come, first served basis with the exception of spaces or facilities reserved for special uses, such parking for police cars, fire department vehicles, etc. Similarly, most private parking facilities are reserved to serve an exclusive user base such as the residents in the adjacent apartment building, employees in the adjacent office building, retail customers, hotel guests, etc. However, there are some privately owned parking facilities which are made available to the general public on a fee for use basis; these are often referred to as 'commercial' parking facilities.

The inventoried parking supply (6,842 spaces) was roughly 21% greater (+1,179 spaces) than the total inventory reported in the prior (2012) study. Roughly 600 of these spaces are accounted for by the public Foundry Place Garage; the remainder are contained largely in private garages and lots constructed over the last ten years.

53% of the total supply (3,657 spaces) was owned by a public entity and largely accessible by members of the general public. This is a far greater share than other New Hampshire municipalities, which typically own and/or control between 20% and 33% of the total supply. This was a twenty-one percent increase over the 2012 study, which found only 33% of the total supply was publicly-owned and/or -accessible. This growth in the public parking system provides many benefits to the community.

The current City of Portsmouth public parking system generates significant revenue at rates of $2.00/hour or less, with $2.5 million annually offsetting the General Fund. These funds are used to subsidize various municipal services, including transportation planning, downtown snow and waste removal, school bus services, senior transportation services, the downtown trolley, COAST transit programs, police details, and school crossing guards. Following industry best practices, the parking fund reinvests a large portion of its earnings back into the community. The total contribution from parking revenue is equivalent to a reduction of $336.00 in property taxes for the median single-family home. In fact, 63% of the revenue collected by the Parking Fund annually is allocated to the General Fund and a variety of other municipal programs and services outside the Parking Department.

The remaining 44% (3,185 spaces) of the supply inventory was located in privately owned facilities, the majority of which were not accessible to the general public. However, the portion of the private parking supply open for public use grew dramatically since the prior study. In 2012, only six private lots and two commercial lots provided a total of 176 spaces for after-hours public use. By 2023, this number had grown significantly, with twenty commercial lots now open to the public on nights and weekends, offering a total of 896 spaces. Commercial operators charge between $2.00 and $12.00 per hour for use, with these commercial parking facilities serving as a supplement to the public parking supply, particularly during high-demand times.

In terms of *types of facilities*, the consulting team categorized spaces as *on-street* or *off-street*. *On-street* spaces were curbside spaces that may be subject to regulation by a meter, posted time limit, parking permit requirement or no regulation (e.g. 'unregulated'); these are all publicly-owned and the majority were publicly-accessible. *Off-street* parking facilities included surface parking lots, above-grade parking structures, and below-grade parking garages and may be publicly-owned and -accessible (such as the city's Hanover Garage), publicly-owned and privately-accessible (such as the parking spaces reserved for U.S.

Postal Service vehicles), privately-owned and -accessible (like the garage beneath the Piscataqua Landing condominiums), or privately-owned and publicly-accessible (like the Portwalk Place Garage).

On-Street parking spaces, also referred to as "curbside," accounted for 20% (1,339 spaces) of the total parking supply, up from 1,208 total on-street parking spaces inventoried in the 2012 study. In the prior (2012) study, on-street parking was categorized and regulated by time limit or permit only; there were no parking meters in place at that time regulating length of stay or turnover of curbside parking spaces. In contrast, the current inventory of on-street parking spaces shows that 52% (703 spaces) of all on-street parking is now metered. 39% of the on-street supply is unregulated (524 spaces), located largely in residential areas, and the remainder is subject to time-limits or permit requirements.

Off-street parking, which included spaces in lots and garages, accounted for 80% of the total parking supply, amounting to 5,503 spaces. The supply is divided into public and private facilities, with public parking making up 42% of the total off-street parking supply (2,318 spaces) and private parking contributing 58% (3,185 spaces). At the time of supply counts, the Hanover Garage was under the construction of about 300 spaces that were not included in this section.

Observed Occupancy

To establish baseline conditions for evaluating the current and future adequacy of the municipal parking system, the consulting team performed occupancy (i.e. "car") counts on a representative weekday and weekend day. During these field exercises data was collected on three critical parking aspects: *Occupancy* (e.g., the number of vehicles parked), *Adequacy* (e.g., the number of spaces available), and *Utilization* (e.g., the percentage of supply in each facility that was used). Utilization and adequacy were evaluated relative to a total parking supply of 6,532 spaces, which was the available inventory at the time counts were taken, reflecting those spaces closed in the Hanover Garage for on-going restoration work.

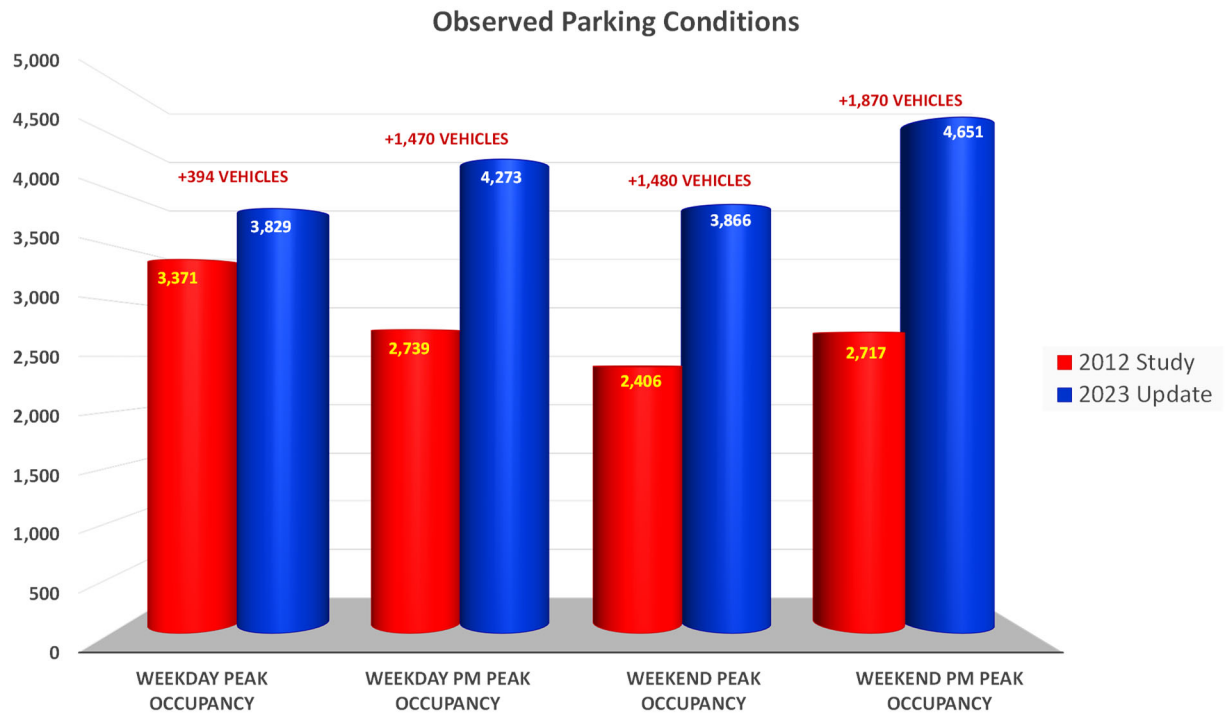
Occupancy counts were performed across the study area on Friday, May 5th and Saturday, May 6th, 2023. The counts were planned around the Cinco de Mayo holiday in anticipation of higher than typical activity levels. The weather on both days was unseasonably sunny and warm, approximating summer time conditions when parking system operating data occurs the highest rates of occupancy and utilization occur. While this was not peak season for Portsmouth, the data provided a general idea of what the busiest time of the year could look like.

Single-pass counts were executed at mid-day (11:00 AM to 2:00 PM) and in the evening (6:00 PM to 9:00 PM) on both days. Data from the previous (2012) parking study as well as actual operating data provided by the Parking Department indicated there was nominal hour-to-hour fluctuations in parking occupancy, utilization, and adequacy on a block-by-block basis at these times, but a high rate of stabilized utilization across the study area.

In comparison to the counts conducted during the prior (2012) study, occupancy (i.e. the total number of vehicles parked) was significantly increased in 2023, although not necessarily proportionate to total supply. As noted in the prior section, the total supply across the study area is estimated to have increased by roughly 1,100 spaces between the 2012 and current (2023) study. In contrast, parking occupancy grew between the two studies by between roughly 400 and almost 1,800 spaces as shown in ***Figure 3*** on the following page. The most pronounced increases in parking occupancy and utilization between the 2012

and 2023 studies were centered in the Downtown Core, Memorial Bridge, and North Mill Pond districts shown previously in ***Figure 2***.

Figure 3: Observed Parking Conditions



General findings by observation period were as follows:

Friday Mid-Day (11:00 AM – 2:00 PM), May 5, 2023:

- There were 3,829 vehicles parked, against 6,532 spaces, leaving 2,703 spaces available with a utilization rate of 59%.
- In the 2012 study, there were 3,371 vehicles parked against 5,663 total parking spaces, leaving 2,292 spaces available with a utilization rate of 65%.
- When comparing the results of the two studies, weekday mid-day occupancy grew 14% (+394 vehicles) by 2023, but overall utilization fell by 6% relative to the earlier study. DESMAN hypothesized this increase in occupancy but decline in utilization may reflect the decreased presence of downtown workers due to flexible work policies.
- The utilization of on-street parking supply, which accounted for just 20% of the overall parking supply, was 66%. In contrast, only 70% of unregulated parking spaces were occupied.
- Public off-street parking supply, accounting for 34% of the total supply, was 60% utilized. Utilization was evenly split between lots and garages.
- Inversely, private off-street supply, which made up 46% of the total supply, was only 42% utilized.

Friday Evening, May 5, 2023:

- DESMAN counted 4,273 vehicles parked, against 6,532 spaces, leaving 2,259 spaces available, with a utilization rate of 65%.
- The 2012 study recorded as 2,739 vehicles on a weekday evening against the 5,663 total parking spaces, leaving 2,924 spaces available and n utilization rate of 48%.
- Since the prior study, weekday evening occupancy has grown by 64% (+1,470 vehicles) resulting in a 17% rise in utilization. This growth reflects the increase in the number of residential units in the study area since the last study was performed, an increase in total retail and restaurant space, and an increased draw of regional dining and entertainment trade.
- All three types of parking (e.g., on-street, public off-street, and private off-street) experienced increased levels of utilization relative to conditions recorded earlier in the day. Total on-street utilization was 79% with every metered space effectively full, but only 72% of the unregulated spaces.
- Utilization of public off-street parking rose to 66% indicating that two of every three publicly-accessible spaces off the street were filled, leaving less than 700 spaces open. Utilization of public lots was slightly higher than public garages.
- In contrast, private off-street facilities were just 58% utilized, leaving roughly 1,300 open spaces.

Saturday Mid-Day, May 6th, 2023:

- There were 3,866 vehicles parked, against 6,532 spaces, leaving 2,666 spaces available with a utilization rate of 59%.
- In 2012 study, there were 2,406 vehicles recorded against 5,663 total parking spaces on a Saturday afternoon, leaving 3,257 spaces available with a utilization rate of 42%.
- Since the 2012 study, weekend mid-day occupancy has grown by 61% (+1,480 vehicles) resulting in a 17% rise in utilization.
- Utilization by supply type was comparable to weekday mid-day levels with on-street utilization at 65% (vs. 66%), public off-street utilization at 64% (vs. 60%), and private off-street utilization at 52% (vs. 42%).
- As with the weekday evening observations, all Zone A on-street metered parking spaces were effectively full while the unregulated spaces located mostly in residential districts were only 61% full.
- DESMAN hypothesized the incremental increases in public and private off-street utilization were driven by a combination of increased residential presence in downtown as well as growth in the number of retail stores and restaurants relative to conditions during the 2012 study.

Saturday Evening, May 6th, 2023:

- There were 4,651 vehicles parked, against 6,532 spaces, leaving 1,881 spaces available with a utilization rate of 71%.
- In the 2012 study, peak occupancy on a weekend evening was recorded as 2,717 vehicles against 5,663 total parking spaces, making 2,946 open spaces with a utilization rate of 48%.

- Since the 2012 study, weekend evening occupancy has grown by 71% (+1,870 vehicles) resulting in a 23% rise in utilization.
- On-street utilization was high at 81% with both zones of metered parking effectively filled to capacity in contrast to the unregulated spaces which were only 71% utilized.
- Public off-street facilities were 74% utilized, with three in every four spaces in parking lots filled and nearly three-quarters of the public garages utilized. All of the public lots in the Downtown Core were filled to capacity, as was the Hanover Garage, leaving available capacity only in the Foundry Place Garage.
- Private off-street facilities saw 64% utilization, mostly in lots reserved for exclusive use by a particular land use, business, or institution. The private lots operating as commercial parking facilities were roughly 55%-63% filled.

Detailed tables and charts showing parking occupancy by block, ownership and access, as well as type of facility are included as ***Appendix A*** to this report.

Critical Findings

The consulting team drew the following conclusions from the work performed under this task:

1. The City of Portsmouth's guiding principles have helped to build a municipal public parking system that directly contributes to the health and vitality of the community as a whole.
2. By positioning itself as the majority provider of parking in downtown, the City of Portsmouth has been able to 'set the market' and attract and support commerce and development in far greater quantities than comparable communities.
3. Both on-street parking and public off-street parking facilities are disportionately utilized relative to the share of the total parking supply they provide.
4. Both zones of metered parking are regularly filled to effective capacity, with no difference in utilization between Zone A and Zone B. These areas have since been consolidated.
5. The on-street parking that was not utilized was located mostly in residential neighborhoods and not subject to any form of time limit, permit requirement, or other regulation. As demand goes up across the area, these are most likely the spaces to be absorbed.
6. Public off-street parking facilities in the Downtown Core were running near capacity at times, while privately-owned commercial parking lots were only 55%-63% full at peak hours. DESMAN theorized that the difference in rates ($2.00/hour in public facilities versus $2.00-$12.00/hour in private lots) was a contributing factor.
7. Stakeholders as well as shoppers, diners, and visitors encountered during field work all expressed frustration in trying to discern which parking facilities were public versus private (commercial) due to the similarity in signage, meters, etc.
8. While wayfinding directing drivers to public parking facilities appeared to be appropriate and adequate, the city currently has no universal mechanism for communicating real-time availability to parkers searching for an open space.
9. The consulting team noted roughly a dozen parking spaces out of 3,657 within the public supply equipped with Electric Vehicle chargers. The share of EVs on American roads is projected to double in the next two decades.

3. ZONING ORDINANCES

Municipal zoning codes are designed to regulate land use and building construction to promote the health, safety, and general welfare of the public. Zoning ordinances aim to ensure that new development aligns with community values and goals by setting standards for safety, design, and land use. Traditionally, parking requirements within these zoning codes have been focused on ensuring adequate parking for new developments. This is still a primary goal in many municipalities, but in recent decades, many communities have begun to modify parking regulations to achieve additional objectives, such as encouraging development, promoting alternative transportation, and reducing congestion. This shift is known as *Parking Reform* and has gained traction among urban planners, public administrators, transportation professionals, and parking consultants.

Parking Reform originated from the work of Dr. Donald Shoup, a professor emeritus at the University of California, Los Angeles. In the late 1990s, Dr. Shoup began publishing papers criticizing the practice of minimum parking requirements, which he believed were damaging to communities. In his landmark book, The High Price of Free Parking (2005), Shoup argued that parking minimums often resulted in excessive parking supply that exceeded the actual needs of a development. These requirements, he contended, were not based on scientific studies and led to inefficient land use. Developers were forced to dedicate valuable land to parking instead of higher-value uses, raising costs and rents, encouraging sprawling, car-dependent communities, and discouraging alternative transportation options such as walking, biking, or transit.

Shoup's ideas catalyzed the Parking Reform movement, which advocated for changes to parking policies in municipalities. The most common change was the modification or elimination of parking minimums, though some cities introduced parking maximums. Over 200 U.S. cities have altered or abolished minimum parking requirements in at least one district, according to the Parking Reform Network. Some municipalities, particularly those with strong transit systems, have adopted parking maximums to reduce car travel and congestion, while allowing developers the flexibility to build parking based on actual demand. Smaller cities have also experimented with this approach, capping parking requirements at levels supported by studies of local parking usage.

While Parking Reform has been gaining acceptance, its impacts are still being studied. Anecdotal evidence suggests that the removal of parking minimums has stimulated development, particularly in areas with strong transit networks. Cities that have implemented parking maximums report higher transit ridership, increased use of rideshare services, and more pedestrian and cyclist activity. However, the connection between eliminating parking minimums and the reduction of project costs or rents, which advocates argue would lead to more affordable housing, has not yet been conclusively demonstrated.

Within the context of this larger debate, DESMAN undertook a study of the City of Portsmouth's current parking requirements and associated legislation included within the Zoning Code. This study included evaluating current code relative to recently permitted projects like West End Yards; requirements and regulations in place in comparable communities; best practices as advocated by urban planners and parking consultants; and reviewing the applicable code relative to the City's commitments to sustainability and various planning, transportation, and development initiatives.

Methodology

The consulting team evaluated current zoning as it applies to parking requirements for the City of Portsmouth from two perspectives. First, the consulting team benchmarked the parking requirements in place in the City of Portsmouth against five (5) comparable communities as well as industry standards. The intent of this assessment was to review if Portsmouth was aligned with the comparable communities as well as industry standards used to project parking demand for new developments.

Table 1: Comparable Communities Selected for Benchmarking

Town	Population	Land Area (sq mi)	Population Density (ppl/sq. mi)	Walk Score	Bike Score	Transit Score	Median Household Income	Public Paid Off-Street Parking	Public Paid On-Street Parking	Private Paid Parking Options	Parking Reforms
Portsmouth, NH	**21,987**	**15.7**	**1,400**	**47**	**46**	**n/a**	**$ 91,915**	**Y**	**Y**	**Y**	**N**
Portland ME	68,313	21.31	3,206	62	68	4	$ 66,109	Y	Y	Y	Y
Salem MA	44,819	18.3	2,449	70	54	32	$ 72,884	Y	Y	Y	N
Dover NH	33,171	26.7	1,242	33	34	n/a	$ 82,387	Y	Y	N	Y
Burlington VT	44,781	15.49	2,891	59	81	39	$ 59,331	Y	Y	Y	Y
Ithaca, NY	31,710	6.07	5,224	72	58	n/a	$ 76,209	Y	Y	N	Y

When looking for communities to benchmark against, the consulting team evaluated twenty (20) different communities against the following metrics: *total population*; *total land area; population density; walk score; bike score; transit score*; and *median household income*. The consulting team also considered whether the communities had fee-for-use (i.e., "paid") off- and on-street public parking facilities, private paid parking facilities, and executed parking reforms. After process of elimination, the consulting team, in collaboration with the PUAG, chose these the five communities shown in ***Table 1*** because of their overall similarity to Portsmouth as a community and its desired direction for the future of its parking system.

As a second assessment, the consulting team benchmarked the City of Portsmouth's zoning code against fifteen (15) features common to municipal parking requirements consisting of the following:

1. *Conditional Use Waivers* which allow for a reduction in parking requirements by special grant.
2. *Ratio Modification* language allows applicants to apply for a modification in the parking (requirement) ratio specific to a land use.
3. *Reserve Mitigation* language allows applicants to introduce required parking according to the phase of development and/or actual use.
4. *Parking Maximums* which stipulate the maximum amount of parking a developer can build.
5. *Intrafacility Shared Use* language authorizes the provision of a lesser number of spaces than required by permit due to the interplay of complimentary land uses within a project.
6. *Interfacility Shared Use* language allows applicants to meet some or all of their parking requirement by execution of a shared use agreement between the applicant and another property owner.
7. *Remote Parking* language allows the applicant to satisfy some or all of their parking requirement through use of a satellite parking arrangement.

8. *District Waivers* allow developers to waive minimum parking requirements for project with particular land uses and/or located in specific districts.
9. *Bicycle Requirements* mandate requirements for bicycle parking for new development.
10. *Transit Mitigation* discounts allow for a reduction in the number of required parking spaces if the project is located near transit.
11. *Car Share Mitigation* language allows for a reduction in the number of required parking spaces if the project includes a car share service.
12. *Other Mode Mitigation* language allows for a reduction in the number of required parking spaces for inclusion of other elements which promote alternative travel modes.
13. *Public Supply Credits* permits the applicant to meet some or all of their parking requirements through the use of a public parking facility.
14. *On-Street Credits* allow the applicant to use the on-street spaces abutting their development to meet some or all of their parking requirement.
15. *In Lieu Payment Options* allow the applicant to meet some or all of their parking requirement through the purchase of waivers.

A more detailed description of the applied methodology is included as ***Appendix B*** to this report.

Minimum Parking Requirements

To evaluate Portsmouth's current parking requirements, the consulting team identified a total of twelve land uses and their associated parking requirements to be evaluated relative to the five comparable communities as well as parking industry standards established by the Urban Land Institute (ULI) for calculating parking demand. In instances where the other communities or the ULI did not list a comparable requirement for a particular land use, the consulting team noted this as "N/C" as shown in ***Table 2***.

Table 2: Comparison of Minimum Parking Requirements

Land Use	Portsmouth, NH		Portland ME	Salem MA	Dover NH	Burlington VT	Ithaca NY	Industry Standard
Residential - Resident	0.50-1.30	spaces/unit	1.00	1.50-2.00	1.25-1.40	1.00-3.00	1.00+	0.85-2.50
Residential - Visitor	0.20-1.00	spaces/unit	N/C	N/C	0.40-0.50	N/C	N/C	0.10-0.15
Performance Facility	0.40	spaces/seat	0.20	0.25+	0.50+	0.25	0.20	0.16-0.40
Health Club	4.00	spaces/KSF	N/C	27.78+	N/C	2.00-4.00	0.20	5.75-7.00
General Office	2.86	spaces/KSF	2.50	1.00	3.33	2.00-3.00	4.00	2.80-3.93
Medical Office	4.00	spaces/KSF	2.00	1.00+	0.50+	2.00-4.00	4.00	4.60
Consumer/Trade Services	2.50	spaces/KSF	N/C	N/C	N/C	2.00-4.00	N/C	3.90-4.35
Veterinary Care/Laundries	2.00	spaces/KSF	N/C	N/C	N/C	2.00-4.00	N/C	N/C
Retail Stores	3.33	spaces/KSF	1.43-5.00	6.67	3.64	2.00-4.00	2.00	2.80-4.90
Restaurants/Bars	10.00	spaces/KSF	6.67	15.00+	N/C	3.00-5.00	10.00	14.40-18.75
Hotel	1.25	spaces/room	0.25	1.00+	1.00+	1.00	1.00	1.15
Hotel - Lounge/Restaurant	10.00	spaces/KSF	N/C	N/C	2.00	N/C	N/C	7.87-9.00
Hotel - Meeting Space	40.00	spaces/KSF	N/C	N/C	2.00	N/C	N/C	6.00-32.00
Wholesale/Warehouse	0.50	spaces/KSF	N/C	1.00+	N/C	0.00-4.00	0.50	N/C
Industrial	1.00-2.00	spaces/KSF	1.00	N/C	1.25	2.00-4.00	0.50	N/C

N/C = No comparable ratio/requirement

Overall, the parking requirements in Portsmouth appeared to fall into the middle of the range among the comparable communities and at the lower end of the industry standard. Among the most commonly occurring land uses (residential, general office, medical office, retail, restaurants, and hotels) the parking requirements for the City of Portsmouth were in the middle of the range among comparable communities and at the lower end of the range of industry standards. This was an expected result as industry standards must accommodate rural, suburban, and urban settings across the country, while the requirements in the comparable communities were closer aligned to Portsmouth.

The only instances of major misalignment among parking requirements were for Lounge/Restaurant and/or Meeting Space associated with a Hotel, where Portsmouth's requirement was well above the range for comparable communities and industry standards. The consulting team did not have the ability to independently 'test' these requirements against actual utilization during the course of the study to determine if Portsmouth's requirements are in fact overly conservative and would therefore recommend keeping them in place until a program of study can be developed and executed.

The case studies supporting the industry standards can encompass hundreds and even thousands of different sites observed over the prior three to five decades in some cases. As the COVID-19 pandemic demonstrated, use patterns for different land uses are not fixed and can change according to cultural or societal shifts. To that end, the consulting team would recommend the city develop and execute a program of periodic study of actual land uses to ensure that Portsmouth's parking requirements remain aligned with actual demand and development trends.

Code Features

Within zoning code, the parking minimums set a floor on the number of parking spaces to be provided by land use. In most cases, the total parking required or allowed is based on calculating the impact of each land use and summing the result to achieve a target number of minimum allowed spaces for the project. The *features* within the zoning code are those mechanisms which allow the applicant mechanisms for relief against these minimum requirements as needed or justified to allow the project to move forward without negatively impacting the community.

The quality of these features is measured not just in whether they are included within the zoning code, but also how accessible and assured they are. This is an important distinction to a prospective applicant weighing a potential investment in one community versus another. The applicant not only wants to know that relief is allowed under one or more of these features, but is also looking for a clear process for applying for the relief and reasonable assurances that, if they follow the process correctly and their project meets criteria, they will receive a predictable degree of relief.

This comes back again to the question of whom the code is written to benefit. A prospective developer views the site and/or design approval process required by a community as a period of sunk costs which may never be recovered. During the process of site and/or design approval, the developer is only losing money with no guarantee that the project will advance. Anything a municipality can do to expedite this process makes it more attractive to prospective developers. Clearly written code that details what the feature is and the process required to access the feature, as well as templates or other standardized tools to facilitate quick and correct filing, will attract developers. Code features which include clear and reliable exchange rates will also be more attractive to developers. Simply put, developers want to invest their time

and focus on permitting efforts that they believe will advance quickly, with a minimum of complications, and deliver predictable results.

The preceding guidelines are fine for the municipality seeking to use its zoning code as a tool for encouraging growth and investment as the highest priority. However, for those communities which see zoning code as a tool for maintaining control over new development first and foremost, features which:

- Mandate final approval may only be granted by an overseeing body;
- Note that relief may be granted, but not in any predictable amount;
- Require the applicant to provide a study or other documentation to support their application, but do not define how the study must be conducted or what the documentation must address; and/or
- Fail to include metrics describing a valid or favorable application all serve as mechanisms to slow the permitting process down.

Ambiguity and unpredictability both serve the municipality in as much as they allow the permitting agency to control the process and determine the grounds for approval for those applicants with adequate incentive to stay through the process.

For this analysis, the consulting team looked at each of these features relative the code for Portsmouth and the other five municipalities and sought to identify areas where Portsmouth's code could be improved through modification of the existing language or adoption of language from one of the comparable communities. In each case, where recommendations were made, the consulting team identified the basis for the recommendation and/or the anticipated value to Portsmouth for accepting the recommendation.

Table 3: Comparison of Zoning Code Features Specific to Parking

Feature	Portsmouth, NH	Portland, ME	Salem, MA	Dover, NH	Burlington, VT	Ithaca, NY
Conditional Use Waiver	Yes	No	No	No	No	No
Ratio Modification	Yes	No	No	No	No	No
Reserve Mitigation	Yes	No	No	No	No	No
Parking Maximum	Yes	No	No	Yes	Yes	Yes
Intrafacility Shared Use	Yes	Yes	No	No	No	Yes
Interfacility Shared Use	Yes	Yes	Yes	Yes	No	No
Remote Parking	Yes	Yes	No	Yes	No	Yes
District Waivers	Yes	Yes	Yes	No	No	Yes
Bicycle Requirements	Yes	Yes	No	Yes	Yes	Yes
Transit Mitigation	No	Yes	No	No	No	No
Car Share Mitigation	No	Yes	No	No	Yes	No
Other Mode Mitigation	No	Yes	No	No	Yes	No
Public Supply Credit	No	No	Yes	Yes	No	No
On-Street Credit	No	No	No	No	No	No
In Lieu Payment Option	No	Yes	No	No	No	No

Portsmouth's parking code stands out among other cities due to its inclusion of a defined process for applying for reductions in parking requirements via a **Conditional Use Waiver**. While cities like Portland,

ME, and Salem, MA offer automatic or elective waivers for specific land uses, Portsmouth's process is unique in its structure but could benefit from additional clarity. Currently, the code does not specify what should be included in a parking demand analysis, nor does it define the metrics for evaluating its adequacy. Additionally, the requirement for applicants to identify "evidence-based measures" to reduce parking demand is vague, lacking clear definitions and evaluation criteria. The language in the code that gives the Planning Board discretion in decision-making could also be improved by replacing "At its discretion" with a more transparent statement of conditions for acceptance or rejection of applications.

Portsmouth's code also includes provisions for the **modification of parking demand ratios** specific to land uses, which is not seen in other cities. However, similar to the Conditional Use Waiver, the code could benefit from a clearer definition of what constitutes an acceptable parking study to ensure its acceptance by the Planning Board.

The **reserve parking area** provision in Portsmouth is straightforward and does not require any changes, but the City's inclusion of both **parking maximums** and minimums is a unique feature. It is suggested that Portsmouth consider adding a provision that allows for the commercial use of parking spaces beyond the minimum but within the maximum, such as for fee-for-use parking.

Regarding **shared parking**, Portsmouth's code provides a clear methodology for both **intrafacility** and **interfacility shared use**, which is to be commended. However, the Intrafacility shared use provisions could be improved by offering more specifics about how shared parking agreements should be structured, possibly including templates for applicants. Portsmouth's code also includes clear guidelines for the allowable distance between a project and its parking facility, which is comparable to other cities, and no issues were found with this provision.

While Portsmouth offers **district-based waivers** for certain land uses, its code for **bicycle parking**, as outlined in Section 10.1116, is clear but could be enhanced by adopting more comprehensive bicycle parking standards, such as those used in Burlington, VT.

Unlike Portland, which includes provisions for **transit mitigation** and **car share mitigation**, Portsmouth does not currently offer these options in its zoning code. Adopting such provisions could help support sustainable transportation options in the future.

Portsmouth also does not offer a **public supply credit** or credit for **on-street parking**, features seen in cities like Salem, MA and others in the Mid-Atlantic states.

The city previously offered an **in-lieu payment option** but discontinued it due to lack of interest. However, considering Portsmouth's density and development patterns, revisiting this option could be beneficial in the future, particularly for urban development's where parking demand exceeds available space.

Additionally, Portsmouth may want to look into adopting provisions for **Electric Vehicle Supply Equipment (EVSE)**, similar to Dover, NH, to support the growing need for electric vehicle charging infrastructure. Lastly, Portsmouth could benefit from reviewing Burlington, VT's updated zoning code, which includes clear guidelines on Transportation Demand Management and Institutional Parking Plans, to help promote sustainable transportation and manage parking demand more effectively.

In conclusion, while Portsmouth's parking code includes several innovative provisions, including **shared parking** and **parking maximums**, it could benefit from greater clarity and the inclusion of sustainability-focused features, such as **car share mitigation** and expanded **bicycle parking** standards. By addressing these gaps, Portsmouth can strengthen its parking management system and better support sustainable development and transportation options.

Case Study

As part of the assessment of parking requirements and code features, the consulting team was asked to review the plans and permitting application for West End Yards, a mixed-use development located outside of the defined study area by subject to the City's existing zoning code.

Review of plans and permitting applications submitted by Fuss & O'Neill on behalf of the entity managing apartments within the project indicate that the applicant had concerns that the minimum parking requirements associated with residential units were not reflective of market standards. Specifically, it was noted that the City was requiring between 0.50 spaces/unit and 1.30 spaces/unit by code while prospective tenants were mandating between 1.00 and 2.00 spaces/unit.

A subsequent document within the same filing indicated that, per City code, the requirement for the 250-unit apartment complex was for 287 spaces versus the 357 spaces the developer planned to provide. Similarly, the 23-unit townhomes component of the project was only required per code to provide 35 total parking spaces but actually included a total of 51 parking spaces. Inversely, the 48,281 square foot commercial component of the project, made up of commercial office spaces, a health club, and dining establishments, was required by code to provide 235 spaces, but was designed to include just 212 spaces.

The application included analysis demonstrating that the reduction in parking relative to the commercial land uses was justified under the code's intrafacility shared use features and concluded that the code in total only required 557 spaces, while the developer was providing 622 spaces, which more than met the minimum requirements. Additionally, the 622 spaces did not exceed the City's stated parking maximum for the project, which was 668 spaces.

Based on this, the consulting team concluded that the current zoning code functions is designed without impediment to the developer or risk to the community. While the parking minimums may not be reflective of market requirements for residential parking, the code features allowed the applicant the needed relief to provide enough parking spaces to meet this market demand without violating the code.

Critical Findings

The preceding section details a number of critical findings and recommendation which are summarized as follows:

1. The basic parking minimums used within the City of Portsmouth code are in line with the comparable communities surveyed and industry standards with the exception of meeting spaces and restaurant/lounge associated with hotel. The consulting team does not recommend revising these requirements, but does suggest the City of Portsmouth develop and execute a program of study to check the appropriateness of these requirements as well as the others and periodically update requirements to reflect changing actual use trends.

2. The City's Parking Maximum features allow the code enough flexibility to meet 'market' conditions and thus requires no modification at this time. However, care should be taken in the future to assure that any parking built against 'maximum' limits is restricted to project tenant use and not created to be used as commercial parking.
3. The language detailing how a project will be evaluated for relief under a Condition Use Waiver or requests for Ratio Modifications could be revised to provide greater detail on specific steps for pursuing relief and criteria for award to instill more confidence for applicants pursuing these approaches.
4. Similarly, greater structure and detail regarding the process for seeking relief under the City's shared parking provisions (interfacility and intrafacility), including approved reductions by land use and sample terms and conditions for an approved shared use agreement, would encourage developers to seek this avenue with greater interest and confidence. This is especially important given the portion of total supply in private hands and its comparatively low utilization rate.
5. The City of Portsmouth's code regarding bicycle parking could be expanded upon and language promoting reduction for inclusion of car-share elements would assist in moving new development towards the city's sustainability goals.
6. The City should develop and adopt codes mandating provision of EV charging units moving forward to assure adequate supply to meet the growing number of electric vehicles in the region.

Greater detail on the preceding analysis and recommendations is included as ***Appendix B*** of this plan.

4. Future Conditions

The consulting team worked with the City of Portsmouth to identify emerging developments likely to impact parking supply and demand dynamics within the defined study area over the coming decade and developed impact analysis using industry standard methodologies to project future parking supply and demand conditions. The following section summarizes this work.

Methodology

Parking ***occupancy*** is not synonymous with parking ***demand***. *Parking occupancy* reports where vehicles were parked at a given time and place along with the relative utilization (i.e., number of parking spaces filled) and adequacy (e.g., number of parking spaces unused) at that time. These conditions, which inform general impressions of the health of a parking facility or system, are specific only to the given date and time. In contrast, *parking demand* projections are specific to where people want to park according to the location of land uses that make up a project, block, and/or area and are designed to reflect conditions at the busiest hours of the busiest day of the year (i.e. "peak conditions") within a defined planning horizon. Standard Operating Procedures and regulations may be developed to address issues caused by parking occupancy, but parking systems are planned to meet the needs of peak projected demand.

Because of the preceding distinction, the consulting team could not assume that the existing parking supply in downtown Portsmouth was adequate based on occupancy observations, which did not take into account the fluctuations in parking needs by time of year. In order to model out seasonal fluctuations in parking demand, the consulting team prepared a Shared Parking model specific to the defined study area. *Shared Parking Model* is a methodology for calculating the parking demands of a project or area developed by the Urban Land Institute (ULI), the Institute of Transportation Engineers (ITE), the International Council of Shopping Centers (ICSC), and other organizations.

This methodology is a departure from the standard zoning ordinance method of calculating required parking which is to apply a parking demand ratio (or parking requirement per local code or ordinance) to each component within a project, sum the total of all demands and build against this figure. This traditional methodology treats parking demand as a fixed, unwavering phenomenon and, as result, often results in the provision of parking supply greater than the true need of the development or district. Shared Parking methodology allows the planner to accurately determine the need for the development or district as an organic whole, rather than an assembly of disparate parts. The result is provision of a parking supply to support the project or area which is adequate to meet the project's needs without building excess parking spaces.

Shared Parking models are comprised of industry standard base parking demand ratios, adjusted to reflect for variations in demand specific to each project's composition and locality, as well as fluctuations in demand according to time of day and year. These parking demand ratios were developed by studying existing land uses (i.e., retail stores, office buildings, residential complexes, etc.) to determine how many parking spaces were needed in actuality under peak hour conditions to support each land use. This empirical approach assured parking demand projections that were based on reality and therefore would be adequate to meet each land use's needs. The ratios are shown as part of ***Appendix C*** of this report.

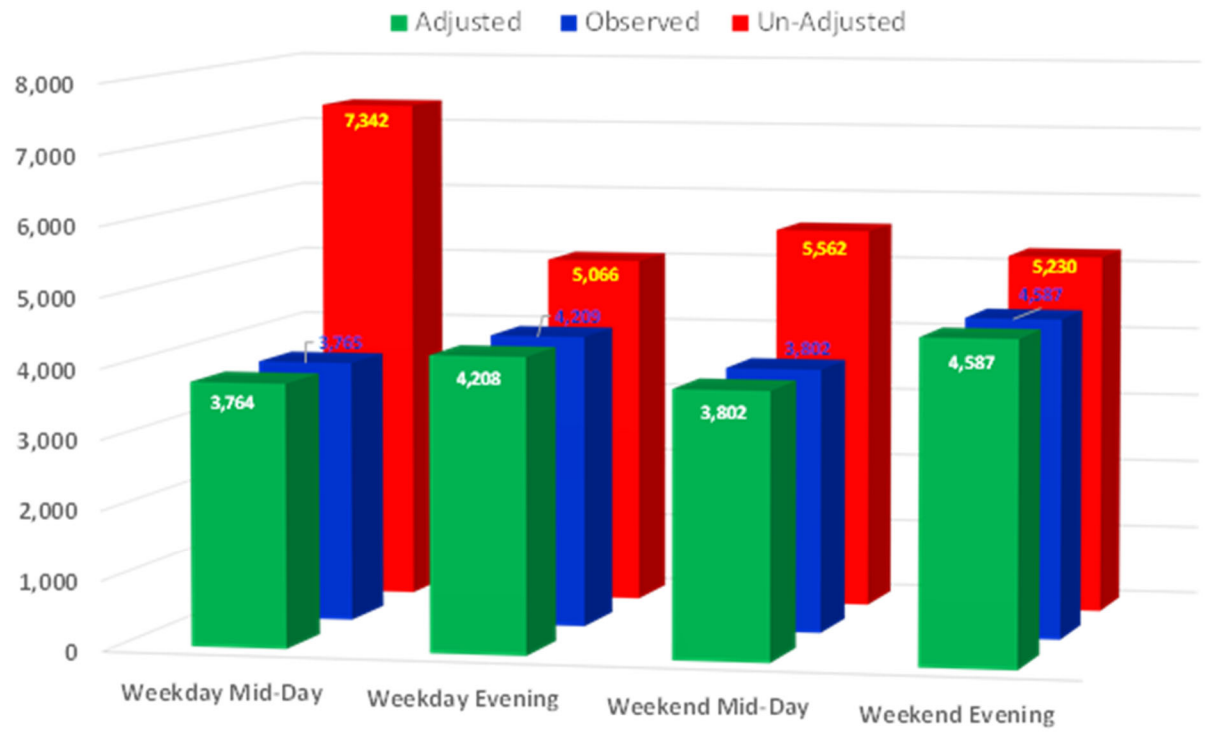
These parking demand ratios were developed over time from case studies conducted across the United States and set to reflect the 85th percentile of conditions observed for each land use. This ensured that

any planned parking supply would be adequate for virtually every project employing this approach, but also did not reflect any local dynamics. To adapt this approach to reflect conditions specific to the City of Portsmouth, the base parking demand ratios needed to be adjusted. The three adjustments applied to these base demand ratios were modal, *capture*, and *local* adjustments.

Modal adjustments account for the different transportation choices users might make, such as driving, carpooling, walking, or working from home. For example, data from the 2021 American Community Survey (ACS) for Portsmouth, New Hampshire, showed that 71.8% of residents drove to work. Additionally, the same survey reported 5.8% of households in Portsmouth do not own a car. This information was used to modify the base demand ratios to reflect conditions in Portsmouth

Capture adjustments reflect the percentage of people who are already present on the site for one reason but patronize another business without generating additional parking demand. For example, office workers who visit a nearby coffee shop on break do not require extra parking, as their space is already accounted for by their office. DESMAN made no adjustments for capture in our model due to a lack of formal evidence.

Figure 4: Comparisons of Unadjusted and Calibrated Projections to Observed Conditions



Local adjustments reflect the difference between 'raw' parking demand model outputs after modal and capture adjustments have been made and actual observed conditions. In this case, when the consulting team compared occupancy counts taken in May 2023 with model projections for the same days and time periods, based on the land uses active and occupied within the study area on May 2023, we found the model was overstating conditions by as much as 50% as shown in *Figure 4*. Applying local adjustments allowed the consulting team to align and calibrate the model with observed occupancy so that any

projections of peak hour demand under current or future conditions would be reflective of the number of parking spaces the City of Portsmouth would truly need.

Effective Parking Supply

Effective parking supply is an urban planning approach commonly employed in projecting future parking need. When evaluating the level of utilization and/or number of spaces available during the course of conducting field occupancy surveys, both utilization (e.g., the percentage of parking in use) and adequacy (i.e., the number of parking spaces not in use) are measured against the raw parking supply within a facility and/or area (e.g., the actual number of cars parked relative to actual number of spaces physically present).

Effective parking supply arose from field observations conducted by parking professionals, transportation engineers, and urban planners. What these individuals noted was that the number of marked spaces within a particular parking area or facility was frequently higher than the number of vehicles that can be safely or practically parked there. For example, once the on-street parking along a block face is filled to roughly 85% of the marked capacity, for all purposes the block face is effectively full as approaching drivers cannot safely polite their vehicle in traffic while searching for that last open parking space. Alternately, these individuals noted that if one parker places their vehicle in such a manner as to take up the space they have chosen to park within and some of the adjacent space, this can also cause a nine-space block face to be full, even when there are only eight vehicles parked along it, as there not adequate room to fit the nineth vehicle.

For surface lots, urban planners, transportation engineers, and parking professionals have noted that the facility may lose up to 10% of its striped capacity to snow storage during the winter months and/or misparked or oversized vehicles during the rest of the year. For parking structures, the loss factor is commonly closer to 5%, as only the top floor may be impacted by snow storage and most oversized vehicles cannot access these facilities, but misparking and inefficiencies can still make the facility effectively full when the actual number of cars only equals 95% of the posted capacity.

Researchers also noted that inefficiencies are far less likely to occur in facilities where parking is assigned to a specific user or user type or when use of the facility is limited to a restricted number of repeat parkers. For example, there is rarely an adjustment factor applied to handicapped spaces, facilities used exclusively for valet parking, and garages restricted to serving the same residents, tenants, employees, or other users on a regular basis.

For the purposes of this analysis, the consulting team applied the following adjustments to the raw parking supply to create an effective parking supply:

- On-street parking spaces subject to metering, time limits, and permit requirements as well as those spaces not subject to any form of regulation or assignment were subject to a 15% reduction from the raw inventory to render an effective parking supply.
- With the exception of handicapped spaces, the capacity within each publicly-owned and -accessible parking lot was subject to a 10% reduction.
- With the exception of handicapped spaces or those set aside for electric vehicle charging, the capacity within each publicly-owned and -accessible parking structure was subject to a 5% reduction.

- With the exception of handicapped spaces, the capacity within each privately-owned parking lot was subject to a 10% reduction.
- The raw inventory for private parking structures was not subject to any adjustment as these facilities were reserved for use by an exclusive user base and often included reserved assignments.

These adjustments converted the existing parking supply inventory of 6,842 spaces into an **effective parking supply of 6,278 spaces**. This was the figure used to evaluate peak hour existing conditions as well as conditions assuming absorption of all existing vacant space. For near-, mid-, and long-term scenarios, the effective parking supply was adjusted to reflect those existing parking spaces lost to new development as well as those incorporated into each project applying the same methodology.

Emerging Developments

When developing the land use inventory in May 2023, the consulting team identified 35 properties containing a total of roughly 130,000 square feet of vacant, inactive space. Working with City officials and local real estate professionals, the consulting team allocated these vacant spaces across four different land uses, based on either the land uses that had been in place when the space was occupied or how the space was being marketed currently. The addition of this data to model resulted in peak hour parking demand which increased by 364 vehicles at the peak hour on a weekday and 345 vehicles at the peak hour on a weekend.

Working with City officials, the consulting team identified ten emerging developments that could impact parking dynamics in the study area over the next 10 years. Project specific information is included in ***Table 4*** below. The location of the projects is shown in ***Figure 5***, next page.

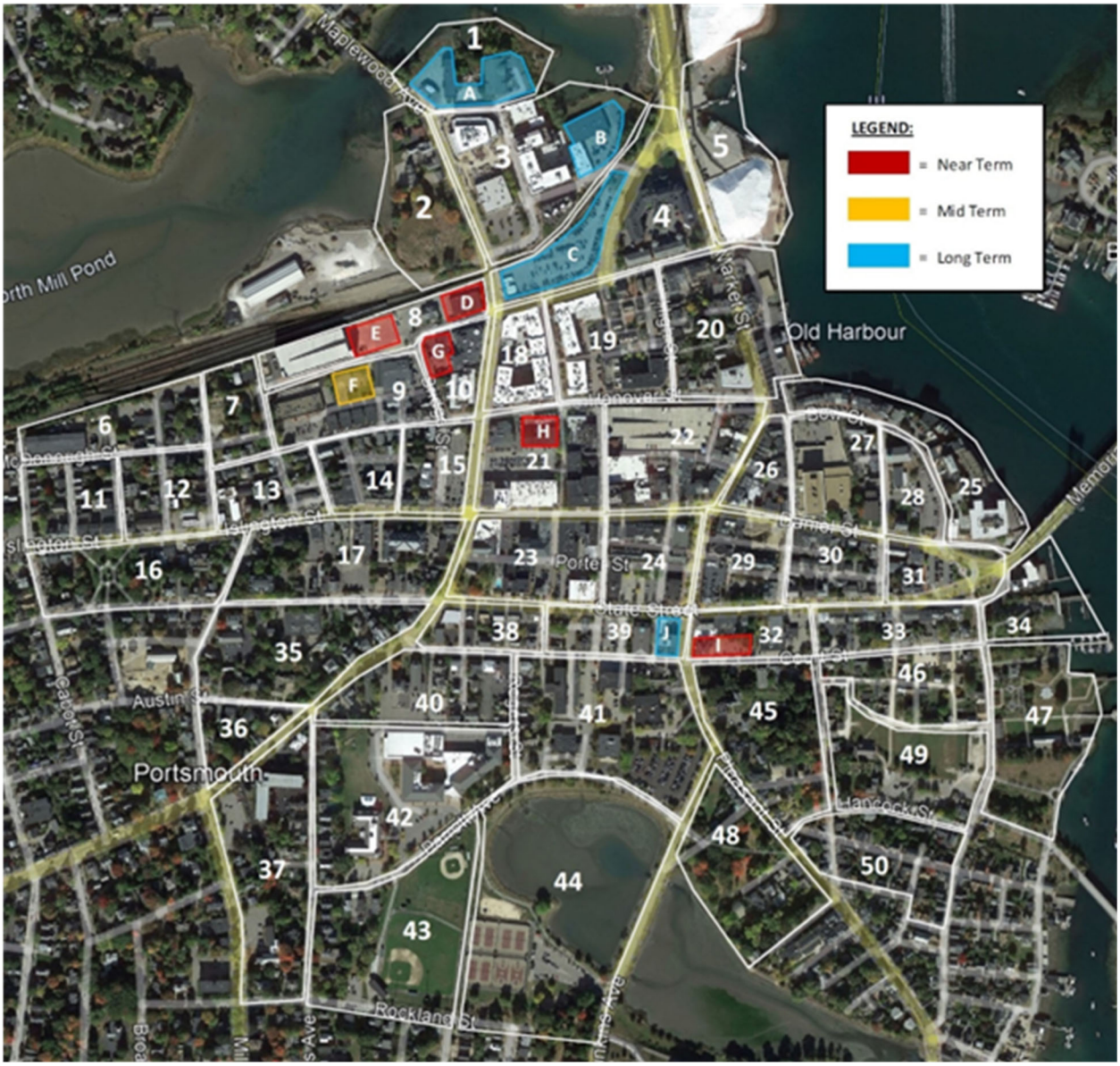
Table 4: Emerging Developments Program Data

Map ID	Property Name	Dev't Phase	LAND USE						Total Mixed Use	Planned Parking	Displaced Parking	Surplus/ (Deficit)
			Retail	Restaurant	Office	Medical	Hotel	Residential				
A	Treadwell-Jenness Mansion	Near Term			34,266				***34,266***	18	(30)	(12)
B	Lot 5	Near Term	12,236	4,954				19	***17,190***	29	(21)	8
C	Statey Grill	Near Term						21	***6,018***	0	0	0
D	Margeson Bros Furniture Co	Near Term				59124				20	0	20
E	Sheraton Public Lot	Long Term	50938		45,944			80	***252,085***	334	(154)	180
F	1 Raynes Ave	Long Term	7,720				124	32	***102,695***	138	(101)	37
G	53 Green St	Long Term	29,660					45	***77,579***	86	(58)	28
H	Times Building	Long Term	4,400					19	***4,400***	19	0	19
I	Lot 3 (Hyatt Place)	Near Term		1,400			116		***98,868***	50	(71)	(21)
J	Lot 6	Mid Term	4,282					55	***75,059***	34	(10)	24
		TOTAL	**109,236**	**6,354**	**80,210**	**59,124**	**240**	**271**	***668,160***	**728**	**(445)**	**283**

Emerging developments were organized according to the timing of anticipated completion. “Near-Term” projects were those likely to be done within the next four years; “Mid-Term” projects were still in design and projected to open in the next five to seven years; “Long-Term” projects were still in planning and permitting stages and anticipated to come online in the next eight to ten years. The development program for each emerging development was developed from official plans and filings, news reports, and conversations with City officials. Planned parking was taken from the same plans, filings, and/or news reports, while displaced parking was estimated based on the proposed site of each development relative to existing parking facilities. None of the projects proposed reduce the current public parking inventory,

but several projects were planned to use public parking facilities to meet some or all of the needs of the proposed land uses.

Figure 5: Emerging Developments by Location and Phase



This listing did not include several projects reported upon in local media, but not yet subject to an official filing for development, including the McIntyre Building. These projects were not included in the analysis due to the lack of defined development program to analyze.

Future Needs

The consulting team's analysis of occupied and active land uses as of May 2023 indicated that the busiest weekday of the year was likely to occur in June and the busiest weekend day was likely to be the Saturday just preceding Christmas. This was consistent with anecdotal and City of Portsmouth public parking system

data collected over the prior fiscal year. In both cases, the peak hour occurred in the evenings of the busiest days; 5:00 PM for the weekday and 8:00 PM for the weekend day. This was also consistent with the consulting team's observations of occupancy and utilization, anecdotal data, public parking system data, and the mix of land uses within the study area. In comparing projected peak hour demand with observed occupancy, the consulting team found the calibrated model projected peak hour demand that was 22% higher than the busiest hour observed during weekday occupancy counts and 9% higher than the busiest hour observed during weekend occupancy counts.

The consulting team analyzed peak hour demand under current conditions from several perspectives. On a *block-by-block* basis identified 15 out of the 50 blocks within the study area experiencing 'mathematic' shortfalls where the parking demand exerted by the land uses within the block exceeded the parking supply contained on the block. This is a common condition in urban settings where one block may be developed to its maximum density with little or no parking on it and the adjacent block may be developed to contain the parking supply needed to support the land use. The consulting team refers to these projected supply shortfalls as 'mathematic' because in actual practice the concentrations of demand on one block and supply on the adjacent block offset each other.

The consulting team evaluated peak hour demand against parking supply on an *aggregate* (e.g., study-area wide) basis as well. From this perspective, the consulting team found the total effective parking supply was only 83% full at the peak weekday hour, leaving 1,049 spaces open, and 81% full at the peak weekend hour, leaving 1,206 spaces open.

The aggregate approach is the more common perspective used in urban settings where parkers are accustomed to parking some distance away from their intended destination, due to the interplay of blocks with concentrated development (demand) and blocks with reservoirs of provided parking spaces (supply). However, for study areas the size of downtown Portsmouth, this must be tempered as well as it is unlikely the majority of parkers will be willing to park more than 2-3 blocks from their intended destination. In this perspective, a shortfall may not be indicated in the aggregate measure, but the community may still experience parking problems because the available supply is too far removed from the source of the unsatisfied demand.

The compromise between these approaches is to look at projected parking demand and supply within the boundaries of acceptable walking distance. The majority of the public parking system[1] is contained within the "**Red Zone**," which also incorporates much of the Downtown Core as well as sections of the Islington Neighborhood, North Mill Pond District, South Mill Pond District, and Memorial Bridge District. Based on field observations of current parking behaviors, this boundaries of this "Red Zone" define the limits of acceptable walking distance within downtown Portsmouth. Within this "Red Zone," which occupies 21 of the 50 blocks making up the defined study area, the effective parking supply is 4,132 spaces.

Under current (2023) conditions and within the Red Zone, at the peak weekday hour the parking supply was 95% full, leaving just 204 spaces. Under current (2023) conditions and within the Red Zone, at the peak weekend hour the parking supply was 93% full, leaving just 304 spaces. In both cases, for the individuals parking within this area, parking conditions would be perceived as 'tight' but not completely full, which aligns with descriptions of the area at peak hour from stakeholders and constituents.

[1] Including the Hanover and Foundry Place Garages; the Market-Hanover, Worth, Bridge Street, and Parrott Avenue Lots; and most of the on-street meters. The Red Zone represents 47% of the total on-street supply and 83% of the public off-street supply.

The consulting team performed this type of analysis at four defined benchmarks, each building off the prior benchmark. Projections of peak hour supply and demand assuming the *absorption of all existing vacant space* builds off projections of parking supply and demand under current conditions. The projections of peak hour parking supply and demand for the *Near-Term* emerging developments build off the absorption projections. Similarly, projections of parking supply and demand after the build out of *Mid-Term* and *Long-Term* emerging developments compound the prior benchmarks impacts. Details regarding projected parking supply, demand, utilization and adequacy from the *block-by-block*, *aggregate*, and *Red Zone* perspectives are included as ***Appendix C*** to this report.

At the conclusion of the Long-Term benchmark, the consulting team projected that the study area as a whole (aggregate) would demand 6,276 spaces at the peak weekday hour and 6,125 spaces at the peak weekend hour against an effective supply of 6,472 spaces, resulting in respective utilization rates of 97% and 95%.

Figures 6 and ***7*** on the following pages illustrate conditions from a block-by-block perspective. These graphics present total utilization in terms of 'low' utilization (50% or less utilization) in **blue**; 'moderate' utilization (between 50% and 69% utilization) in **green**; 'growing' utilization (between 70% and 79% utilization) in **orange**; 'high' utilization (between 80% and 89% utilization) in **yellow**; 'major' (90% to 100% of parking filled) in **red**; and lastly 'over utilized' (over 100% of the total parking capacity of the block filled) in **purple**.

Using the Red Zone to represent common perception and experience for residents, property and business owners, employees, shoppers, diners, and visitors, the consulting team projected that, on the peak weekday hour in the Long-Term, the City of Portsmouth would experience shortfalls up to 573 spaces. At the peak weekend hour in the Long-Term, the projected shortfall was slightly less at 550 spaces. This condition is not new to the Long-Term, lesser shortfalls 179-196 spaces on weekdays and 27-82 spaces on weekends are projected within the Red Zone at Near- and Mid-Term benchmarks.

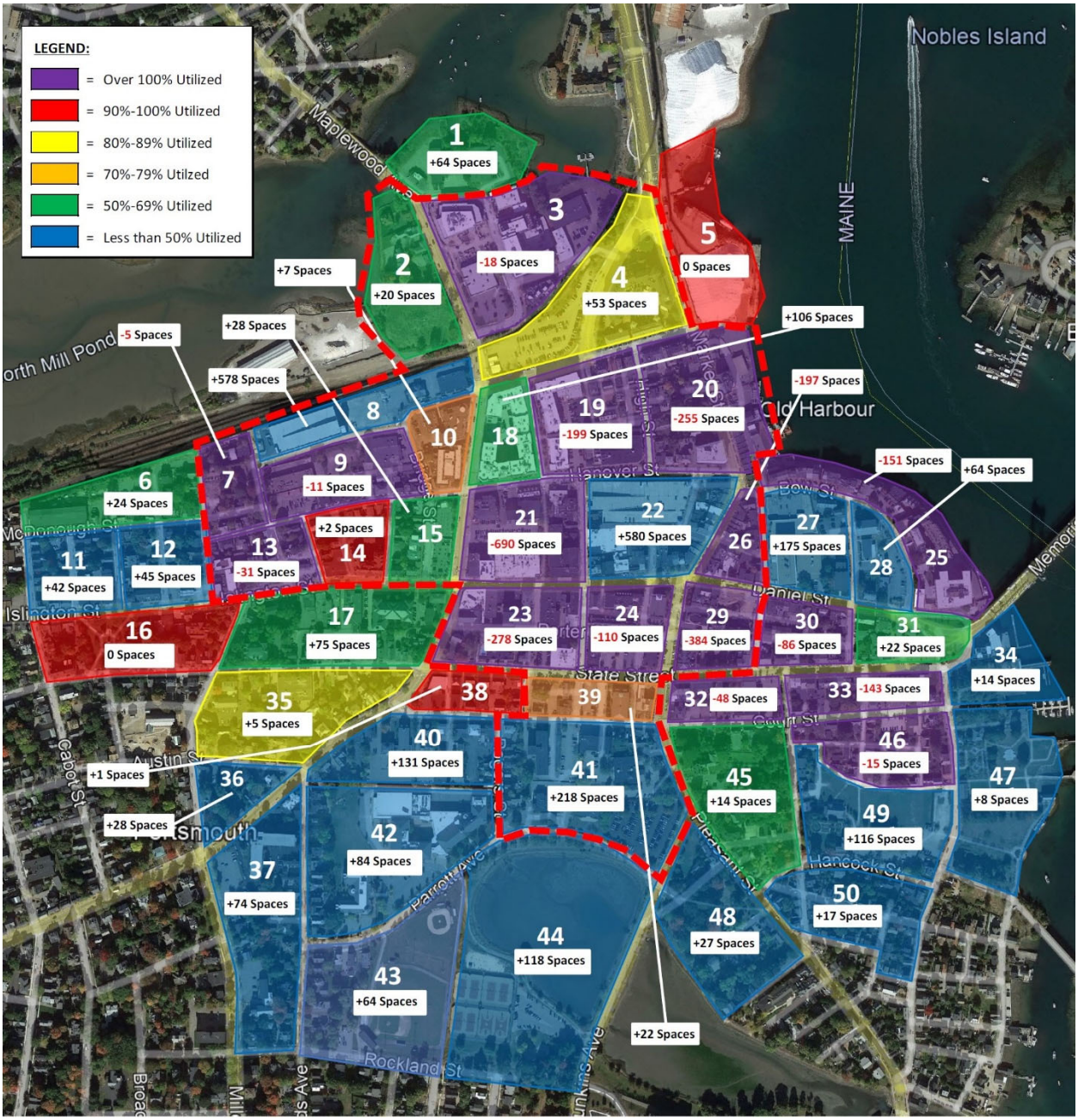
Critical Findings

Under current conditions, parking in downtown Portsmouth can appear highly congested during periods of peak demand and some individual facilities or blocks may be filled to capacity, even though there are more than 1,000 open parking spaces across the study area. The majority of these open spaces are in privately-owned parking facilities the public cannot access or unregulated on-street parking areas in residential neighborhoods just outside the Downtown Core.

With absorption of currently vacant spaces within the study area, utilization will climb across the study area, with less than 700 open spaces at the peak weekday hour and less than 900 open spaces at the peak weekend hour. Within the more constrained Red Zone, these peak hour conditions will be experienced as periods of complete (100%) utilization with some users potentially unable to find any parking on a weekday.

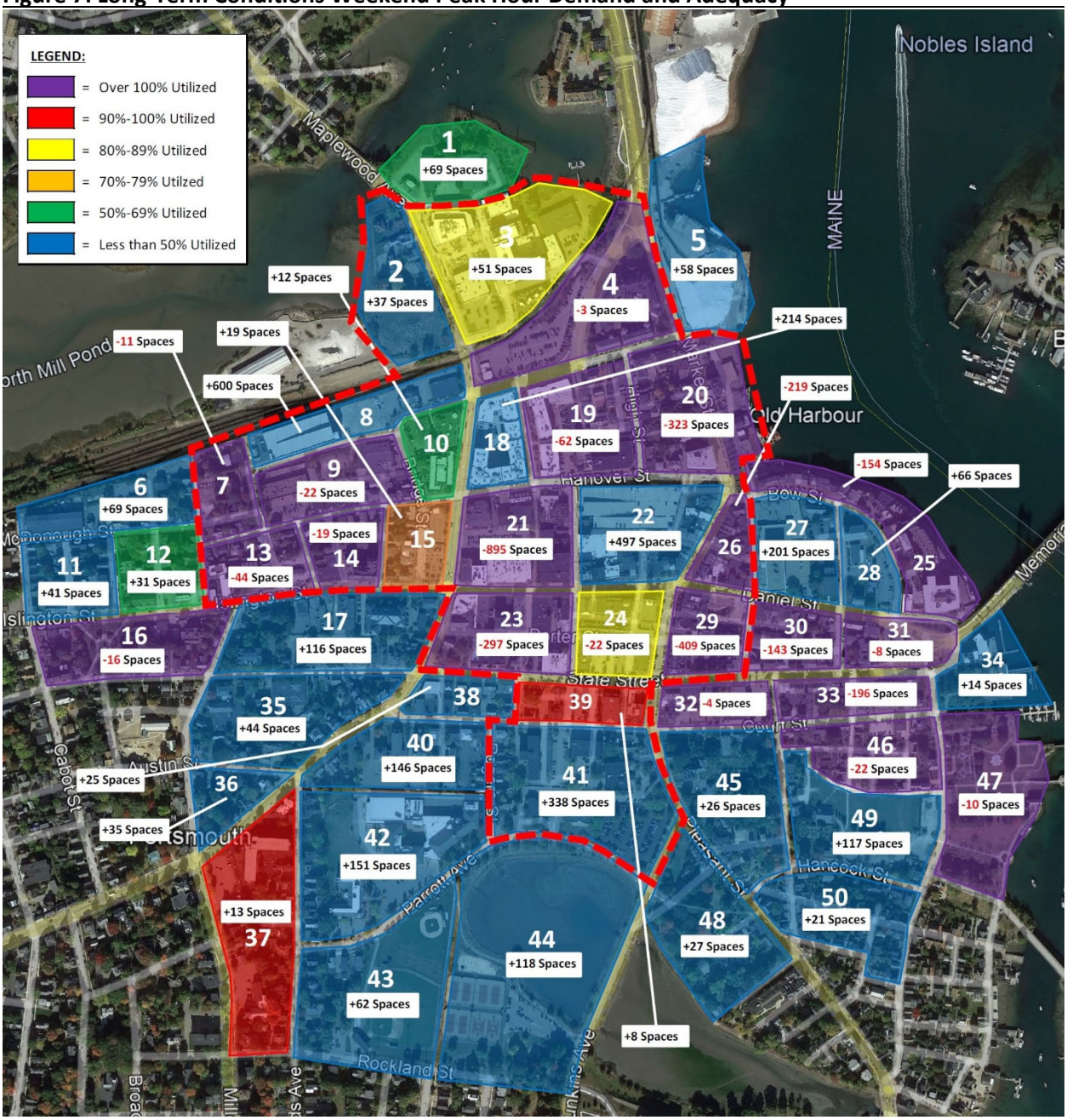
Within the next ten years, the City of Portsmouth will potentially need to create 500 or more new parking spaces, convert some of that current or future demand to alternate modes of transportation, and/or establish a parking reservoir outside the Red Zone with connecting transit service into the Downtown Core to mitigate or eliminate projected parking supply shortfalls.

Figure 6: Long-Term Conditions Weekday Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,472	6,276	196	97%
"Red Zone"	4,259	4,832	(573)	113%

Figure 7: Long-Term Conditions Weekend Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,472	6,125	347	95%
"Red Zone"	4,259	4,809	(550)	113%

5. PROPOSED INITIATIVES

Within the preceding plan, the consulting team has identified a series of challenges and issues, as well as recommended solutions, for the City of Portsmouth to consider. These recommendations have been refined into a series of solutions and concepts and organized under one of five general initiatives:

- **Operational Improvements** focused on improving the efficiency, use, and general health of the public parking system.
- **Zoning Policy Revisions** intended to assure the current code remains effective and advances the city's objectives for development and sustainability.
- **New Programs** to address existing and/or short-term parking challenges proactively.
- **New Public Parking Supply** aimed at identifying opportunities to meet projected parking shortfalls.
- **Alternatives** which might mitigate current or future parking demand issues and promote the city's sustainability goals.

Each initiative is presented as a series of supporting action steps detailing the issue being addressed, the mechanism for addressing the issue, general costs and benefits of adopting the action step, supporting structures needed for implementation, and recommended phasing. Wherever possible, the consulting team also provided case studies and/or examples of implementation by other communities.

The conclusion of this section is a proposed implementation plan for rolling these initiatives and action steps out over the next decade.

Operational Improvements

Operational Improvement recommendations are intended to help the Parking Department make better use of existing assets and/or serve the community better. There are three recommendations under this initiative as follows:

Adopt Parking Occupancy and Guidance Technology

Technology to track utilization of a parking area, facility, and/or system has been in use for over four decades in some airports and transportation centers. These systems tie together inductive loops buried in entry and exit lanes to the facility and/or individual floors and occasionally in lanes within each floor to keep a running count of cars entering and exiting an area, facility, etc. The number of cars present at any given time is deducted from the capacity of the area being monitored to render the number of open spaces. This data is transmitted to dynamic signs located at key decision points which display the number of open spaces and helps the parker find available parking quicker and easier than driving in random search patterns.

The technology for monitoring parking occupancy and providing guidance to open spaces has improved dramatically from these early systems. Occupancy detectors now incorporate sonic, infrared, and video technologies as well as data feeds from on-street and off-street meters as well as access control equipment from lots and garages, resulting in robust data feeds. In point of fact, the City of Portsmouth

has already engaged in a pilot using historical occupancy and payment data from on-street meters to predict where available parking might be found by time of day, day of week, and time of year. This information is communicated to parkers via an application on their handheld device which displays spaces that are likely open on a map of the city, allowing for point-to-point guidance.

In addition to smart device applications, modern guidance systems often employ dynamic signs located at key intersections to direct traffic coming into an area to the nearest collection of open spaces. Additional signage can display how many spaces are open within a block face or facility as the driver approaches and some facilities with multiple floors may have signage which posts how many spaces are open on each floor. The top-of-the-line systems may include indicator lights near or over each parking space showing which spaces are empty (green), occupied (red), designated for handicapped parking (blue), or other messaging.

The consulting team believes that adoption of technology to monitor and report parking occupancy in real-time could help maximize use of available parking spaces once utilization rates exceed 85%-90% of capacity, which is common occurrence on a monthly basis. Given the projection of future needs, the ability to identify and communicate where open spaces are located to searching parkers is going to be a critical need in the near future.

Parking occupancy and guidance systems offer a number of benefits beyond just maximizing efficient use of existing assets, including but not limited to:

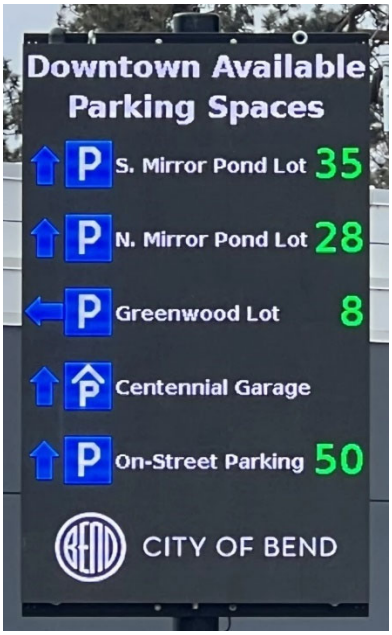
- ✓ Improved customer (i.e. parker/end user) service and experience
- ✓ Reduced CO2 emissions from reduced searching time and distance for open parking
- ✓ Better ability to control vehicular traffic patterns coming into an area and direct traffic through a district
- ✓ Improved visitor communications (for those systems which include dynamic signs that can display multiple, programmable messages)

There are a few potential liabilities associated with adopting this technology, which could include:

- Substantial capital, recurring, and maintenance costs depending on the design and size of the system
- Systems solely reliant on smart device applications to communicate information can distract drivers, creating risks to other vehicles and pedestrians
- Systems that use video technology that capture license plate data on parked and/or passing vehicles may be subject to stringent data management and/or legal regulations regarding privacy
- Most detector technology requires clear line of sight between the detector and the space/lane, which can influence streetscape design negatively (e.g., removing blocking signs or banners, thinning or removing tree canopies, etc.)

System cost will vary according to the detector technology employed, the degree of monitoring desired by the customer, the supporting signage/indicator program, age and state of supporting public power and communications infrastructure, and required site preparation. The system being piloted by the City of

Portsmouth is provided at no cost to the city or end users currently, but would be subject only to a nominal recurring fee if permanently adopted and expanded due to the lack of supporting infrastructure.



The City of Bend, Oregon recently installed a parking guidance system employing video sensors and several types of digital signage that monitors 1,800 spaces at a cost of $300,000 for acquisition and installation and $120,000 annually in recurring service and software fees, which translates into capital costs of roughly $167.00/space and annual operating costs of roughly $67.00/space. State-of-the-art systems can cost as much as $500.00/space for acquisition, plus installation fees and infrastructure improvements, and another $125.00/space annually in recurring service fees.

For the City of Portsmouth, the consulting team would recommend investigating a system which uses video technology tied to spatial recognition, rather than license plate recognition, to identify the presence of a vehicle, thereby sidestepping any potential privacy issues. The cameras for these systems can be mounted on light poles to monitor multiple spaces along a block face or within a lot, reducing both capital and installation costs relative to systems which require a sensor for each space. The selected system should be able to report conditions by a smart device application and also communicate to a small network of dynamic signs mounted along main arterial roadways feeding into downtown and at key intersections displaying the name of areas with open parking, the number of open spaces, and an arrow indicating the direction the driver should turn to seek out those spaces.

The consulting team does not anticipate the city will need to create any kind of special authorizing or regulating legislation and would recommend the effort begin with personnel in the Parking Department and the Department of Public Works investigating various system providers before selecting one as a partner. In terms of roll-out, the consulting team would suggest beginning with a small, six-month pilot which includes 2-3 parking lots, 3-5 block faces, and not more than a dozen dynamic signs. This smaller installation can be tested by the city and the patronizing public to determine its acceptance and overall benefit to the community before committing to expansion across the public parking system, assuming the pilot is a success.

Advancing this action should be a Near-Term priority, given projections of parking demand and utilization growth in the next few years.

The most recent and visible example of a similar initiative is the system adopted by the City of Bend, Oregon (https://www.bendoregon.gov/services/parking/downtown-parking), but the City of Delray Beach, Florida has also recently adopted use of this technology to manage public parking assets (https://www.palmbeachpost.com/story/news/local/delray/2024/09/24/new-parking-system-offers-real-time-data-in-delray-beach/75260736007/) .

Revise Regulations Regarding Private Commercial Parking Operations in Portsmouth

As noted in a previous section, the number of commercial (e.g., privately-owned but publicly-accessible for a fee) parking facilities in downtown Portsmouth grew dramatically since the 2012 study, going from eight lots providing 176 spaces to twenty facilities offering 896 spaces as of April 2023.

In many cases, the pay-and-display meters in these commercial lots are identical to the units installed in the City of Portsmouth's public parking lots. Most of these commercial lots also use the same payment application (ParkMobile) adopted by the city. Most of the commercial parking lots use green signage against a white background to attract parkers, not unlike the signage mandated for public parking facilities within the Manual on Uniform Traffic Control Devices (MUTCD) and blue signage with white lettering to communicate instructions to parkers similar to the universal signs developed by the Professional Association for Design (AIGA) and the U.S. Department of Transportation (USDOT).

The combined effect of these privately-owned commercial parking facilities using payment devices and systems identical to those employed by the City of Portsmouth and signage aligned with common national standards for public signage is to create the appearance that the lot or garage is publicly-owned and priced consistently with the municipal lots and garages in the area. Confusion and consternation arise when the parker makes payment and discovers the hourly rate in effect is several orders of magnitude (2-6x) greater than the anticipated charge. Personnel at the City's Parking Department report that this often provokes angry calls from patrons, who must be calmed and educated that, regardless of what it looks like, the facility they are parking in is not under the City's control.

In defense of the companies managing these commercial lots, the signage often includes language that the facility the drivers are entering is privately-owned and not subject to public rates or hours of operation. Similarly, some of the informational signs within these lots also carry notice that the lot is managed by "X" (i.e., a private entity) and not the City of Portsmouth. However, this print is undersized relative to the other print on the sign and easily overlooked as a result.

The consulting team is recommending that the City of Portsmouth develop and implement legislation mandating new signage and operating regulations for all privately-owned commercial parking lots operating within the city that will enable drivers and parkers to easily distinguish and differentiate these facilities from those owned and managed by the City of Portsmouth for the use of the general public. This legislation should include the following dictums:

A. Signage used in commercial parking facilities must be a different background color, lettering color, and font from that used in the MUTCD and/or AIGA/US DOT universal symbols. The consulting team does not have any opinion regarding specific sign and lettering colors or fonts and defers to the City's traffic engineers for definition on these points.

B. Signs at the entry points for each commercial parking facility should include the following information: the name of/for the facility; the name of the parking manager/operator; the hours of public operation; and the range of fees in effect. Again, the consulting team does not have any opinion regarding specific sign and lettering colors, fonts, or sizes and defers to the City's traffic engineers for definition on these points with one exception: all four items listed must be in the same size lettering which should be readable at a distance of at least 25' by an approaching driver.

C. All signs associated with the commercial parking lot, including informational signs within the lot, should include the phrase "Not a City-Owned Facility" in a font color, style, and size to be determined by the City's traffic engineer, but distinct and different from the other language on the sign.

D. The name and contact number for the facility's owner, manager, and contracted tow company must be listed on a sign to be posted next the pay station servicing the facility. The consulting team defers to the City's traffic engineers for definition regarding specific sign and lettering colors, font styles and size, but the preceding language should be readable from a distance of at least 10' during nighttime hours by the average citizen.

E. Any parking spaces within a commercial facility that are not available for public use during the posted hours of commercial operation should be clearly marked by the word "Reserved" in each stall.

The benefit of adopting this recommendation is that these changes will end confusion between public and private commercial parking facilities through clear visual cues and reduce complaints on the issue to City agencies. The liability is that private parking facility owners and/or operators may decide the new regulations are too onerous and revert their commercial parking facilities back to exclusive access only. However, given the rate of utilization observed in these facilities during field work at the fees in effect at the time and the fact that much of the required information in the recommendation is already on the existing signs, just harder to find, the consulting team believes the majority of facilities will accept these new regulations and comply with them.

The consulting team does not anticipate that the City of Portsmouth will have to incur any new or unique capital or operating costs to move forward with this action.

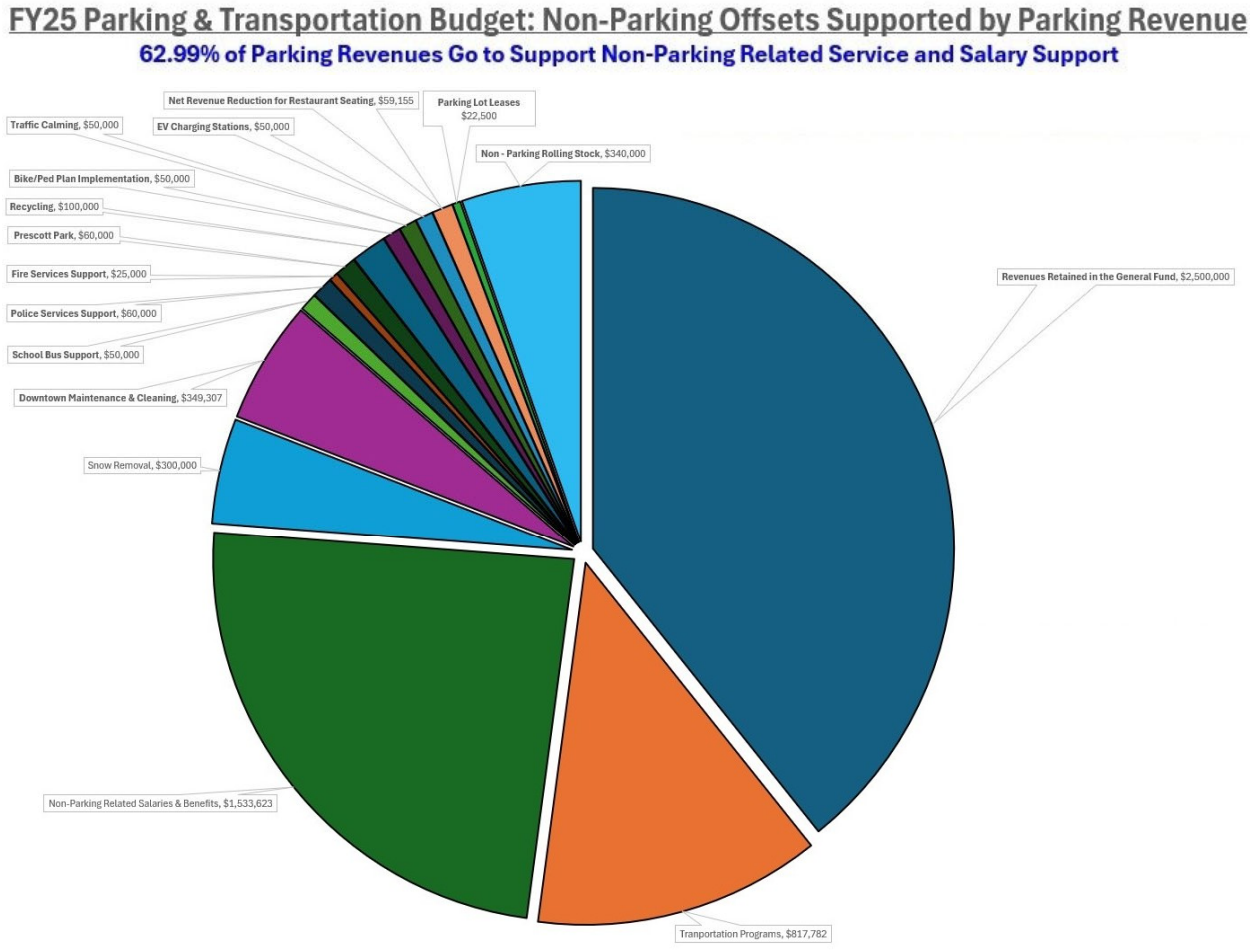
The draft legislation should be developed collaboratively between the Parking Department, the Engineering Department, the Planning and Sustainability Department, and the Legal Department and vetted through the Parking and Traffic Safety Committee and the Planning Board before being brought forward to City Council for review, debate, adoption, and implementation.

Advancing this action should be a Near-Term priority, given that this issue already exists within downtown and should be addressed as soon as reasonably possible.

This challenge is unique to Portsmouth, based on extensive research looking for case studies or examples of implementation in comparable communities. It should be noted that some of the regulations included in the City of Portland, Oregon's City Code under Title 7 (Business Licenses) were adopted in response to a similar issue (https://www.portland.gov/code/7/25/080#:~:text=1.,4.) and may provide assistance in developing draft legislation.

Establish Formal 'Stress Testing' Process for Parking Fund

The U.S. Federal Reserve established a program of assessment for banking institutions, commonly referred to as "stress testing," in the wake of the 2007-09 financial crisis. The Federal Reserve's stress test assesses whether banks are sufficiently capitalized to absorb losses under adverse economic conditions while meeting obligations to creditors and counterparties and continuing to be able to lend to households and businesses. The Federal Reserve conducts the stress test annually, using a minimum of two different scenarios to test a bank's capital adequacy during times of stress, and publicly discloses bank-level results. The Federal Reserve Board uses the stress test to set the stress capital buffer (SCB) requirement, which integrates the stress test with the non-stress capital requirements into one forward-looking and risk-sensitive framework.



While the City of Portsmouth's Parking Fund is not a commercial lending institution, as has already been detailed it does provide a broad range of benefits to the community and relief from property taxes that might otherwise be assessed to pay for the services and programs it subsidizes. The Parking Fund also covers the operating costs of the public parking system and its debt service obligations. Currently the fund is paying down the debt service on the Foundry Place Garage. The preceding analysis indicates the city may need to build one or more new parking facilities in the mid- to long-term to meet parking needs in the Downtown Core. To ensure that the fund can continue to cover its operating expenses, meet its debt service obligations, subsidize community services and programs, and carry the debt of one or more new

facilities, a program should be put in place to regularly assess the health of the fund and, as needed, make operational changes to ensure the City is ready to add more supply when needed.

One of the biggest challenges for municipal parking systems is that their primary sources of revenue come from fees and fines collected, in part, from the community which it serves. Often, there is resistance to adjust these fees and fines to keep up with inflationary factors and new commitments until the system is in danger of becoming insolvent. Even then, political and social pressures make any increase in fees or fines stressful and difficult. As a result, most municipalities put off any rate increase for as long as possible, which often results in increases in fees and fines that are far more drastic than they might have been if a formal process of review and adjustment had already been in place.

Given the fiscal load already placed on the Parking Fund, as well as anticipated costs to adopt the initiatives within this plan, the City needs a mechanism to allow for regular evaluation of the Parking Fund and adjustment of rates as needed. To that end, the consulting team is recommending the City develop and implement legislation mandating periodic 'stress tests' of the fund and allowing for corresponding adjustments in fee and fines as needed.

This legislation should include the following components:

A. A definition of key performance indicators to be evaluated with every stress test.
B. The defined interval for stress testing and parties authorized to conduct the test.
C. Clear definitions of the conditions that would authorize/necessitate a rate change.
D. A process for informing the public of the results of each stress test and inviting questions, comments, etc.
E. Conditions under which a rate adjustment could be enacted without City Council action.
F. Definition of conditions under which the Parking Department would be required to appear before the City Council for approval of the requested rate adjustment.

As noted previously, the benefit of adopting this recommendation is ensuring that the public parking system continues to operate in a net cash positive fashion into the future, covering is operating costs and debt obligations and subsidizing programs and services which benefit the community. The liability of adopting this legislation is that it could, depending on how it is written, mitigate or remove political considerations from the rate adjustment process and/or bypass City Council oversight regarding rate changes.

The consulting team does not anticipate that the City of Portsmouth will have to incur any new or unique capital or operating costs to move forward with this action.

The draft legislation should be developed collaboratively between the Parking Department, the Finance Department, the City Manager, and the Planning and Sustainability Department before being brought forward to City Council.

Development of the necessary legislation should be considered an Immediate priority, given the time it will take to review and revise the language internally before vetting it with the general public in

anticipation of bringing it before City Council for adoption. Based on our study of similar processes, the consulting team anticipates actual implementation of finalized legislation will likely occur in the Near- to Mid-Term.

The City of Ann Arbor, Michigan has adopted a system for assessing the fiscal health of their public parking system and making necessary adjustments. The Ann Arbor DDA (Downtown Development Agency) which oversees management of the public parking system engages in a course of study every five (5) years to establish the fiscal needs for the public parking system for the coming half-decade as well as strategic objectives for the same, based on the conditions at the time. The conclusion of this study is a projected rate structure that commits the DDA to a predictable set of fees for the coming five years, which is vetted by the general public through a hearing process before being endorsed by city leaders. Results of the most recent process (Parking Rate Study 2023) can be found under "Downtown Parking and Transportation Studies" at https://www.a2dda.org/about-downtown/data-reports-studies/.

The Missoula (MT) Parking Commission has adopted a policy guiding how periodic rate adjustments are evaluated, recommended, and vetted by the general public before being presented for adoption (see www.ci.missoula.mt.us/DocumentCenter/View/52620/352020-Resolution-and-Policy-2020-03-re-Annual-Rate-Review). This resolution defines how Parking Commission staff will go about evaluating fees and fines each year, what metrics they will apply, the parameters within they are allowed to recommend adjustments, and the process for vetting these recommendations out with the general public prior to submitting them to City leaders for approval.

The Portland (OR) Bureau of Transportation has drafted a progressive set of policies regarding periodic parking rate changes. The policy statement with supporting schedules (see: https://www.portland.gov/policies/transportation/miscellaneous/trn-3450-transportation-fee-schedule) and enacting legislation (see: https://www.portland.gov/council/documents/ordinance/passed/191724) that back to a broader set of policies detailing how the City of Portland is committed to managing their finances (see: https://www.portland.gov/policies/finance/comprehensive-financial-management-policies).

Zoning Policy Revisions

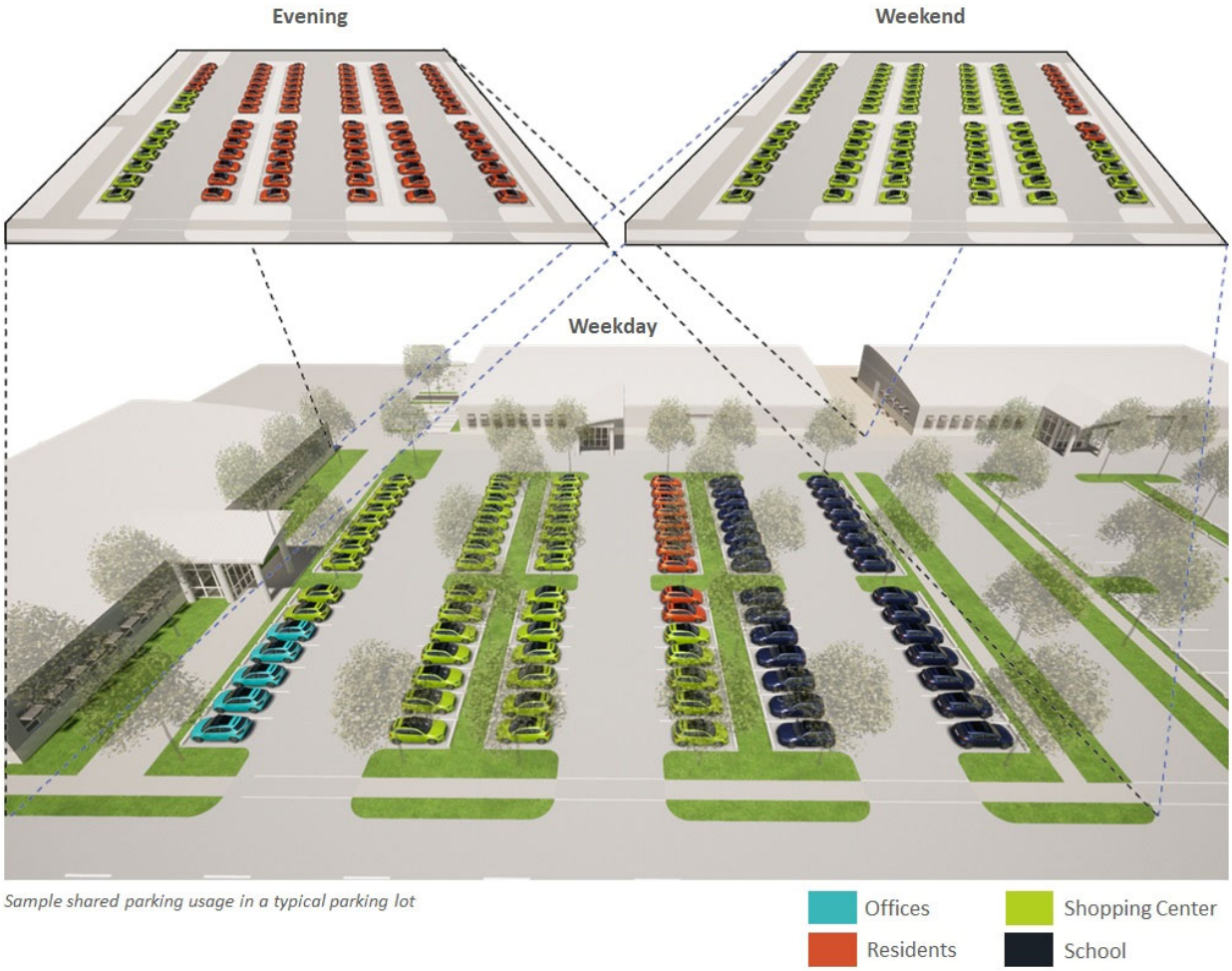
The Zoning Policy Revisions section expands on recommendations made earlier in the plan. There are three actions under this initiative as follows:

Revisions to Promote Shared Parking

As noted in a prior section, a shared parking approach can be used to demonstrate when a project needs fewer parking spaces than required under zoning due to the mix of complimentary land uses (*intrafacility*) or be used to meet minimum parking requirements by demonstrating that the project can successfully share a portion of an existing parking facility (*interfacility*) without displacing any existing users. Both approaches are allowed under the current zoning code.

While shared parking is authorized under the existing zoning code, the process of pursuing it is not defined within the code nor are the metrics that will be used in determining the validity of the application. Without these framing structures, the applicant is pursuing relief by this approach blind with limited confidence that it will be granted. This can result in projects which are abandoned when it is determined that the cost

to meet minimum parking requirements is too great. Those projects which do move forward may have more supply than truly needed, which adds to the cost of the project as well as carbon impacts and unnecessary impervious surface and water runoff. Increased project costs get transferred to the project's tenants in the form of inflated rents or purchase prices, making living or working in Portsmouth more expensive. And the increased carbon impacts, impervious surface, and water runoff all run counter to the City's sustainability goals. Finally, by not doing more to encourage this approach, the City of Portsmouth is failing to capitalize on existing resources in the form of underutilized private parking.



Sample shared parking usage in a typical parking lot

Revising the existing zoning code to provide more direction, procedure, and structure for applicants interested in incorporating shared parking into the program is the best incentive that the City can provide to promote this approach, reduce project costs, and mitigate environmental impacts. Additional language detailing an approved methodology for calculating intrafacility shared parking reductions and a clear definition of what should be included in a shared parking agreement governing interfacility use will reduce uncertainty among applicants and increase the use of this approach.

There are many benefits to greater use of shared parking approaches, including but not limited to:

a. In the case of intrafacility shared use (i.e., where a reduced number of parking spaces is built due to complimentary land uses within a project) building only those parking spaces absolutely needed to support the project will in result in reduced project costs, carbon impacts, and impervious surface area. Potentially, building less parking will also translate into lower rents and/or purchase prices.

b. In the case of interfacility shared use (e.g., where some or all of the parking spaces needed to support a project are drawn from an existing parking facility under a legal agreement between the developer and property owner) project costs may be reduced relative to what the developer might have incurred if the agreed upon lease rate between parties is lesser than the cost of building parking, which it usually is. Making more efficient use of an existing parking facility instead of building more parking will reduce both carbon impact and the amount of impervious surface. Intrafacility shared use may also benefit the parking property owner by allowing them to monetize parking that is otherwise sitting empty and unused, depending on the terms of the agreement between the two parties.

c. Increasing activation of existing parking facilities, especially outside of standard business hours, can also benefit the community as a whole by creating more grade-level activity in parcels that might otherwise be empty during certain hours. This increased activity can improve general perceptions regarding the safety of the surrounding area and elevate actual commerce in abutting parcels by increasing foot traffic at street level.

d. The prior review of benefits of interfacility shared use assumes that a private developer is employing this approach to reduce the number of parking spaces they are required to provide as part of a project under review against code requirements. If the City of Portsmouth were to elect to enter into one or more shared parking agreements with private property owners to open up underutilized private parking facilities to use by the general public, rather than building new public parking supply, this would reduce municipal costs to provide parking and potentially open up public parcels that might otherwise be used for parking to higher and better land uses.

e. Finally, for the private property owner participating in a shared parking agreement with a developer, not only does this approach allow them to potentially monetize underutilized parking spaces (depending on the terms of the agreement between the parties), but it can also reduce their operating costs. Many times, the terms of a shared parking agreement include language dictating the sharing of costs for insurance, facility maintenance, snow removal, security, and improvements to the property between parties that might otherwise be born exclusively by the parking facility owner.

In terms of liabilities to adopting a shared parking approach, these depend on whether it is intrafacility or interfacility shared parking.

For projects that employ intrafacility shared parking to get relief relative to minimum parking requirements, this approach is only as valid as the consistency of the development program. If the developer applies for relief assuming a development program that leverages the compatible use patterns of a leisure hotel and a medical office building and then ends up leasing the space set aside for medical office to a different land use that is not as complimentary with a hotel, such as a restaurant, then the permitted parking supply may be undersized relative to shared needs of the two land uses under this new program. For the municipality administering to parking requirement relief using intrafacility shared

parking approaches, this means that by promoting this mechanism, the municipality is also responsible for ensuring the developer complies with the permitted plan. For the developer, building a project which uses intrafacility shared parking may limit their leasing opportunities if, or when, project tenants change for similar reasons.

For projects advancing with an interfacility shared parking agreement in place, both the developer and their parking partner are restricted by the terms of the agreement. If the developer completes construction and lease up of the project and seeks to sell it on the open market, they must disclose the encumbrance, which can impact market value. Similarly, the parking property owner is encumbered until the agreement expires. And the municipality, by granting the permit under the shared parking approach, is responsible for monitoring this disposition of both properties through the life of the agreement.

As the City of Portsmouth's initial responsibility is only to revise and expand the zoning code to provide more structure to shared parking approaches, the consulting team does not anticipate that the City of Portsmouth will have to incur any new or unique capital or operating costs to move forward. If there are additional costs in the longer term to monitor compliance with executed shared parking agreements, the consulting team assumes these will be factored into the annual operating budget for the impacted department.

The draft legislation should be developed collaboratively between the Parking Department, the Planning Department, the City Manager, and the Planning and Sustainability Department before being brought forward to City Council.

The consulting team believes that this process should be initiated as soon as possible, with the objective of having the new legislation in place in the Near-Term to manage new development currently being contemplated, but not yet subject to a formal review and approval process.

In terms of model code to consider when developing the language for the intrafacility shared parking approach, the consulting team suggests reviewing the applicable code already in place for the City of Waltham, MA (see: https://ecode360.com/26938088). In particular, the *Parking Credit Schedule Chart* contained under Section 5.2 (Off-Street Parking Requirements) in subsection 5.22.c provides an example of the kind of clear procedure that will encourage applicants to seek this option. An example of a similar tool used to promote intrafacility shared use can be found on the Encode Plus website, which has automated the calculations (see: https://online.encodeplus.com/demo/mycity/webtools/parking-op/parking.aspx) so an applicant can test the potential benefits of pursuing a shared parking approach before committing to the course of action.

For interfacility shared parking approaches, the consulting team recommends review of the applicable ordinances (see: https://docs.sandiego.gov/municode_supp/769/Ch14Art02Division05%20Pages%207-38.pdf) contained in subsection 142.0545 (Shared Parking Requirements) of the City of San Diego Municipal Code when developing language specific to the City of Portsmouth. This language is clear and unambiguous, providing a defined formula and approved factors for calculating whether two properties can 'share' a parking facility between them. Similarly, the City of San Diego provides a template form that contains all the key terms (see: https://www.sandiego.gov/sites/default/files/legacy/development-services/pdf/industry/forms/ds267.pdf) the City of San Diego requires in an Shared Parking Agreement. Similar resources are provided by the Metropolitan Area Planning Council (https://www.mapc.org/wp-

content/uploads/2017/10/PortlandMetro_SharedParkingModelAgreement.pdf) of Eastern Massachusetts and the City of Albuquerque, NM (see: https://dmdmaps.cabq.gov/HydroTrans/G16D159/TCL/G16D159_Shared%20Parking%20Agreement%20Template.pdf).

Car-Share Pilot

Car-share services allow individuals to rent a vehicle for a short period of time (i.e., by the hour versus by the day). These services are typically offered with the framework of a club or subscription, rather than being open to the general public like traditional car rental services. Unlike rental car operations, which require individuals to come into an office during business hours to complete required paperwork, submit payment, and get keys to a vehicle, car sharing tends to be self-service. Members submit applications establishing their driving history and method of payment and, when approved, go online to locate the nearest available car to their location and reserve it for a fixed period of time. The cost of fuel and insurance for the rental is included within the quoted hourly and/or mileage rate. Members access a reserved vehicle through the presentation of a member-specific RFID car or entry of a unique alphanumeric sequence on a keypad connected to the vehicle; the keys are typically locked inside the vehicle when not in use. Often each vehicle also contains a gas card which allows members to refuel the vehicle as needed without incurring any direct cost.

Private car-sharing began in western Europe, often as a cooperative venture within a corporate campus or urban district which allowed members the ability to run car-dependent errands or tasks while still relying on mass transit or alternative transportation modes as their primary mode of transportation. Commercial car-sharing started in the United States in Portland (OR), Seattle (WA), San Francisco (CA),

Boston (MA), and New York City in the late 1990's as a service to urban residents and workers who needed occasional use of personal vehicle, but did want to incur the cost of acquiring, storing, and maintaining that vehicle on a full-time basis.

Urban planners and activists seeking to encourage more sustainable modes of travel began promoting car-share services as part of a broader program of parking reform and/or shared mobility in the early 2000's. Many municipalities have incorporated these services into their zoning code as a mechanism for applicants and developers seeking relief from minimum parking requirements, citing market studies that purport that each car-share vehicle is capable of replacing between four and twelve personal vehicles that might otherwise be kept to service member's occasional needs.

Adoption of car-share services has been most successful in major urban centers with strong transit systems, congested roadways, high parking costs, and common services like grocery stores, drycleaners, health clinics, schools, etc. located within walking distance of most locations in a district. The combination of these factors discourages unnecessary vehicle ownership and use. While the car-share services provide a 'safety net' so that residents and workers can commit to a 'car light' or 'car free' lifestyle.

The City of Portsmouth already has a very walkable downtown, congested roadways, some transit service, and a large urban resident population. This population is projected to continue growing into the future. Services supporting this residential population such as medical offices, health clubs, grocery stores, etc. are located relatively close to downtown Portsmouth, but some distance beyond that which would be considered walkable by most individuals and transportation services, while present in the market, are not as abundant and frequent to instill confidence in a decision to live 'car free.' Introduction of a car share service could bridge the perceived or actual service gap between consumer needs and current transit and transportation offerings, providing a 'safety net' for downtown residents and/or workers.

Municipalities have facilitated introduction of car share services into an urban core through two mechanisms. The most common mechanism is offering a fixed reduction in the number of required parking spaces for each car share included in a project plan. Less common are initiatives where the municipality contracts a car share service or subsidizes it to encourage car share companies to come into their community.

Introducing a car share program into a community provides multiple benefits. By reducing the number of parking spaces needed to support a project, the cost of the project and, by transfer, the cost of rent or leases within the project is reduced. This can help mitigate the cost of housing and/or encourage more development. Building fewer parking spaces also reduces the carbon impact during construction as well as impervious surface and resulting runoff and/or heat pooling. Less space needed for parking can be translated into more space for greenery and/or higher and better land uses. Finally, because members only pay for the time they need to use a vehicle, they are less likely to use a personal vehicle to run an errand or execute a task that can be done on foot or by other means.

Commercial car share companies typically require a certain amount of urban density in order to capture enough members to make the enterprise profitable, which creates the biggest liability for municipalities. Specifically, if economic conditions are not conducive for a car share company to willingly enter a market, it often falls upon the municipality to provide subsidies or offer guarantees to secure the service. Adoption of the service by the community and growth in membership typically starts slowly, leading to a long period

of subsidy; in some cases, the subsidies may be permanent if the community does not achieve economic conditions to make the service profitable.

While car share services may reduce the number of parking spaces needed, they still contribute to traffic congestion and carbon impacts as would a personal vehicle. In some cases, communities may be required to provide on-street or sought after off-street public parking spaces for vehicle storage. Rarely is this enough to materially change parking adequacy in an area, but it can create political turmoil if the municipality is perceived to be dedicating public parking spaces to a private enterprise. Finally, members in a car share service must apply to join, agreeing to an assessment of their driving records and, in some instances, credit history. Not all applicants are accepted, which can create social tension[2].

There are multiple options for introducing car-share services to Portsmouth including the following:

- Zipcar: Perhaps the best-known regional car share service, Zipcar indicated the company needed to generate roughly $2,000/month per vehicle to offset costs. A representative of Zipcar indicated they would entertain a pilot with the City of Portsmouth if the municipality was willing to subsidize any shortfall between revenures from user fees and the minimum monthly cost of service.
- Turo: Turo connects vehicles owners with individuals seeking a short-term vehicle rental. The service allows vehicle owners to rent their personal cars by the day to others based on the owner's schedule of availability. Prices range by type of vehicle. In the New Hampshire seacoast there are a few cars online already in Portsmouth, North Hampton, Kittery, Hampton, Somersworth, and Dover priced around $43.00 - $60.00/day. The City of Portsmouth and local advocacy groups could help spread the word of this option that would allow people who don't have or choose not to have a car to have additional mobility, and those who don't drive much to earn extra household income.
- Flex car: This service allows people to lease a car on a month-to-month basis with the freedom to opt out at any time. Insurance costs must be paid on top of the monthly lease cost. There is a pick-up location for Flex car vehicles in Auburn, MA. Cars can be delivered to a home address. This cost to the municipality would be subject to their role in attracting and retaining the service and the terms of that agreement.

Required personnel and/or legislative action will depend on how the City of Portsmouth elects to introduce car-share services. If the City wishes to structure a reduction in minimum parking requirements for inclusion of car-share service in project plans, the consultant team assumes that the Planning Department would lead the way developing such language for inclusion in the zoning code, which will then need to be reviewed and approved by the Planning Board before presentation to City Council for adoption. In addition to these actions, if the City elects to subsidize these services until such a point as they become self-supporting, action may be required by personnel in the Finance Department and/or City Manager's office to structure that program in collaboration with the service provider.

[2] The preceding listing of benefits and liabilities are specific to a car sharing service operating on a traditional commercial (Business to Consumer) model. Not-for-profit/cooperative car share services and peer-to-peer car share services offer similar benefits but greater liabilities and potential risk to a municipality. For additional details see: https://www.mastnh.org/wp-content/uploads/2016/12/Carsharing_Report-1.pdf

Alternately, the City of Portsmouth can elect to execute a pilot program for car-share, fully bearing the cost initially and promoting the service to downtown residents and employees for a fixed period to see if enough members can be attracted to make the service self-supporting. Under this scenario, the City would contract directly with a service provider to install vehicles and work with the provider to promote the program. The public agency leading this effort could be any number of city departments, including but not limited to: Public Works, Planning & Sustainability, Community Development, and/or Economic Development.

Developing either enabling legislation or terms and conditions for soliciting a car-share service to execute the proposed pilot should commence as soon as possible, with the objective of either having the legislation in place or initiating the pilot in the Near-Term.

In terms of best practices, car-share services are already part of parking reform efforts in Portland, ME (See: https://usa.streetsblog.org/2015/09/29/how-portland-maine-pairs-car-share-with-parking-reform) and Boston (See: https://www.mapc.org/news/boston-kicks-off-new-electric-vehicle-car-share-program/). ***Strong Towns,*** a 501(c) (3) non-profit media advocacy organization, also provides resources (See: https://www.strongtowns.org/journal/2024/5/30/how-car-sharing-can-make-your-community-stronger) and examples of successful implementation and best practices. Other resources include recommendations from the ***STARS*** (***S***hared mobility oppor***T***unities ***A***nd challenges fo***R*** European citie***S***) 2020 project (See: http://stars-h2020.eu/wp-content/uploads/2020/05/STARS-Toolbox_D5.2.pdf) and a case study of successful programs presented by the Urban Land Institute (See: https://knowledge.uli.org/en/reading-lists/2022/parking/developers-reduce-parking-via-car-sharing). The City of Grand Rapids, MI is currently running an extended pilot (See: https://www.publicinput.com/carshare) to see if subsidized carshare can generate enough participation to become self-financing in the longer term.

Periodic Parking Requirement Assessment

Parking demand ratios developed by organizations like the Urban Land Institute (ULI), the Institute of Transportation Engineers (ITE), and the American Planning Association (APA) are based on empirical observations of the relationship between various land uses and the number of parked vehicles they attract. These parking demand ratios are composed of tens, hundreds, and even thousands of case studies, often executed over a broad period of time and geographic scope. The parking demand ratio recommended from these collected studies is often much higher than the average result (e.g. the 85th percentile of the range of results) to ensure any project built using the ratio will be adequately supported by the planned parking supply.

The technical manual published by the ULI (**Shared Parking**) regarding projecting parking demand has been revised extensively twice since its initial publication to reflect the inclusion of new data as well as changing macrotrends in transportation and parking. The ITE's **Parking Generation** is currently in its seventh edition to update the resource to incorporate new data and changing behaviors. Parking demand ratios recommended by the APA are carried as technical papers subject to regular challenges and updates as new research emerges.

Many communities adopt these base parking demand ratios as their minimum parking requirements without any modification. This action runs counter to the recommended methodology within the technical manuals containing these ratios as published by the ULI, ITE, APA, and other organizations, which

recommends modifying the base demand ratios to reflect local condition before applying them. As a result, the minimum parking requirements in place for a specific community are often well in excess of what is actually needed to support a given land use. A recent research project conducted by the Metropolitan Area Planning Council (MAPC) of eastern Massachusetts comparing minimum residential parking requirements to actual usage (https://perfectfitparking.mapc.org/) illustrated this issue.

Variances between parking demand ratios for a particular land use developed off geographically diverse data sets collected over long periods of time is only one challenge. Most of the manuals and publications detailing recommended parking demand ratios predate the COVID-19 pandemic which had fundamental impacts on parking behaviors associated with virtually every land use. Since early 2021, various organizations have provided smaller scale but instructive studies on how the pandemic changed occupancy patterns associated with office, residential, retail, restaurant, and entertainment space among others. These changes are often reflected in reduced parking occupancy as flex- and remote-work arrangements, online shopping, expanded delivery services, and increased video streaming services reduced parking demand associated with downtowns, shopping centers, malls, and cineplexes and increased parking occupancy in residential areas.

As detailed in the evaluation of current parking requirements in place in the City of Portsmouth Zoning Code, the consulting team believes the majority of minimum parking requirements and maximum parking limits are appropriate for the City at this time. However, changes in the cost of vehicle fuel, introduction of greater numbers of electric vehicles, the advent of self-driving (autonomous) vehicles for personal and/or commercial use, expansion of transportation alternatives, and evolution of the local economy all have the potential to create fundamental and permanent changes in how individuals get to, from, and around downtown Portsmouth. A program is needed to periodically test the parking requirements mandated by local zoning code to confirm those factors are still appropriate in the future.

This program of study does not need to be overly complex or onerous. All that is required is the ability to isolate the parking occupancy associated with a particular land use, capture data on parking occupancy rates and patterns specific to that land use, compare the observed peak parking occupancy against the land use, and then compare that result to the parking minimum and maximum mandated within the code. These studies can be conducted on a scheduled or ad hoc basis and can be executed by City staff members, volunteers, or others. The consulting team has noted that the nearby University of New Hampshire (UNH) has a robust Community and Environmental Planning program as part of their College of Life Sciences and Agriculture that may be interested in establishing a cooperative venture to execute this work.

Ideally, a well-structured program would allow for testing of all the parking minimums and maximums included in the code once every 4-5 years. If these tests only confirmed that the City's requirements were still appropriate to support each land use without requiring too much parking, the city would still benefit from that assurance. If the program identified changes in parking dynamics that required a reduction in parking minimums, then the city would further benefit by reducing a potential barrier to development and improving efforts towards sustainability objectives.

The consulting team could not discern any liabilities with initiating this program, other than the potential drain on city staff and resources to develop, administer, and/or execute the program, but acknowledges there may be political considerations outside our understanding that bear consideration.

The consulting team does not anticipate that the City of Portsmouth will have to incur any new or unique capital or operating costs to move forward with this action, provided the program is developed 'in-house' by city staff. If there are additional costs in the longer term to execute periodic studies and recommend updates, the consulting team assumes these will be factored into the annual operating budget for the impacted department.

The leading agency for this action would be the Planning & Sustainability Department. This should be considered a Mid-Term priority.

If accepted and adopted by the City of Portsmouth, this program would be unique to the community, as few municipalities or public agencies proactively 'test' their parking requirements against actual conditions. One of the rare examples, which provides an instructive model to the city when developing their program, was executed by the Monroe (NY) Counting Department of Planning and Development (See: https://www.monroecounty.gov/files/planning/MonroeCounty_Parking.web.pdf). The 2007 Statistical Analyses of Parking by Land Use included twenty-seven different land uses, 505 facilities, and 603 district observations.

New Programs

The proposed *New Programs* are intended to address anticipated or existing challenges to the municipal public parking system.

Residential Parking Permit Pilot

As noted in the review of Existing Conditions, the second largest concentration of on-street parking supply are parking spaces not subject to any regulation by parking meters, posted time limits, or permit requirements. These 'unregulated' parking spaces are located in the Islington Neighborhood, South Mill Pond District, and Strawberry Banke/Historical area. Over 500 of these spaces are located on streets in residential neighborhoods. As a whole, this unregulated on-street parking supply was observed to be moderately (70%-80%) utilized with pockets of higher occupancy at times. This condition is not expected to continue into the near future.

Projections of future parking need indicate that the supply within the Downtown Core and surrounding blocks, referenced as the "Red Zone" in a prior section, is likely to be filled to capacity in the next five to seven years. As it stands, most of the public parking facilities within this area, which operate on a fee-for-use basis, are regularly parked near or at capacity. It is likely that drivers searching for open parking spaces, especially those familiar with the area, will soon begin migrating to these areas in search of free and available parking. This will create tension and conflict with the homeowners living in the area, increase vehicular traffic through these areas, put pedestrians and bicyclists at increased risk, and undermine the city's attempts to increase use of more sustainable modes of transportation.

Proactively developing and implementing a parking permit program across these unregulated parking spaces will prevent migration of parkers from the Red Zone into these areas. These programs, often referred to as Resident Parking Permit (RPP) initiatives, are common in residential areas abutting downtowns and commercial districts. The objective of these programs is to make identification of unauthorized or unwelcome parkers easier for parking enforcement officers by pre-registering the vehicles that should be parked on these streets in advance.

Under these programs, the municipality authorizes issuance of a fixed number of permits for each household upon presentation of proof of residency. The resident's vehicles are registered with the municipality, including license plate data, year, make, model, and color of the associated vehicle(s). Permit holders may be issued some form of credential such as a window sticker or hang-tag to identify the vehicle as authorized, but most modern municipalities have the capacity to track vehicles by plate number and do not require supplemental credentials. Residents may also be issued a fixed number of 'guests' passes if the area is designated as permit parking only for visitors, tradesmen, etc., but many municipalities instead institute time-limits or install meters within the permit area to allow for limited short-term public use instead.

The consulting team is recommending that the City of Portsmouth investigate the feasibility and acceptance of such a program through the execution of a small-scale pilot. This time- and geography-limited pilot would allow residents and municipal leaders to evaluate the initiative and fine-tune it as needed before committing to it as a permanent and wide-spread measure. Such a pilot would follow this simple progression:

1. Define the pilot area in terms of geography and time. The consulting team would recommend an area not larger than twelve blocks square (i.e. 3 x 4, 2 x 6, etc.) abutting the Downtown Core.
2. The objective of this pilot will be to measure the number of non-resident vehicles parking in this area during standard business hours to determine if migration is occurring in this area.
3. The goal of this pilot will be to manage occupancy during business hours along the streets within the pilot area at 80% or less at all times.
4. The pilot term should not exceed six months.
5. Prior to execution of the pilot an extensive public outreach process will be conducted informing the community about the terms, regulations, and goals of the pilot.
6. At least one week prior to the pilot, parking occupancy counts within the pilot area will be conducted hourly between 9:00 AM and 9:00 PM each day for one week to establish a baseline and identify days and times of peak utilization. This should not be announced and should be executed discretely to prevent intentional corruption of the data.
7. Prior to the pilot, residents living within the pilot area will register their vehicles with the city following a prescribed procedure. The city will limit the number of permits issued to each household such that aggregate curbside occupancy should not exceed 75% of capacity if all registered vehicles were parking on-street within the study area at one time. Based on our understanding of the city's technical capabilities, the consulting team would recommend issuing 'virtual permits' based on vehicle license plate data, rather than physical credentials.
8. During the term of the pilot, the pilot area should also be converted to time-limited parking not to exceed two hours at any time. Should curbside occupancy begin to regularly exceed 85% of aggregate capacity during the pilot, the City may elect to convert the time-limited parking to paid parking utilizing the municipality's pay-by-cell application to mitigate demand and make scofflaw detection easier.
9. Any vehicle with a valid permit and/or parked according to posted time limits or other regulations will be exempted from ticketing during the pilot term.

10. Vehicles found parked in this zone without a permit in excess of the maximum time limit and/or in conflict with other regulations will be issued a special citation with an associated fine plus all escalations currently listed in the city ordinances.
11. Violators who present proof of residency or a valid reason for parking in the pilot area may have the first citation waived if appealed. Subsequent violations may be discounted at the discretion of the Parking Director or their appointed representative.
12. Violators without proof of residency or a valid reason for parking in the area may receive a 50% discount of fines due if they complete a simple survey indicating why they elected to park in the area in non-compliance with posted regulations.
13. All tickets will be collected and logged by category on a daily basis during the term of the pilot.
14. During the course of the pilot, periodic parking occupancy counts will be conducted at the times and dates identified as peak or near-peak by the baseline data each week.
15. Ticket and occupancy data will be analyzed and documented in a white paper to be reviewed and ready for public distribution within tour weeks of the conclusion of the pilot.
16. Within four weeks of the conclusion of the pilot, a public hearing presenting data, analysis, and conclusions from the pilot will be conducted.
17. Based on the outcomes, the City will analyze data and feedback from the pilot to determine if the program should be expanded into other areas outside the pilot zone.

The pilot should provide multiple benefits to municipal leaders, including key information regarding utilization within the pilot area before and after the program is implemented, the nature of conditions leading to non-compliance, and public appetite for such a program. If the pilot is judged to be successful, the city will have a template for expanding it into other unregulated areas as needed to manage curbside parking access proactively.

Properly executed pilots tend to be time-consuming and expensive relative to just enacting wholesale changes in policy and institution of any parking regulations in an area previously not subject to regulation will always be unpopular, even when necessary. If the pilot is contracted to a private firm for program design, development, execution, and public engagement, the pilot could cost up to $75,000 plus additional labor needed to provide parking enforcement and violations processing.

The consulting team does not anticipate any special legislation will be needed to execute the pilot. If the program is adopted as a permanent fixture, ordinance language will need to be developed and adopted. The consulting team would anticipate the Parking Department would lead this effort with support from other city departments as needed.

Development and execution of the pilot should be a Near-Term priority, with widespread expansion, if warranted, occurring in the Mid- and Long-Term in tandem with increased demand within the Downtown Core for available parking.

The City of Portsmouth has already run one test pilot of an alternate RPP (See: https://www.cityofportsmouth.com/publicworks/parkportsmouth/neighborhood-parking-program-npp) and serves as an excellent model for advancing this initiative as well. The City of Keene is also testing a

new RPP (See: https://keenenh.gov/neighborhoodparking) which could provide Portsmouth with an additional resource to emulate, particularly with public outreach. The Town of Arlington, Massachusetts has also recently conducted an RPP pilot that included selling permits by the day on a first-come, first-served basis (See: https://www.arlingtonma.gov/Home/Components/News/News/13421/) which may offer beneficial lessons learned as the city develops their program.

The eastern Massachusetts Metropolitan Area Planning Council (MAPC) offers a number of links and references to successful existing RPPs in place (See: https://www.mapc.org/resource-library/residential-permit-parking/). Current or recently completed parking permit pilots in South Boston, MA (See: https://www.boston.gov/news/south-bostoncity-point-resident-parking-seven-day-pilot-program-effective-friday-september-12); Medford, MA (See: https://www.medfordma.org/about/news/details/~board/city-news/post/medford-launching-green-line-district-parking-pilot-program); Camden, ME (See: https://www.penbaypilot.com/article/camden-select-board-considers-downtown-seasonal-parking-program-proposal-oct-15-meeting); and Charlotte, NC (See: https://www.wcnc.com/article/traffic/dilworth-parking-permit-program-pilot/275-f499bf8e-79bf-45f6-b381-2d973d1eb927) also provide examples of successful permit program pilot design and execution.

Converting the Parrott Lot into a Fee-For-Use Facility

For some time, the 192-space Parrott Lot as well as the roughly 50 unregulated spaces along Parrott Avenue between Richards and Junkins Avenue have served as the 'free' alternative for individuals wishing to park without fee or permit within near proximity to the downtown core. These two areas were observed to be parked near or at capacity consistently during both May 2023 field observations as well as casual observations conducted through the summer and fall of 2023 and spring, summer, and fall of 2024. While license plate inventories were not performed, anecdotal reports from city staff patrolling this area report that turnover in these areas is very limited. The combined conditions suggest that this public asset is not currently being managed to provide the greatest possible benefit to the general public and requires additional measures to mitigate utilization and encourage turnover.

To this end, the consulting team is recommending the City of Portsmouth move to institute metering along the length of Parrott Avenue and within the Parrott Lot to create an incentive for users to self-regulate length of stay. The objective of this action would be to create conditions in which at least 15% of all on-street parking spaces along Parrott Avenue and 10% of all parking spaces within the Parrott Lot are open and available at all times. The city may wish to institute a unique pricing scheme for these two areas intended to still provide discounted parking in these areas relative to the other public lots and garages in the downtown core and measure the success of this approach first towards meeting the stated goals, or they can adopt the existing rate structures for public on- and off-street parking to this street and lot. Under either approach, the consulting team believes that utilization and turnover will improve.

The benefit of this action to the general public will be to create availability in two areas currently parked to capacity under much of each operating day during much of the year. Converting over to 'fee for use' would also provide new revenues to the Parking Fund to support development of additional public supply, maintain and operating the existing public parking system, and subsidize other public services. Liabilities from moving forward with this action may include displacing existing long-term parkers using the street and/or lot as storage, reducing the options for individuals seeking free parking near downtown, and pushing displaced parkers into unregulated parking spaces on abutting residential streets and/or into

other public lots in the area. The consulting team anticipates the most impacted user types will be downtown workers on varying schedules and local residents.

Costs to implement this action will depend on the type of equipment used to collect fees. If the city elects to use multi-space meters to administer the on- and off-street parking areas, the consulting team projects that at least four will be needed along Parrott Avenue and two within the parking lot at cost of roughly $6,000/unit. An alternate, and lower cost, option may be to convert these areas into pay-by-plate administered through the city's existing pay-by-cell application, which would require only the cost of signage which the consulting team estimates to be between $3,000 and $6,000. Ongoing operating costs in either case will be dictated by vendor contract terms for either the kiosk or pay-by-cell service.

The consulting team assumes these areas will need to be redesigned at fee-for-use operations by local legislation developed by the City's Parking and Legal Departments and reviewed and adopted by City Council. Any additional staffing needed to provide enforcement or collections and associated costs will be carried by the Parking Department.

This should be considered a Near-Term priority as the areas are already operating at or near capacity.

Identify Alternate Locations for the Downtown Employee Parking Program

The current Downtown Workforce Parking Program, called for in the 2012 Parking Principles and developed and administered by the Parking Department, offers qualified participants the ability to park in the Foundry Garage for up to ten hours at a flat cost of $3.00 per use. Approved participants can purchase up to twenty vouchers good for a session of parking each month. The Parking Department estimates there are roughly 500 participants currently in the program.

With the increase in development around the Foundry Garage, available capacity in the facility to support this program in highly constrained. Even with completion of the rehabilitation of the Hanover Garage and return to full capacity in that facility and the proposed initiative to reduce utilization in the Parrott Avenue, projections of future need in the public parking system indicate there will not be available capacity to continue to support this program in the next 12-24 months. Expanding the capacity of the public parking system could create a new reservoir to support this program in the mid- to long-term, but in the interim new capacity must be found and secured.

The consulting team does not see a single action or approach to addressing this issue. Potential measures may include the following:

a) In tandem with monetizing Parrott Avenue and the Parrott Lot, converting the Masonic Temple Lot over to the primary facility to support the Downtown Workforce Parking Program and shifting existing Masonic Temple Lot parkers over the Parrott Lot as utilization reduces.

b) Redesignating the Portsmouth Middle School Lot to Downtown Workforce Parking Program use on nights and weekends.

c) Identifying one or more privately-owned and -accessible parking facilities with available capacity for use in the program. Under this scenario, the city would enter into a shared use agreement with the property owner to manage use of the facility(s). Historically, institutional uses such as churches and temples as the best partners for this kind of pursuit.

d) Identifying remote parking locations which can be designated as Workforce Parking facilities with supporting shuttle service. The best locations would be off major arterials feeding into downtown Portsmouth to increase capture of drivers along their typical route of travel and the most successful initiatives offer minimum headways of fifteen minutes or less between shuttles at all times when the facility is in operation. Under this scenario, the city would be contracting with the private property owner(s) to manage the facility and would be providing shuttle services to support the operation[3].

None of these options should be considered a permanent solution, but rather a temporary measure until the capacity of the public parking system can be expanded to support the program internally.

The benefits provided by the Downtown Workforce Parking Program are multiple and already enjoyed by the general public in downtown Portsmouth; continuing to support the program through these temporary measures would simply perpetuate these benefits. Depending on the measures taken, new costs incurred may include lease terms for parking and direct costs for providing supporting shuttle service, plus nominal internal costs for developing options, administering to required contracts, and managing the interim facilities.

In terms of defined costs, these will vary widely according to the terms of negotiated shared parking agreements and/or how shuttle services are provided (i.e., internally versus privately sub-contracted.) Based on the consulting team's experience with similar initiatives in comparable communities, the consulting team would recommend budgeting roughly $75.00 per space/month for parking agreements and $60.00 per service hour for shuttle services.

The consulting team does not anticipate this initiative requiring any special legislative support, but assistance may be required from the city's Legal Department in developing shared parking agreements. It is assumed that the Planning Department will be the lead agency investigating, developing, and administering these initiatives.

Given the timeline for development around the Foundry Garage and absorption of available capacity across the downtown parking system, the consulting team has designated this initiative as a Near-Term priority.

Case studies and examples of similar programs developed and implemented by municipalities include the following:

- The City of San Marcos, TX partnered with private parking operator LAZ Parking to create a downtown Employee Parking Program (See: https://www.sanmarcostx.gov/3557/Employee-Parking-Program) where the city subsidized the cost of parking and provided free, on-demand shuttle service (https://sanmarcostx.gov/4290/Get-Around-Downtown-Shuttle-Service-Pilo) from one private centralized facility across the area.

[3] A variation of this scenario is already working for multiple downtown hotels which park their employees at the Portsmouth Transportation Center and shuttle them in and out of downtown via private services.

- The City of Milwaukee, WI works with their local Business Improvement District organization (MKE Downtown) and the Milwaukee County Transit System to promote a host of parking options (See: https://www.milwaukeedowntown.com/do-business/parking-commuting-0) for commuters.
- The Charleston Area Regional Transit Authority and the City of Charleston, SC partnered to offer a very successful park-and-ride program (See: https://ridecarta.com/hospitality-on-peninsula-hop-park-and-ride-ready-to-roll/) designed to service hospitality workers working on 'the Peninsula'. This program was, regrettably, cancelled due to COVID-19 (https://ridecarta.com/services/hop-park-and-ride-shuttle/) and has yet to be reconstituted.
- The City of Grand Rapids, MI has developed a Downtown Area Shuttle (the DASH) system (See: https://www.grandrapidsmi.gov/Government/Departments/Mobile-GR/DASH-the-Downtown-Area-Shuttle#section-1) which connects designated remote parking lots for employees with popular destinations throughout the downtown.
- The City of Austin, TX partnered with the Downtown Austin Alliance Initiative and local parking operators to create their Affordable Parking Program for downtown service and entertainment employees seeking accommodation (See: https://www.austintexas.gov/page/affordable-parking-program).

New Public Parking Supply

As noted in the prior analyses, the City of Portsmouth will need to expand their public parking system by 500 or more spaces in the long-term to continue to support existing commerce and planned development. The following section details approaches and actions focused toward this objective.

Public/Private Parking Ventures

As a general rule, the minimum site dimensions required to build an efficient, long-span parking structure are 120' in width by 210' in length. This will provide adequate space to create two parking bays of sixty feet in length, side-by-side. Each of these bays can support two parking strings of 9' x 18' parking spaces on either side of a central two-way drive aisle with 12' lanes. The combination of drive lane width with stall width and depth means that the average driver can easily pull in and out of a space without disrupting traffic along the lane travelling in the opposite direction in an efficient and safe manner. This degree of ease of use and safety is commonly referred to in the parking industry as "level of service" and the combination of 9' x 18' perpendicular stalls supported by twin 12' drive lanes are considered the highest level of service within the parking design industry.

Within this 120' x 210' footprint, a designer can anticipate parking roughly 34 vehicles on either side of the twin drive lanes in each bay, plus another 4 vehicles along the outside walls facing the 'top' and 'bottom' of the bay for a potential capacity of 42 spaces per bay or 84 spaces per floor. The length of the structure also allows for one bay to be sloped an angle adequate to allow for vertical circulation between floors and still be gentle enough to allow for parking on the slope; the other bay may be completely flat along its length, supporting ADA standards for accessibility and well as offering a high level of service. This site dimension would also render an efficiency of roughly 300 square feet for each parking space provided, which is considered optimal in the industry in terms of both design and cost control[4].

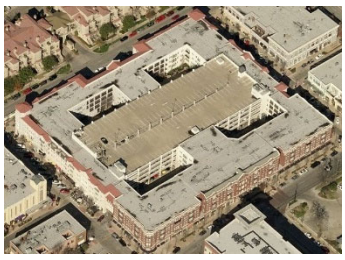
[4] Currently, base hard labor and materials costs for a parking structure are roughly $75.00/square foot. A parking facility will an efficiency of 300 square feet per space would only cost $22,500/space while a less efficient facility of say, 400 square feet per

These considerations of minimum site dimensions are especially germane to the City of Portsmouth as the number of parcels affording such dimensions within the defined study area is extremely limited and the number of publicly-owned parcels of real estate offering such dimensions is rarer still. A preliminary evaluation of real estate parcels owned by the City of Portsmouth within the defined study area suggests there are three or less locations which offer these dimensions, none of which are currently vacant or unused. In contrast, the consulting team identified roughly a dozen privately-owned parcels which offer these dimensions, several of which abut public properties and/or offer strategically advantageous locations for creation of new parking supply.

In no way, shape, or form does the consulting team advocate for acquisition of these private parcels by the City, but does note that several of these parcels have been alluded to as sites for future development by the private owner(s). In such cases, these parcels offer an opportunity for the City of Portsmouth to potentially team with the private property owner and/or developer to create new supply to support the project AND the general public simultaneously. In point of fact, public/private ventures to build new parking infrastructure have become as common in the last two decades as exclusively public initiatives to build structured parking.

Public/Private Partnerships ("PPP") offer benefits to both project participants as well as the general public, often allowing projects to go forward that might have been otherwise unviable as a solely public or private venture due to site constraints, fiscal limitations, or other factors. For example, the PPP may allow the private developer to maximize build out on their site for a premium land use if the municipality is creating parking supply on an adjacent publicly-owned parcel to support both the project as well as wider community needs. Inversely, there have been PPP ventures where the municipality has only been able to build a public parking structure in a particular area because the private partner afforded the space needed for an optimal footprint.





"Wrapped" parking structures where the municipality builds the parking structure at the core of the development and the private developer creates the residential (or other land use) space around the exterior have become very popular for the financial and aesthetic features they offer a community. Finally, PPP projects often can access better financing terms than a solely public or private ventures.

PPP parking projects are subject to the same liabilities as purely public or private ventures, but the requirement to coordinate between multiple parties with occasionally competing agendas can exacerbate issues during the design, permitting, financing, and construction processes. PPP parking projects

space, might cost $30,000/space, thereby driving up total project cost. While a footprint of at least 120' x 210' does not guarantee an efficiency of 300 SF/space, a footprint smaller than these dimensions assures efficiencies of 400 SF/space or worse.

commonly are subject to certain restrictions surrounding operations when public funds are used to finance the project and roles and responsibilities regarding operations must be clearly delineated and allocated between the municipality and private developer. Finally, while PPP projects may qualify for better financing terms than sole public or private ventures, comingling of public and private funds may also mandate additional expense for oversight, accounting, and reporting.

PPP projects typically are not subject to any unique capital or operating costs relative to a stand-alone private or public venture. However, parking structures built as a part of PPP are often slightly more expensive than the same project might be if built as a solely private enterprise due to community pressures to adhere to local aesthetic concerns and values.

PPP parking projects rarely require special legislation at the local level to authorize, but may require Council review and approval prior to execution of an agreement between the municipality and private developer. Development of a PPP project is most commonly lead by the municipal agency in charge of economic development, with support from the municipality's legal team, public works professionals, planners, and others as needed.

Creation of a PPP parking project is subject to opportunity, so prioritization of this initiative relies primarily on what opportunities exist within the market at any given time. It is the consulting team's understanding that a number of proposed private development projects within the study area may be well-suited to a PPP approach to create additional public supply in key strategic locations; these opportunities should be termed Immediate to Near-Term priorities depending on the project's status.

Within New England, the most recently completed PPP venture to build public parking occurred in Biddeford, ME and was profiled by the Federal Highway Administration's Center for Innovative Finance Support (See: https://www.fhwa.dot.gov/ipd/project_profiles/me_lincoln_garage_and_riverwalk.aspx). This specialty service center under the U.S. Department of Transportation also offers case studies in project financing and alternative project delivery (See: https://www.fhwa.dot.gov/ipd/p3/). More locally, the New Hampshire Department of Transportation's Public-Private Partnership Infrastructure Oversight Commission (See: https://www.dot.nh.gov/about-nh-dot/boards-and-commissions/public-private-partnership-p3-infrastructure-oversight) should also be considered a resource when considering a PPP venture, although their focus to date has been primarily on state-sponsored transportation projects, rather than municipal infrastructure. Other resources for understanding and developing PPP ventures include the World Bank Group (https://ppp.worldbank.org/public-private-partnership/node/7562), the Council of Development Finance Agencies (https://www.cdfa.net/cdfa/cdfaweb.nsf/pages/p3.html), the Urban Land Institute (https://uli.org/wp-content/uploads/ULI-Documents/Successful-Public-Private-Partnerships.pdf), and the National Development Council (https://growamerica.org/wp-content/uploads/2016/11/P3-Project-Portfolio-small-file.pdf).

Site/Fiscal Feasibility Process for New Public Infrastructure

As noted in the prior discussion regarding minimum site dimensions for developing cost efficient and functional structured parking, the City of Portsmouth's options on publicly owned property are very limited to a few existing public parking lots. Conversion of one of these sites into enough structured parking to offset current and projected parking supply needs will require planning and design efforts not only to prep the site and build the structure, but also to accommodate displacement of existing parkers during the term of construction, accommodate site laborers and material storage requirements, and

mitigate impacts to pedestrian and vehicular traffic in the area. Finally, a careful assessment of fiscal impacts prior to, during, and after construction needs to be undertaken to prevent any disruption in services currently provided by the Parking Fund in addition to assuring the fund can bear the additional debt obligation.

Based on the experience of developing the Foundry Garage, city officials suggest that there is a minimum two-year span between commitment to building new public parking infrastructure and initiation of facility design and financial feasibility processes within the City of Portsmouth. These processes can take between 12 and 24 months to complete before the start of construction based on prior experience, which typically requires at least one year from initiation to project opening if local manufacturers and suppliers are sufficiently equipped to commence manufacturing and fabrication upon receipt of orders. The requirement to go through public procurement to engage a designer, master contractor, construction manager, etc. can further add to this timeline.

Given this, and the timing of the proposed impacts of absorption of existing vacant spaces and new parking demand from emerging developments, the consulting team believes starting the process of site evaluation to be an Immediate priority to ensure, if needed, that the city is in position to deliver new supply when the market calls for it in the future. Financial feasibility could potentially hold off until the Near-Term, once a site has been selected and an initial design developed. As with development of the Foundry Garage, the consulting team assumes that the Department of Public Works would be the lead agency with municipal government for managing this process.

Park-And-Ride Solutions

The City of Portsmouth has previously employed remote or satellite parking facilities supported by regular shuttle service (i.e., “Park-And-Ride”) to address employee parking needs during the construction of the Foundry Garage and support parking demand driven by special events. These efforts have been moderately successful as the end users for the solution could be identified in advance and contacted via various marketing efforts to promote the option. In the case of employees, this was a captive market that could be attracted to parking away from downtown by offering the service at no charge to the end user. For special event attendees, the attraction of parking remotely and shuttling in and out of downtown was made attractive by the promise of ample free parking, which would not be in supply in downtown Portsmouth, as well as avoiding traffic congestion along city streets trying to enter and leave the area.

The Portsmouth Transportation Center at Pease is well-established example of a regional park-and-ride facility and includes periodic service into downtown by the COAST bus. The current bus frequency is hourly. If the bus frequency were improved to 10-minute intervals, and appropriate parking pricing were applied at both at the Transportation Center and downtown, drivers may consider parking there and riding into downtown a more viable option.

Based on an analysis of collected revenues by rate type as provided by the Parking Department[5], it appears that over 95% of transients parking within the public system are coming from outside the city. Anecdotal accounts suggest that as much as 75% of the public parking system users are coming from outside

[5] The Portsmouth Parking Department offers a number of programs which allow Portsmouth residents and downtown workers to pay reduced parking rates relative to standard fee structures.

Portsmouth and adjacent communities on discretionary visits. If a portion of these drivers could be directed to a designated facility outside downtown Portsmouth to park and transported in and out of downtown by some form of shuttle, this could reduce both roadway congestion and parking demand enough to eliminate current issues and future impacts.

The challenge to this strategy is creating a solution that will be attractive to non-captive users coming from a broad geographic area on a daily basis. Park-and-ride programs which cater to daily commuters working in urban centers and/or air travelers using major airports (e.g., captive users) and/or attendees going to concerts, sporting events, theme parks, and the like are plentiful. Programs aimed at non-captive; discretionary visitors are less common; the best examples the consulting team could find were resort-type communities subject to major seasonal impacts. The communities studied included: Bar Harbor, ME; Rockport, MA; Hyannis, MA; Stowe, VT; Ithaca, NY; Telluride, CO; and Park City, UT. In each case, these communities were successful in developing park-and-ride programs aimed at tourists and visitors that connected satellite parking facilities to the downtown core with shuttle and/or transit services.

Common components to each of these programs included the following:

a) Partnership with local transit agencies, convention and/or visitor bureaus, business improvement district entities, chambers of commerce, hotels, attractions, institutions and/or other organizations to promote the service actively via social media, internet, print media, and other channels. The premier systems include dynamic signage along major arterials reporting parking availability at satellite facilities and directing drivers to these facilities.

b) Satellite parking facilities (often referred to as 'collector sites') located along and/or just off major arterial roadways leading into the downtown core. It is important that parking facilities be easy to find and convenient to access and depart from; sites which require substantial travel or navigation for individual drivers and/or shuttles off the arterial leading into downtown tend to fail.

c) Satellite parking facilities located far enough away from the downtown core to not be substantially impacted by roadway congestion feeding into downtown, but close enough to minimize shuttle travel times and headways. Satellite facilities which are too close to the core lose potential users who perceive little benefit in parking outside town due to its proximity and/or time lost on the shuttle wading through traffic with nominal benefit versus the convenience of driving oneself. Parking facilities located too far away from the downtown can be perceived as isolated and potentially unsafe and increase anxiety in potential users that they may end up 'stranded' if/when shuttle service ceases. Ideally, a facility should be no closer than 1 mile from the downtown core and not further than 15 miles.

d) Peak time headways of 15 minutes or less along the route connecting remote parking facilities to the downtown core. Even when shuttle/transit schedules were well published and rigorously adhered to, those connecting services which promised users a maximum wait time of not more than 15 minutes between connecting services during periods of peak demand reported the highest ridership rates.

e) Free or extremely discounted parking relative to the cost to park in the downtown core. This creates a major incentive for discretionary parkers to forgo the security and convenience of driving themselves in and out of the area. If fees are going to be collected for either parking or shuttle fares, they should be at least 50% less than the cost to park for the same length of time in the downtown core.

f) Real-time reporting of shuttle locations and anticipated arrival times. Multiple studies[6] noted that individuals perceived the passage of time waiting for a shuttle vehicle to arrive to be between 1.2 and 4.4 times longer than the passage time once on the shuttle vehicle. The ability to reliably see where a shuttle vehicle is along its route and how close it is to the individual drastically reduces uncertainty among potential users. Reporting is most commonly delivered via smartphone applications, but some systems also have 'countdown' signs installed at key locations.

It should be noted that the creation of a park-and-ride solution focused on downtown visitors and tourists does not necessarily eliminate parking demand as much as relocate it away from the downtown to a peripheral area for address. However, satellite facilities tend to be surface lots, which are less expensive to build and free up land within the downtown core for higher and better users. The diversion of vehicles into these remote lots also lessens traffic congestion coming into the downtown and overall CO2 output.

The biggest liabilities to committing to this initiative include:

a) Extensive coordination between multiple public agencies and organization and private enterprises to assure success.
b) A commitment to ongoing operating costs to promote, maintain, and manage the necessary marketing and shuttling services.
c) Risk that the initiative may lose patronage if conditions change in the downtown making it more attractive to drive in and park.
d) Potentially loss of visitors who find the experience less enjoyable and decide to visit other communities which will support downtown access via personal vehicle without issue.

In terms of initial capital and operating costs, it would depend on multiple factors including the combination of participating agencies and entities; the location of the proposed satellite parking facility; communications and marketing support needed to promote the initiative; shuttle routes; and shuttle service provider. Studies of the creation of comparable programs place estimates at between $1M and $3M in start-up and initial capital expenses and $250K to $500K in annual operating expenses.

For the City of Portsmouth, creation of viable park-and-ride program aimed at downtown visitors, tourists, and employees would need to be a collaborative effort between multiple municipal agencies, regional transit providers, and downtown businesses and attractions. The New Hampshire State Department of Transportation could assist by allowing messaging on their dynamic signage systems along state and interstate roadways to help direct inbound drivers to satellite parking facilities.

To the consulting team's knowledge, this initiative should not require any special legislation to initiate.

Given the complexity of this option, the consulting team believes investigation into interest for and/or support of the option should be a Near-Term priority, while execution – assuming adequate support/interest – will likely be a Mid- to Long-Term initiative.

[6] The Perception of Waiting Time at Transit Stops and Stations; *University of Minnesota*; Yingling Fan, PhD, Andrew Guthrie, MURP, David Levinson PhD; 2015

Examples and case studies of successful programs include:

- The Island Explorer (https://www.exploreacadia.com/) offered as a collaboration between the National Park Service, Hancock County, the State of Maine, and the Town of Bar Harbor, Maine.
- The park and shuttle program offered by the Town of Rockport, Massachusetts and the Cape Ann Transportation Authority (https://canntran.com/wp-content/uploads/2024/05/2024-Rockport-Shuttle-Schedule-Information.pdf).
- Park and shuttle services originating from the Hyannis Transportation Center provided by the Cape Cod Regional Transit Authority (https://capecodrta.org/how-to-ride/htc/).
- The park and ride program at Stowe, Vermont (https://www.stowe.com/explore-the-resort/about-the-resort/getting-here.aspx) managed as a collaboration between Park Stowe, Green Mountain Transit, and Vail Resorts Management Company.
- Go Ithaca (https://www.goithaca.org/about) a consortium between the City of Ithaca, New York, Tompkins County, the Tompkins Consolidated Area Transit agency, and Ithaca Car Share.
- The programs at Telluride, Colorado (https://www.telluride.com/plan-your-visit/parking-transportation/) offered by the Town of Telluride, the Town of Mountain Village, the San Miguel Authority for Regional Transportation, and the Telluride Tourism Board.

Alternatives

The following section focuses on initiatives to address current or future parking demand by promoting alternative and more environmentally sustainable transportation modes.

Shuttle Consolidation Study

Current downtown employers, including a number of hotels, direct their employees to park in the New Hampshire Department of Transportation Park-and-Ride lots located south of downtown Portsmouth off Grafton Road. These employees are ferried between these remote parking facilities and their place of employment via individual shuttles provided by each employer. The consulting team estimates there are a dozen or more independent shuttles operating between this location and downtown destinations, many of which are less than one block from each other.

The consulting team supports and encourage the continuation of this strategy, which reduces both traffic congestion and CO2 outputs, but believes even greater efficiencies may be achieved by consolidating independent shuttles into a lower number of 'universal shuttles' servicing multiple employers. If properly scheduled, these collaborative shuttles could offer the same frequency and level of service existing riders currently enjoy at reduced costs to both employers and the environment. There are no objective liabilities to pursuing this imitative, although subjectively the various employers may have concerns about impacts on their current operations.

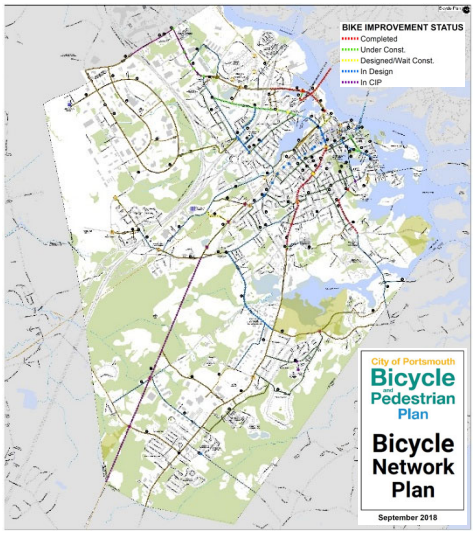
The transportation lead within the consulting team, SLR, has developed a preliminary scope of work to execute a study of existing private and regional shuttle operations with the objective of recommending alternate schedules and structures for a fee of $40,000 to $50,000, depending on the final scope of work approved by the City. The consulting team does not anticipate the need for any special legislation to authorize the study, nor does it have an opinion regarding which city agency should lead the effort. This

should be a Near-Term priority given the relative low cost and ease of implementation if a solution can be agreed upon.

Examples of successful efforts to consolidate shuttle operations to reduce carbon impacts include:

- The 2015 South Boston Waterfront Sustainable Transportation Plan[7] detailed how twenty (20) distinct and unique existing private shuttles operating in Boston's Seaport District could be consolidated downtown to two universal circulator shuttle programs without any loss of service to riders and substantial cost savings to the various employers and existing shuttle sponsors.
- The "*Integrated Shuttle and Transit Mobility Study*"[8] included as part of 2022 Oakland Plan prepared for the City of Pittsburgh identified three Port Authority of Allegheny County bus routes, six Carnegie Mellon University shuttle routes, and thirteen University of Pittsburgh shuttle routes with overlapping and redundant travel paths and schedules.
- The 2023 Public Transportation Consolidation Study[9] prepared for the City of Corning and Stueben County, NY explored the costs and benefits of partially and fully integrated municipal and county transit services.
- A 2016 study[10] conducted under the direction of the Western Connecticut Council of Governments examined the costs and benefits for consolidating the many private shuttles connecting the Stamford Transportation Center to over sixty (60) area destinations into one of three consolidated operating formats.

'Park-And-Bike' Options



In 2014, the City of Portsmouth accepted and adopted the Portsmouth Bicycle and Pedestrian Plan, which included over $29M in proposed infrastructure improvements to advance biking as an alternate to travelling by single-occupant private vehicle. An interim set of progress reports was made to City Council in 2018 detailing progress along the plan and an update to the plan was executed in 2024.

Many of the existing and proposed bikeways connect outlying areas with downtown Portsmouth, with points of origin near public on-street parking areas with significant current availability, public off-street parking facilities with a number of open spaces, and/or private parking facilities containing underutilized parking supply. These parking facilities and the connecting travel ways could be promoted to both locals and

[7] https://www.mass.gov/files/documents/2018/05/24/SBostonWaterfrontFullReport_jan2015.pdf

[8] https://engage.pittsburghpa.gov/oakland/strategy-integrated-transit-and-shuttle-system

[9] https://cityofcorning.com/vertical/sites/%7BBE0E976C-81B9-4F4C-8763-A90E76CF4D33%7D/uploads/City_of_Corning-Steuben_County_Public_Transportation_Study_Final_Report(1).pdf

[10] https://westcog.org/wp-content/uploads/2020/08/Stamford-Bus-Shuttle-Study_Phase-A-Final-Report.pdf

visitors as part of a 'park-and-bike' network aimed at reducing parking occupancy in the downtown core as well as traffic congestion.

In addition to lessening parking occupancy downtown and reducing traffic congestion along downtown roadways, promotion of this network also reduces CO2 emissions. Potential liabilities associated with this concept are limited to potential issues negotiating shared parking agreements in private parking facilities if needed and the nominal exposure to risk associated with execution of those agreements. Additionally, the city may need to develop contingency services against sudden inclement weather if the concept takes off and large numbers of bike riders need to be shuttled back to their parking location from time to time.

In terms of incurred costs, as the creation of the bicycling infrastructure is already included in current and future municipal budgets, any additional costs associated with this initiative would be limited to annual operating expenses for promotion, private lot rentals (if needed), and/or 'safety net' programs for transporting bicyclists when needed. These costs are likely to vary widely according to scope and scale, and the consulting team does not have an estimated cost or recommended budget set aside as a result.

The consulting team does not anticipate the creation of any special legislation to advance this initiative and would propose the Parking and Planning Departments work collaboratively to develop the initial concept. This should be considered a Near- to Mid-Term priority.

Examples of successful similar programs include:

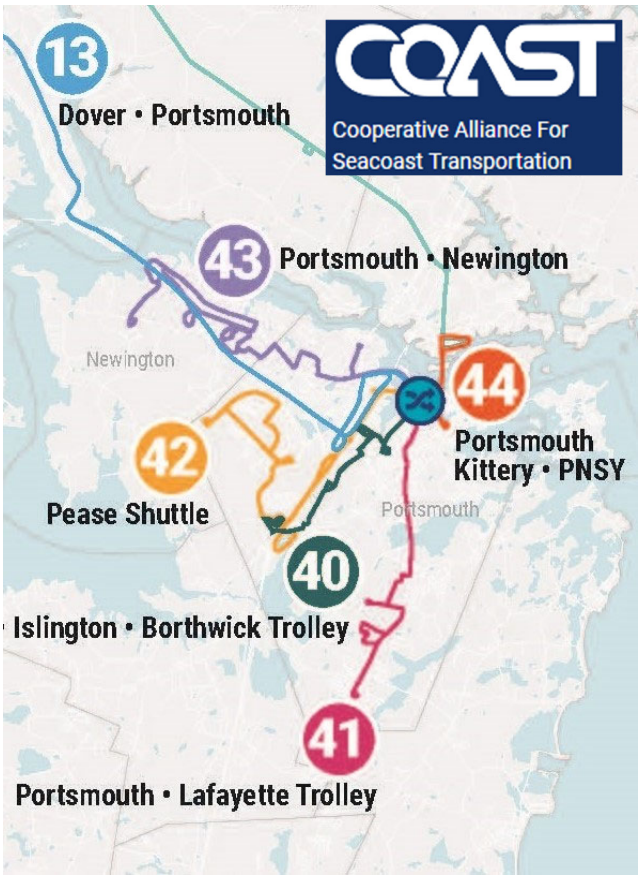
- The Boston-area "Park & Pedal" program (https://www.parkandpedal.org/) which identifies locations where commuters can park their vehicle near a dedicated bikeway just outside the congested downtown core.
- "Move Minneapolis" (https://moveminneapolis.org/), a collaboration between the US Department of Transportation, the City of Minneapolis, and the Twin Cities Metropolitan Council offers an array of information on commuting alternatives, including a robust listing of parking locations, bicycle pathways, ride-tracing applications, and other resources.
- The University of Minnesota's ZAP Bike Commuting Program (https://www.derozap.com/gopherzap/) is a collaborative between the cities of Minneapolis and St. Paul and the university that pairs a proprietary technology for tracking bicycle trips with a robust reward program for individuals participating in the program. While not technically a municipal 'park and bike' initiative, the program has supported double-digit increases in bicycle commuting year-over-year since its initiation.
- People for Bikes (https://www.peopleforbikes.org/) is a professional advocacy organization offering abundant resources for promoting bicycling as a transportation option, including the establishment of 'park and ride' commuter networks. The organization also provides constantly updated information regarding funding sources to promote pro-bicycle projects (https://www.peopleforbikes.org/news/billions-of-dollars-are-available-for-bike-projects).

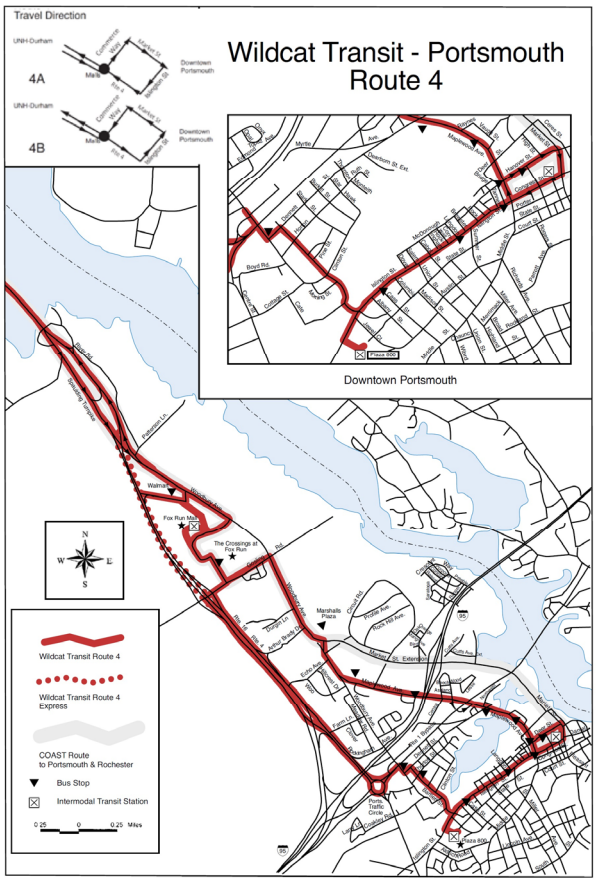
Intercept Parking Facility Planning

"Intercept" parking facilities are designed to capture and collect large quantities of traffic at strategic locations just outside a downtown core, funnel them into a parking facility, and then convey drivers and

passengers the remaining distance between the facility and the downtown core. These facilities are not unlike the 'remote' or 'satellite' parking facilities described earlier in both intent and benefit. However, intercept facilities are often contained within the geographic limits of the downtown core and often integrate multiple modes of travel in one central location including, but not limited to: local and regional transit service; private shuttles; jitneys; taxi and TNC services; car rental; bike rental; scooter rental; and others.

Often intercept facilities are planned as part of a broader development program for an urban core. Conceptually, an intercept facility to service downtown Portsmouth could be located along Market Street, Maplewood Avenue, Woodbury Avenue, or the Route 1 Bypass to capture traffic approaching downtown off Interstate 95, Route 1, or Route 4. Depending on the location, the facility could be connected to downtown through a dedicated shuttle service, but could also serve as a hub for Coast bus routes 13, 40, 41, 42, 43, and 44 and Route 4 of Wildcat Transit.





The benefits and liabilities associated with establishing an intercept facility would be similar to those detailed for a remote park-and-ride solution with a higher potential for success. Depending on the location of the facility, this initiative could also potentially support suggestions to establish a pedestrian mall in downtown Portsmouth and/or initiatives to reduce on-street parking in key areas to allow for the widening of sidewalks, increased civic space, or other initiatives.

The cost to develop an intercept parking facility will vary widely depending on land acquisitions costs, type of construction, incorporated design elements, and connecting shuttle service; the consulting team does not have an estimated cost or recommended budget set aside as a result.

The consulting team does not anticipate the creation of any special legislation to advance this initiative, although again this would depend on land acquisition and other factors which may mandate otherwise. At this point in time, the consulting team would propose city officials work collaboratively with the current Master Plan team to test this concept and determine its validity relative to the process in motion. If this current planning process does not find validity or applicability for the concept, this should be considered a Long-Term priority.

Examples of other municipal intercept parking facilities include:

- When the City of Boulder, Colorado committed to converting a section of Pearl Street into a pedestrian mall in the early 1970's (See: https://boulderdowntown.com/visit/history-of-pearl-street) one of the key strategies was developing structure parking facilities with integrated transit stops along the periphery of the mall to support the loss of on-street parking along Pearl and its cross streets as well as supporting future growth and densification of the Pearl Street Mall and abutting neighborhoods. Each parking facility was located in accordance to a main arterial roadway feeding into the area with the goal of 'capturing' inbound drivers as they arrived in the area from communities located north, south, and east of the site.

- Ithaca Commons (https://www.downtownithaca.com/visit-downtown/the-commons/), another urban pedestrian mall created in the 1970's in downtown Ithaca, New York, experienced a renaissance in the middle 2010's when the Tompkins Consolidated Area Transit (TCAT) agency consolidated urban bus service around the Commons into two service hubs located north and south of the mall, directly adjacent to the city's Seneca Street and Green Street Garage. This design allowed the municipal garages to capture traffic along the east-west arterials for Seneca and Green Street, providing supporting and centralized parking facilities to the north and south of the mail with near proximity to regional transit services. These service hubs will eventually be integrated into a later phase of the Cayuga Street Parking Garage which will serve as an intercept parking facility for the area and eventually will also act an intermodal center.

- The Town of Telluride Colorado created the Shandoka and Carhenge Parking Lots (https://www.telluride-co.gov/DocumentCenter/View/11144/Town-of-Telluride-Visitor-Parking-Map-PDF?bidId=) to divert inbound tourist traffic off Highway 145 to these two facilities located at the far western end of town. These lots are serviced by the town's Galloping Goose shuttle service (https://www.telluride-co.gov/DocumentCenter/View/10914/2024---2025-Winter-Season-Town-Loop-Schedule-PDF?bidId=) so they can connect visitors and tourists to downtown proper, but the lots are also the designated free parking for downtown employees. These facilities are also serviced by a gondola line (https://www.telluride.com/discover/the-gondola/) connecting these intercept lots to the Town of Mountain Village and over 120 unique ski runs, hundreds of miles of hiking and biking trails, a PGA rated golf course, and other recreation opportunities.

Proposed Implementation/Phasing

A summary of the recommended initiatives and proposed prioritization is included in the table below called "City of Portsmouth 2025 Parking Utilization Plan Study and Recommendations":

General Area	Specific Initiative	Proposal/Recommendation	Potential Benefits	Potential Liabilities	Priority
Operational Improvements	*Adopt Parking Wayfinding Technology*	Solicit proposals for pilot tests	Improved Visitor Experience, reduced C02 emissions and roadway congestion	Ongoing licensing costs, infrastructure improvement costs	Near-Term
	Revised Private Parking Operator Regulations	Require private parking lot operators to better identify commercial lots	Reduced constituent confusion, inform consumer decision making	Could inhibit private participation in public parking	Near-Term
	Establish Annual Rate Review for Parking Fund	Develop policy for for periodic rate review and rate adjustments	Improved stability of revenues for Parking Fund	Additional Administrative time and Effort	Immediate
Zoning Policy Revisions	*Ordinance Revisions to Promote Shared Parking*	Revise existing ordinances to promote and support use of shared parking strategies	Improved utilization of private parking spaces, to support development activity	Ongoing monitoring requirements for agreements	Near-Term
	Car-Share Pilot	Subsidize a pilot to attract car-share services to Portsmouth	Improved project development, reduced pass through (housing) costs, reduced CO2 in a continued effort to support affordable housing	Program may require permanent subsidy, use public parking	Near-Term
	Periodic Parking Requirement Adjustment	Prepare and execute a program to periodically study to test and update parking requirements	Assures parking requirements are reflective of actual need, market conditions	Potential cost/labor drain to execute studies	Mid-Term
New Programs	*Residential Parking Permit Program Pilot*	Execute a pilot to determine value/viability of regulating 'free' on-street parking	Protection for neighborhoods against migration of users, data on actual use, community feedback	Pilots can be time-consuming and expensive	Near-Term
	Explore Resident Parking Programs for Recreational Lots (and Monitize Lots)	Similar to Monitization of South and West End neighborhoods	Offset costs associated with recreation programs used by non-residents; reduce overuse of parking assets; collect non-resident usage data	Additional Administrative time and Effort	Near-Term

General Area	Specific Initiative	Proposal/Recommendation	Potential Benefits	Potential Liabilities	Priority
New Programs, Cont.	*Convert Parrott Lot to Fee-for-Use*	Introduce metered parking to Parrott Avenue and the Parrott Lot to encourage turnover. Residents Park for Free	Increased turnover and availability, enhanced revenues for Parking Fund	Displacement of existing parkers, migration to neighborhoods	Near-Term
	Identify Alternatives for Employee Parking Program	Identify new location for Downtown Workforce Parking Program as Foundry Garage nears capacity	Supports Hospitality Workers	Recommended actions are only temporary, need more supply	Near-Term
New Supply	*Public/Private Parking (PPP) Ventures*	Pursue opportunities to build more parking collaboratively	May allow for better site/design, lower cost to add more public parking	PPP ventures are complicated to structure/ manage	Near-Term
	Site/Fiscal Feasibility Process for New Parking	Initiate process to evaluate public parcels for new parking structure	Development cycle is long, so earliest possible start benefits the community	May displace existing parking for time, add debt load to Fund	Immediate
	Park-And-Ride Solutions	Investigate creation of remote parking specific to tourists/visitors	Solution reduces downtown parking demand, CO2 emissions, traffic congestion	Solution requires heavy marketing/promotion to succeed	Near-Term
Alternatives	*Shuttle Consolidation Study*	Execute a study to determine if private shuttle services can be integrated	Reduced CO2 emissions and traffic congestion, reduced costs to providers	Requires commitment from City, concessions from employers	Near-Term
	"Park-And-Bike" Options	Create a program to promote remote parking and bicycling into downtown for visitors	Reduced CO2 emissions, traffic congestion, and downtown parking demand	Requires City coordination/promotion, 'safety net' services and additional capital investment	Near- to Mid-Term
	Intercept Parking Facility Planning	As appropriate, introduce intercept parking facility concept into planning processes	Reduced CO2 emissions, traffic congestion, and downtown parking demand	Major coordination between agencies, long-term commitment	Long-Term

Complete Study Can Be Located At: https://portsnh.co/2023parkingneeds

6. APPENDICES

Appendix A: Task 1/Existing Conditions Report

Appendix B: Task 2/ Zoning Assessment Report

Appendix C: Task 3/Future Needs Report

DESMAN
Design Management

APPENDIX A

DATE: *Tuesday, January 14, 2025*

TO: *Benjamin Fletcher; Peter Rice; Peter Britz; Jillian Harris; Eric Elby: Mike Casad; Leila Birr; Sean Clancy (City of Portsmouth)*

CC: *Jerry Salzman (DESMAN)*

FROM: *Andrew Hill and Reese King- Hill (DESMAN) and Holly Parker (SLR)*

PROJECT: *City of Portsmouth* **PROJECT #:** *20-23131.00-3*

RE: *Task 1 Final Report (Existing Conditions)*

In the fall of 2022, The City of Portsmouth ("the City" or "Portsmouth") issued a comprehensive assessment of parking conditions and operations to support the continued renaissance of their downtown when they issued an RFP for an updated downtown parking study; the last one was done over 20 years ago at this point. The City awarded the contract to execute this study to the team of DESMAN Design Management ("DESMAN") and SLR Consulting ("SLR") in early 2023.

This study is a continuation of the work that Portsmouth has completed to date in evaluating its parking supply. In 1998, the city conducted a Downtown Parking Study to assess existing conditions and project future parking requirements. The report concluded that additional downtown parking facilities were necessary to meet projected parking demand. The city then took several measures to expand the supply, including entering into a number of shared parking agreements, expanding the High-Hanover Parking Facility, and evaluating a number of private and public sites for feasibility in constructing a second public parking facility.

In 2010, the City established a focus group to compile data and evaluate existing parking supply in A Report on Parking Impacts and Downtown Vitality. This report recommended the city plan the downtown parking supply based on a proposed ratio of 2.0 to 2.2 parking spaces per 1,000 square feet of building floor area, regardless of use, and determined that the existing parking supply shortfall was between zero and 300 spaces. The report recommended the city move immediately to create additional off-street structured public parking, and work to identify additional areas for another future parking structure.

Following these reports, the City Council, Planning Board, and Economic Development Commission created the Downtown Parking Omnibus in 2011 that culminated in several recommendations, including zoning amendments and management strategies. The City Council implemented several ordinance changes. As a result of these recommendations, the City Council was to explore the need to assess parking supply and demand.

Most recently, parking has been a focus in the community as Portsmouth grows from a seasonal vacation area to a hub of activity year-round. In addition, the continuing development of the downtown is causing vehicular congestion and demand for more parking, but with little geographical space to place it. The city

leadership also seeking ways to promote less car-centric, more sustainable modes of transportation to meet the community's environmental objectives.

The parking study covered under the current scope of work is an update of the studies performed in 2012 (Parking Supply and Demand Analysis Final Report and Parking Supply and Demand Strategies) and 2013 (Blue Ribbon Committee on Transportation Policy: Report to the City Council). To execute this study, DESMAN/SLR team proposed a work plan organized into four general tasks: *Project Management*, *Existing Conditions Analysis*, *Future Conditions Analysis*, and *Recommendations Development*.

GLOSSARY

Within the parking industry there are a number of commonly used technical terms included within this report which include the following:

- Inventory: A physical count taken in the field by qualified personnel to quantify the number of parking spaces and/or parked vehicles within a defined study area, facility, block face, or other defined geographic structure.
- Parking Supply: The number of parking spaces contained within a defined study area, facility, block face, or other defined geographic area. Typically, the number of spaces is defined by stall markings placed on the parking surface where parking is authorized by the municipality and/or private property owner.
    - In the absence of clear stall markings, DESMAN estimates the number of on-street spaces based on assumed dimensions of 22' in length by 7' in width of contiguous and uninterrupted curbside space (unless local code mandates other dimensions) factoring in reasonable set-backs for curb cuts, driveways, alleyways, intersections, crosswalks, etc. as dictated by state or local ordinances.
    - In absence of clear stall markings, DESMAN estimates the number of off-street parking spaces based on local code dictating stall dimensions according to parcel dimensions, minimum set-backs, required drive aisle dimensions, and angle of stall.
    - As standard practice, DESMAN does not assume the existence of parking supply in areas where vehicles are parked in prohibition to parking or standing, in such a manner as to encumber the safe passage of traffic, or in ad hoc locations not clearly posted as authorized parking spaces.
- Public: a parking space and/or facility which is owned by a public agency and/or accessible to any member of the general public adhering to any posted regulations for use. Parking facilities may be publicly-owned and still privately-accessible if there is use is restricted to an exclusive user type.
- Private: a parking space and/or facility owned by a private individual, group, organization, and/or institution and/or designated for use by an exclusive class of parkers such as residents, employees, customers, etc. Private parking facilities may still be publicly-accessible if designated for use by the general public for a fee or under other conditions.
- Occupancy: The number of parked vehicles contained within a defined study area, facility, block face, or other defined geographic area. This may include vehicles parked outside a designated or authorized parking space.

- Utilization: The amount of supply filled by parked vehicles at a given time. Typically expressed as the percentage of total spaces (e.g. capacity) filled.
- Adequacy: The number of parking spaces not filled at a given time within a particular study area, facility, area, and/or type of supply.

STUDY AREA

The City of Portsmouth defined a 50-block study area within the originating RFP, encompassing the Downtown Overlay District, Historical District, and abutting residential neighborhoods. This study area was slightly larger than the area defined in the (2012) study.

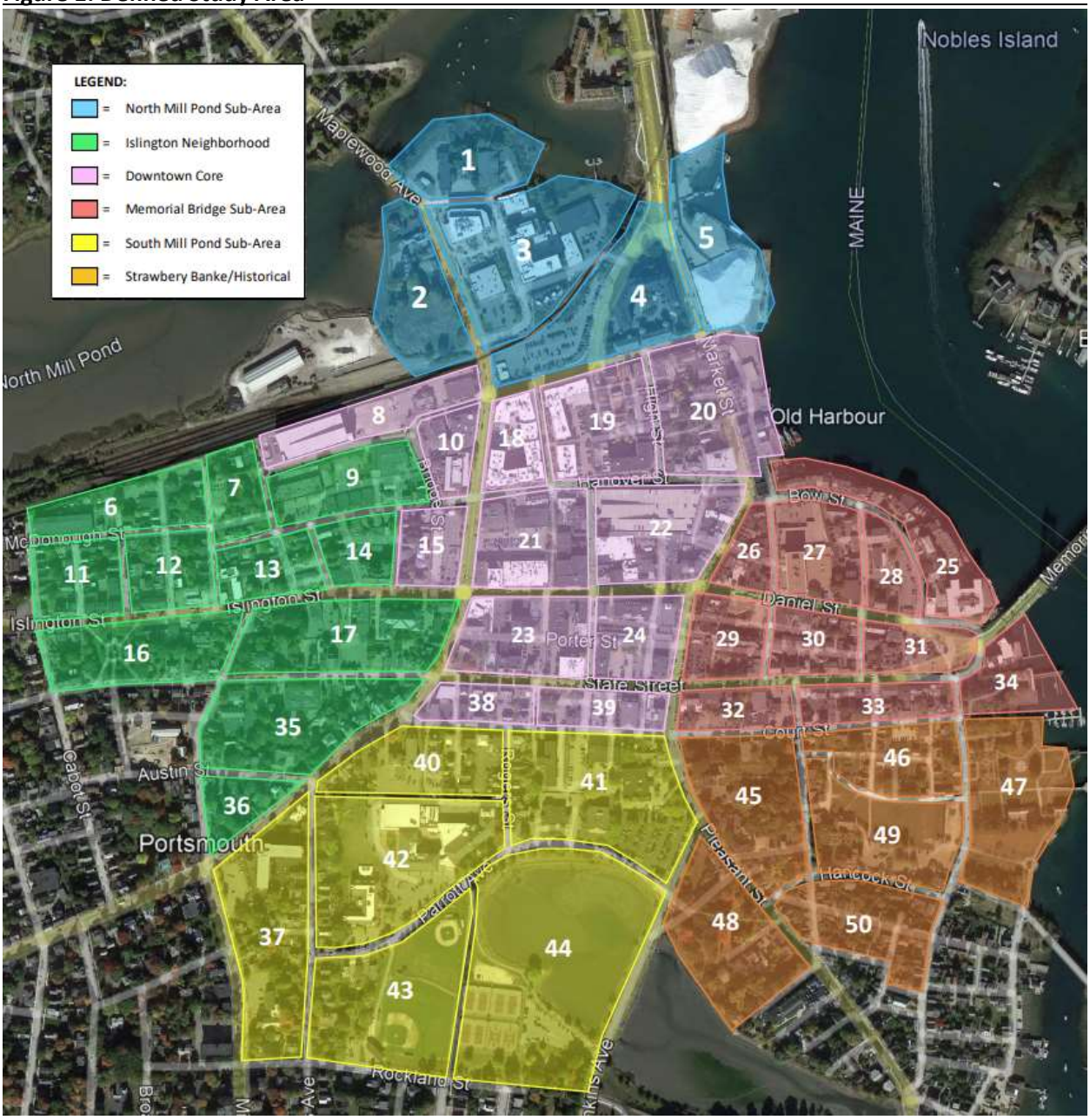
To assist with data collection and analysis, DESMAN divided the study area into six sub-areas as shown in ***Figure 1*** on the following page. The districts were defined by the predominate land uses and character within each and named for abutting geographic features or core institutions contained therein. The boundaries of each district were commonly defined by major roadways and/or geographic features wherever possible.

Each area is color-coded to assist the reader in reviewing the core data and analysis generated within this study. The six areas include:

- The ***North Mill Pond Sub-Area*** (NM) in blue, which features hospitality, restaurant, office, retail, fitness, and light industrial uses as well as the Isle of Shoals Steamship terminal and is bounded by Maplewood Avenue, Deer Street, the Piscataqua River, and the North Mill Pond.
- The ***Islington Neighborhood*** (IN) in green, which contains both single-family and multi-family housing interspersed with commercial and institutional properties. It is bounded roughly by the North Mill Pond, Cabot, State, and Summer Streets, and Maplewood Avenue with the except of three blocks containing parking asset or land uses attributed to the Downtown Core.
- The ***Downtown Core*** (DC) in pink, which encompasses primarily commercial land uses with some multi-family residential properties. This area bounded roughly by Deer Street, Maplewood Avenue, Court Street, Pleasant Street, and Market Street.
- The ***Memorial Bridge Sub-Area*** (MB), in red, is a mixed-use area encompassing retail shops, restaurants, professional offices, single- and multi-family housing, and the Prescott Park public space south of the Memorial Bridge on the riverfront. The district is bounded roughly by Market Street, Court Street, and the Piscataqua River.
- ***South Mill Pond Sub-Area*** (SMP), shown in yellow, is defined by the mix of residential, commercial, and institutional uses which include the Connie Bean Community Center, the Portsmouth Middle School, the Portsmouth District Court, and the South Mill Pond Playground and playing fields. The area is roughly bounded by Court Street, Maplewood Avenue, Rockland Street, Junkins Avenue, and Pleasant Street.
- The ***Strawberry Banke Sub-Area (SB),*** shown in orange below, includes a number of historical homes as well as the Strawberry Banke Museum, Prescott Park, the Trial Gardens, and other cultural landmarks. The area is bounded roughly by the South Mill Pond, Pleasant Street, Court Street, the Piscataqua River, and Gates Street.

The following analysis of parking supply and observed occupancy and utilization includes assessments of conditions specific to each of these areas, as well as reviews of parking facilities by type.

Figure 1: Defined Study Area



EXISTING CONDITIONS

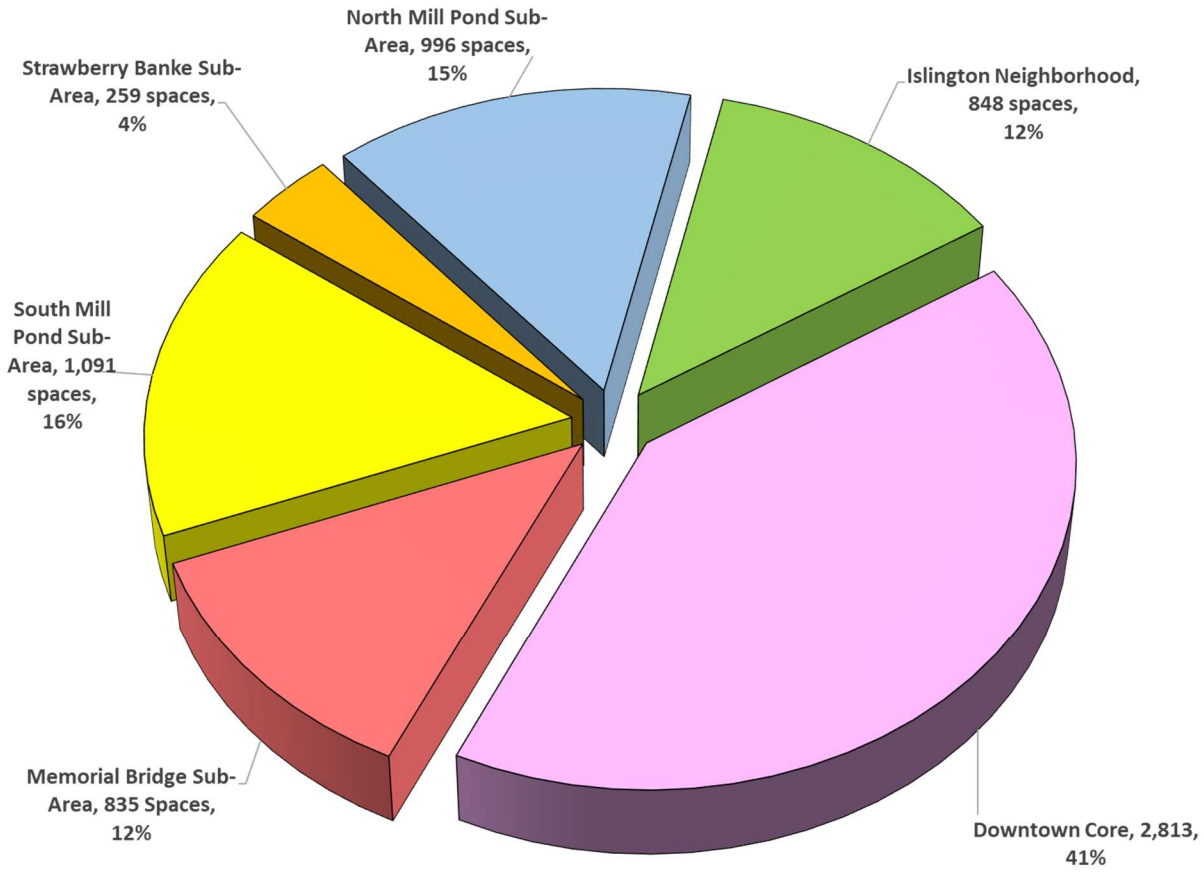
The following section presents the existing parking supply, inventoried in April 2023, and observed conditions conducted in May 5th and 6th, 2023.

Parking Supply

Within the defined study area shown in ***Figure 1***, DESMAN inventoried a total of 6,842 parking spaces. This figure was 20% greater (+1,179 spaces) than the total inventory reported in the 2012 study. A master inventory showing parking supply by block, block face, district, ownership (i.e., public versus private), and type of facility (i.e., on-street versus off-street) in included as ***Exhibit A*** to this report.

This inventory relied on direct observation to confirm space counts and did not include: residential driveways; garages associated with single-family homes. “ad hoc” parking areas surrounding residential properties; and surface parking lots dedicated to multi-unit residential properties containing less than 10 spaces. The largest concentration of total parking supply was in the Downtown Core (DC) at over 40% of available parking, followed by the residential area, Islington Neighborhood (IN) as shown in ***Figure 2***.

Figure 2: Distribution of Total Parking Supply by Sub-Area

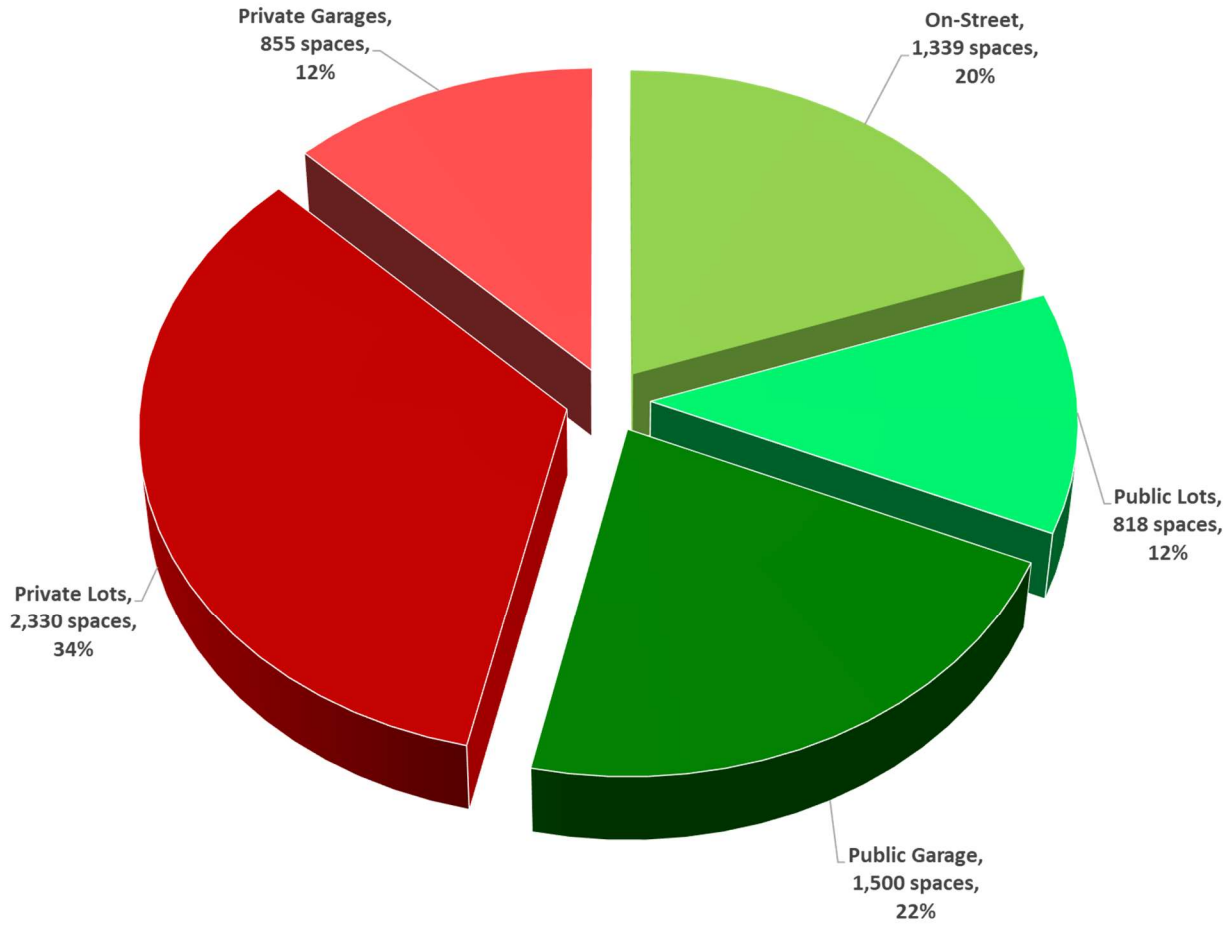


54% of the total supply[1] (3,657 spaces) was owned by a public entity and largely accessible to the general public. The remaining 46% (3,185 spaces) of the supply inventory was located in privately owned facilities, the majority of which were not accessible to the general public.

The existing parking supply was organized into two principal types of facilities: **On-Street** and **Off-Street**. ***Figure 2*** on the following page shows the distribution of total supply between on-street spaces, publicly-owned off-street lots and garages, and privately-owned lots and garages.

[1] The prior (2012) study found only about 33% of the total supply was publicly-owned and/or -accessible.

Figure 2: Distribution of Total Parking Supply by Type



On-Street Parking Supply

On-Street parking spaces, also referred to as "curbside," account for 20% (1,339 spaces[2]) of the total parking supply. On-Street parking spaces were inventoried based on posted designations and regulations (i.e., signage, roadway striping, meters, or other indications that parking along the edge of the roadway was authorized) for the most part. In total, there were 125 block faces within the study area that contained some form of on-street parking as follows:

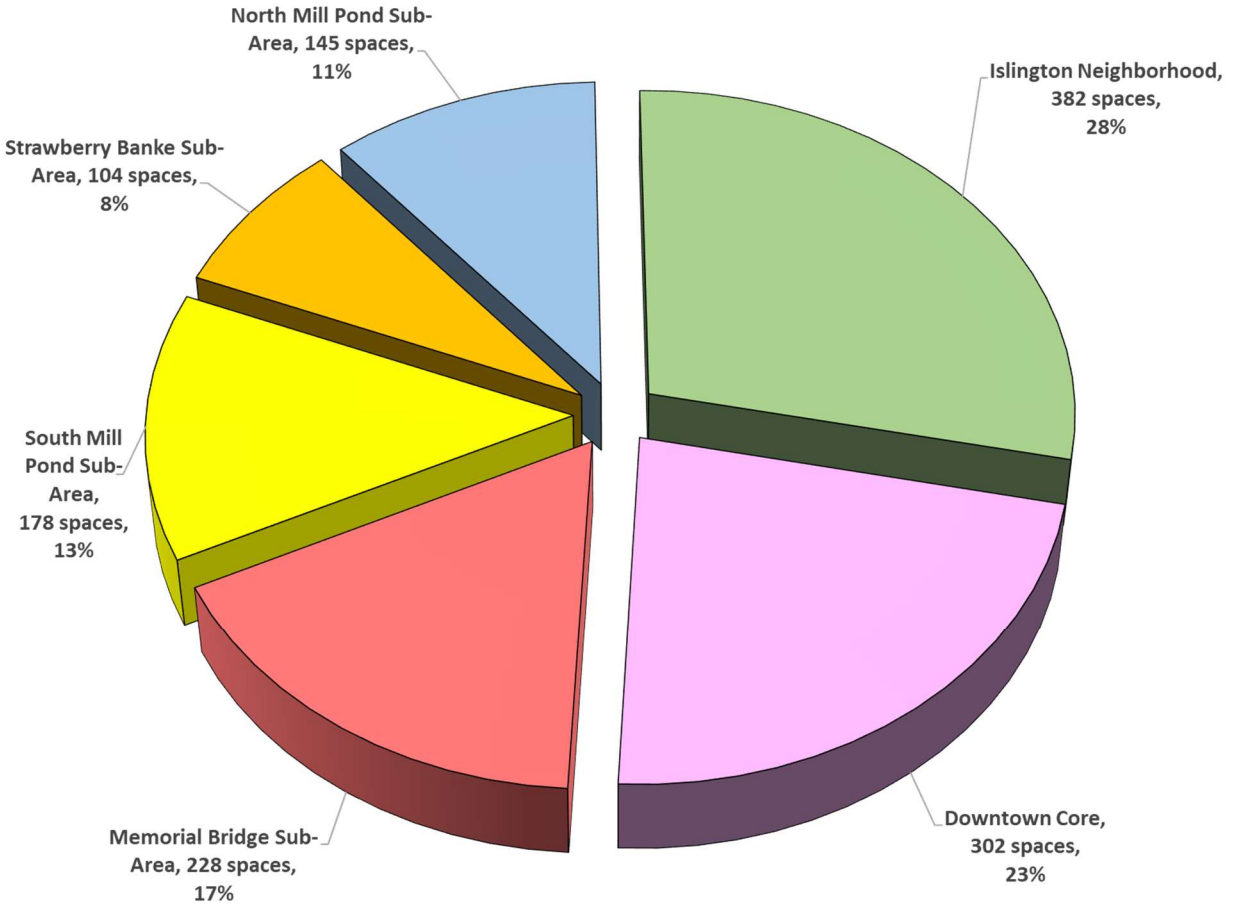
- 47 block faces (37.6%) containing Zone A meters;
- 23 block faces ((18.4%) containing Zone B meters;
- 6 block faces (4.8%) containing either 2-hour or 4-hour time limited spaces;
- 45 block faces (36%) containing unregulated (i.e., spaces without any posted time limit, permit requirement, meter, or other visible regulation regarding their use) parking spaces;
- 3 block faces (2.4%) containing spaces accessible only by authorized permit holders.

[2] The prior (2012) study reported a total of 1,208 on-street parking spaces.

The inventory also revealed 11 block faces which included ADA-accessible parking stalls and 9 block faces which included parking spaces allocated to special uses (e.g., valet) or designated as loading zones during set hours and curbside parking during other hours.

The largest concentration of on-street parking within the study area was located in the Islington Neighborhood, followed by the Downtown Core and the Memorial Bridge Sub-Area, as shown below.

Figure 3: Distribution of On-Street Supply by Sub-Area



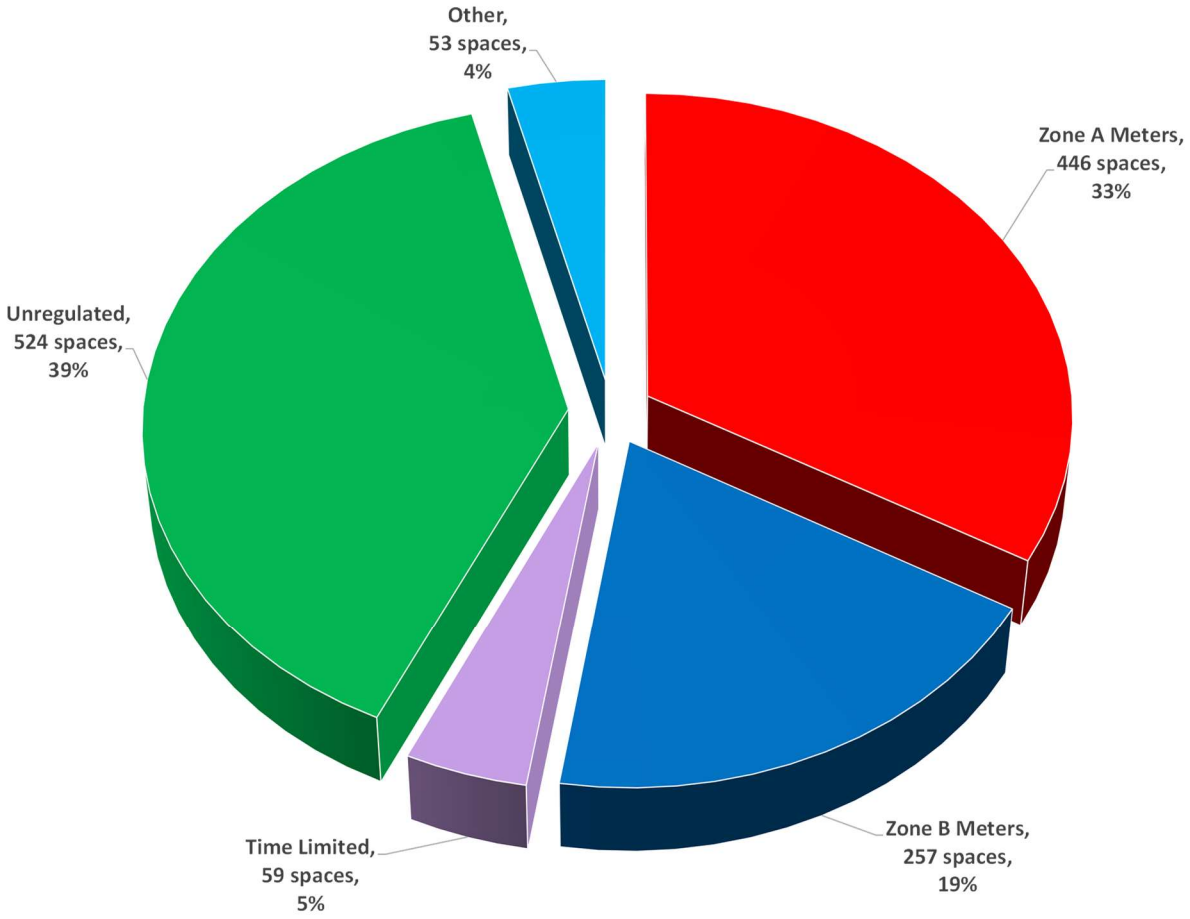
As shown in ***Table 1***, the majority of the on-street supply within the Islington Neighborhood was in unregulated parking spaces, while in the Downtown Core and Memorial Bridge Districts the majority of on-street was located in Zone A and B meters.

Table 1: Detailed Distribution of On-Street Supply by Sub-Area and Type

Area/District	Metered		Time Limited		Un-Regulated	Permit	Other	HC	*Sub-Total*
	Zone A	Zone B	2-Hour	4-Hour					
North Mill Pond Sub-Area	12	130	0	0	0	0	3	0	***145***
Islington Neighborhood	0	41	37	0	280	14	2	8	***382***
Downtown Core	223	57	0	0	5	0	12	5	***302***
Memorial Bridge Sub-Area	211	8	9	0	0	0	0	0	***228***
South Mill Pond Sub-Area	0	17	0	0	161	0	0	0	***178***
Strawberry Banke Sub-Area	0	4	0	13	78	9	0	0	***104***
GRAND TOTAL	**446**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	**1,339**

In the prior (2012) study, on-street parking was categorized and regulated by time limit or permit only; there were no parking meters in place at that time regulating the length of stay or turnover of curbside parking spaces. In contrast, the current inventory of on-street parking spaces shows that over half of the supply is now regulated by parking meters as illustrated in ***Figure 4***.

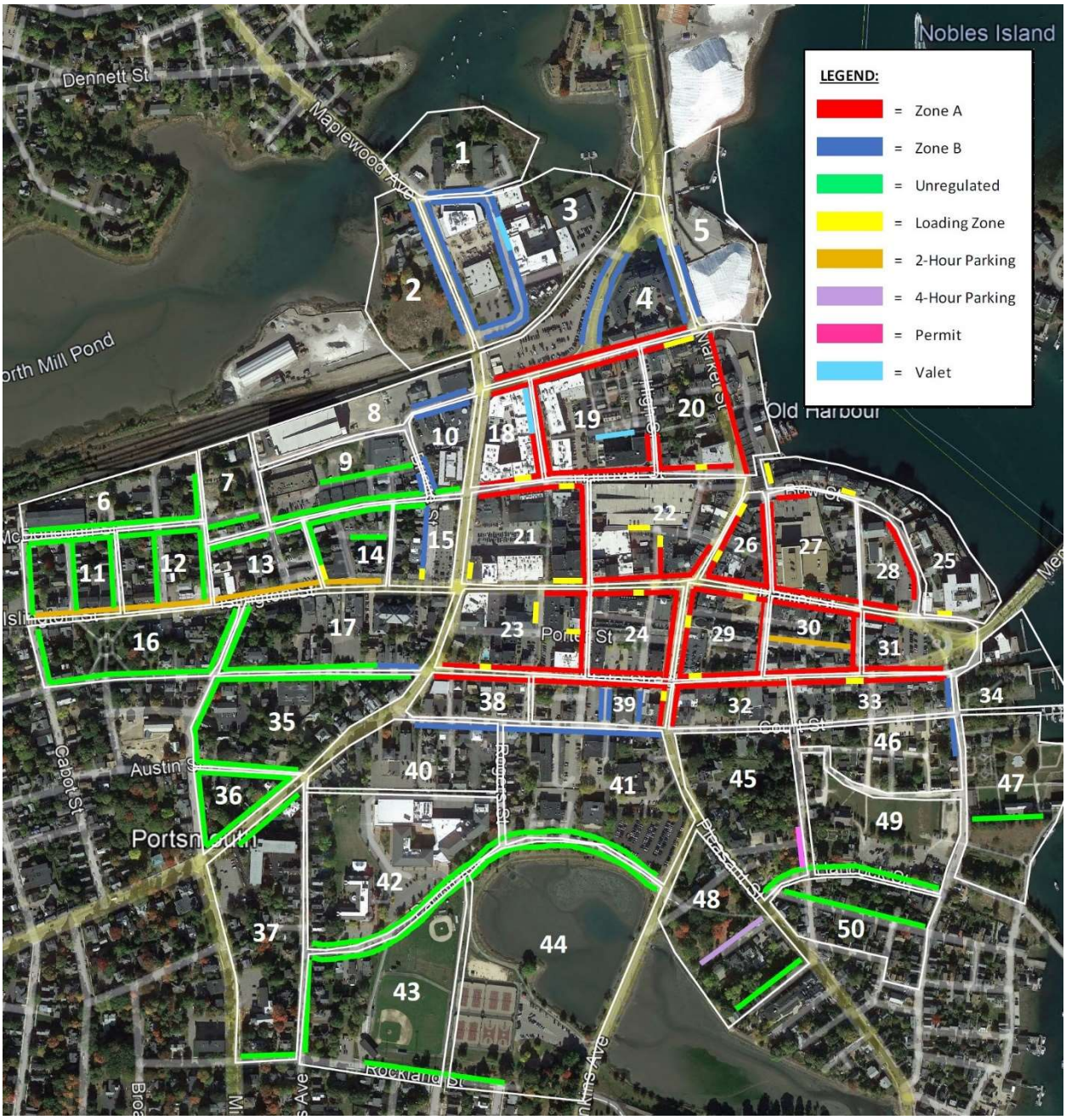
Figure 4: Distribution of On-Street Parking Supply by Type



On-street parking spaces regulated by meters are not subject to a prescribed length of stay, but do have an escalating rate structure to encourage turnover. The Zone A meters collected $2.00 per hour for stays up to three hours, increasing to $5.00 per hour in the fourth hour and beyond. Zone B meters collect $1.50 per hour for stays up to three hours, increasing to $3.00 per hour at the outset of the fourth hour and beyond.

Figure 5, next page, shows the location of the inventoried on-street parking supply within the defined study area.

Figure 5: On -Street Parking Supply by Location



Off-Street Parking Supply

Off-Street parking spaces, that is those located in lots and garages, account for 80% (5,439 spaces[3]) of the total parking supply. Off-Street parking facilities were categorized by ownership (i.e., *Public* and *Private*) and type of facility. *Public* parking facilities were owned by a public agency (i.e., the City of Portsmouth,

[3] The prior (2012) study reported an inventory of 4,455 off-street parking spaces across the defined study area, 984 spaces fewer than in the current inventory.

the Fire Department, the U.S. Postal Service, etc.) and were generally open for use by the public[4]. *Private* parking facilities were owned by private citizens, companies, or institutions and typically signed for exclusive use by a particular user type (i.e., employees, customers, resid ents, guests, etc.), business, or institution. There can be private parking facilities accessible to members of the general public, but these are typically commercial parking lots or garages offering parking for a fee.

The highest concentration of Off-Street Parking Supply was in the Downtown Core where the two municipal garages are located, as shown in ***Table 2***.

Table 2: Off-Street Parking Supply by Sub-Area and Type

	Public Lot				Public Garage				Private Lot			Private Garage			Sub -
Area/District	Permit	Meters	HC	Other	Permit	Meters	HC	Other	Permit	HC	Other	Permit	Other	HC	Total
North Mill Pond Sub-Area	0	0	0	0	0	0	0	0	132	5	359	355	0	0	851
Islington Neighborhood	0	0	0	0	0	0	0	0	458	3	5	0	0	0	466
Downtown Core	0	149	9	0	0	1,480	18	2	332	7	249	95	170	0	2,511
Memorial Bridge Sub-Area	0	34	2	16	0	0	0	0	64	10	246	235	0	0	607
South Mill Pond Sub-Area	140	0	26	432	0	0	0	0	283	9	23	0	0	0	913
Strawberry Banke Sub-Area	0	0	0	10	0	0	0	0	126	4	15	0	0	0	155
GRAND TOTAL	**140**	**183**	**37**	**458**	**0**	**1,480**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**0**	**5,503**

Public Off-Street Parking Supply (2,318 spaces[5]) accounts for roughly 43% of the Total Off-Street Parking Supply. This supply is divided between 17 public parking lots (818 spaces) and 2 public parking garages (1,500 spaces). A listing of Public Off-Street Parking Facilities is provided page as ***Table 3.***

Table 3: Public Off-Street Parking Facilities

						Surface Lots			Parking Structures			Sub -
Zone	ID	Facility Name	Ownership	Access	Controls	General	HC	Other	General	HC	Other	Total
DC	8A	Foundry Place Garage	Public	Public	Gates				600			600
DC	15A	Bridge St Lot	Public	Public	Permits/Meters	59	3					62
DC	21B	Worth Lot	Public	Public	Permits/Meters	79	5					84
DC	22B	Hanover Garage	Public	Public	Gates				880	18	2	900
DC	22D	Portsmouth Gas Light Co.	Public	Public	Meters	11	1					12
MB	27A	Post Office	Public	Public	Time Limits	8	0					8
MB	27G	Chapel Court - Public	Public	Public	Meters	4						4
MB	31A	Memorial Bridge Lot	Public	Public	Meters	30	2					32
MB	34A	Portsmouth Love Wall Lot	Public	Public	Time Limits	16						16
SMP	37C	Portsmouth Housing Authority	Public	Private	Permits	46	1					47
SMP	37D	Masonic Temple Lot	Public	Public	Time Limits	58	3					61
SMP	41B	Portsmouth Fire Department	Public	Private	Permits	26						26
SMP	41D	Parrott Ave Lot	Public	Public	Time Limits	186	6					192
SMP	41E	Portsmouth District Court Lot	Public	Private	Permits	24						24
SMP	42A	Portsmouth Public Library	Public	Private	Permits	16	4					20
SMP	42B	Portsmouth Middle School	Public	Private	Permits	110	8					118
SMP	43A	Baseball Field Public Lot	Public	Public	Time Limits	20						20
SMP	44A	South Mill Pond Playground	Public	Public	Time Limits	86	4					90
SB	47A	Water Street Permit Lot	Public	Private	Permits	10						10
TOTALS						**789**	**37**	**0**	**1,480**	**18**	**2**	**2,326**

[4] In some instances, such as parking areas set aside for use by government employees, the facility may be publicly owned but not accessible to the general public for some or all of the time. These spaces were still considered to be part of the Public Off-Street Supply as these reservations could conceivably be eased or eliminated if circumstances dictated such.

[5] The prior (2012) reported 1,617 public off-street spaces, indicating that the public off-street supply has increased by 701 spaces since 2012.

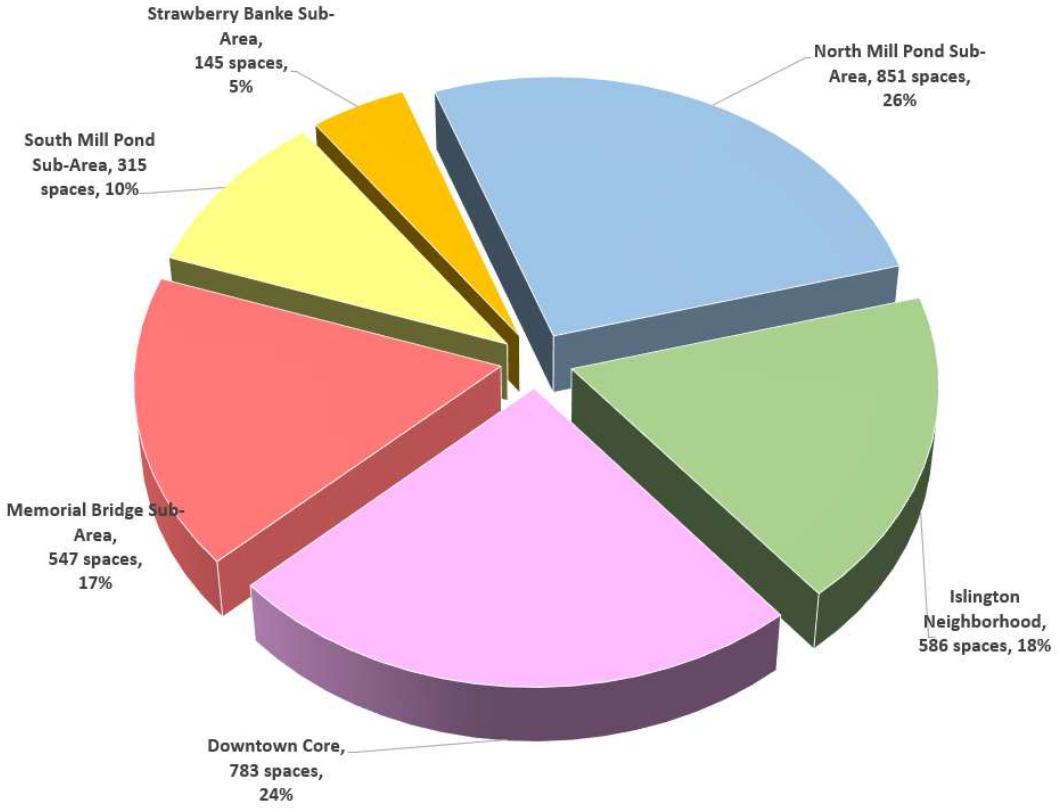
73% of the total Public Off-Street Supply (7 facilities, 1,694 spaces) was open for use by the general public on a fee-for-use (e.g., "paid" parking) basis. This included the two public parking garages and three surface lots in the Downtown Core and two surface lots in the Memorial Bridge Sub-Area.

Six facilities containing a total of 387 spaces (17% of total Public Off-Street Supply) were open to use by the general public for no fee. Almost all of these were located in the South Mill Sub-Area and were subject to some form of time limit.

The remaining 10% (6 facilities, 245 spaces) of the total Public Off-Street Supply consisted of surface lots owned by a public entity, but reserved for exclusive use by one user and were referred to as "Public-Private". These were commonly parking facilities set aside for US Postal Service, Police Department, or other public agency vehicles and submit to a permit requirement to access.

Private Off-Street Parking Supply (3,185 spaces[6]) accounts for 46% of the Total Parking Supply and 57% of the Total Off-Street Parking Supply. The largest concentration of private off-street parking supply is in the North Mill Pond District, as shown in ***Figure 6***.

Figure 6: Distribution of Private Off-Street Parking Supply by Sub-Area

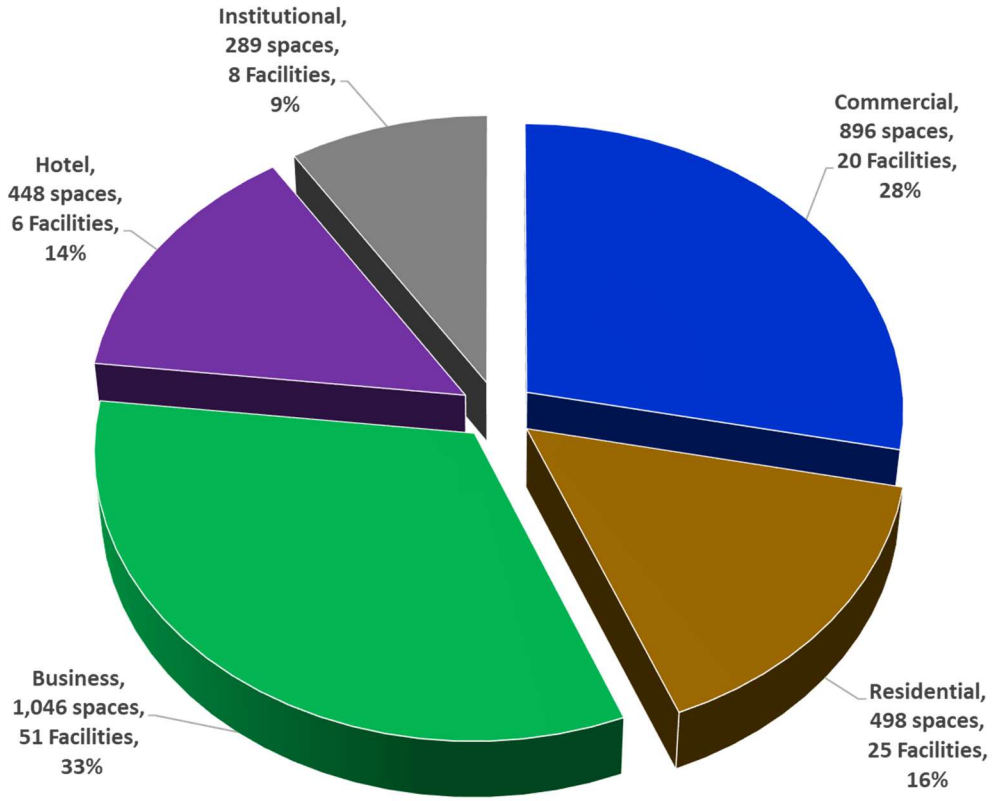


There are 113 private parking lots and garages within the study area. The majority of facilities (93) are signed for use by permit only or have some form of posted access restriction, such as a reservation for exclusive use by a particular institution, business, residential building, or hotel. Twenty of the private

[6] The prior (2012) study reported a total of 2,838 private off-street parking spaces across the study, 100 more than inventoried in the current (2023) study area.

facilities, representing a total of 896 spaces or 29% of the private off-street supply, were set up to allow for use by the general public for a posted fee as selected times of day and days of the week.

Figure 7: Distribution of Private Off-Street Parking Supply by Type



These private facilities open for public use on a fee for use basis, termed 'commercial' within the inventory, were most common in the North Mill Pond, Downtown Core, and Memorial Bridge Districts as shown in ***Table 4,*** on the following page.

The rates collected by the private commercial parking lots ranged from $5.50 to $8.50 per hour, in contrast to the $1.50 to $2.00 per hour collected by meters in publicly owned lots open for general use. The sole private parking garage open for use by the public (Portwalk Place Garage) charges hourly on a sliding scale, with the first hour of parking costing $5.00 on weekdays (12:00 AM Monday through 4:00 PM Friday) and $12.00 on weekends (4:01 PM Friday through 11:50 PM Sunday) in contrast to the $1.50 to $2.00 per hour rates collected in the city's Foundry Place and Hanover Garages.

Within the prior (2012) study there is no reference to any privately owned parking facilities open to the public on a fee-for-use basis[7].

[7] The Portwalk Place Garage did not exist when that study was executed.

Table 4: Private Off-Street Parking Facilities (1 of 2)

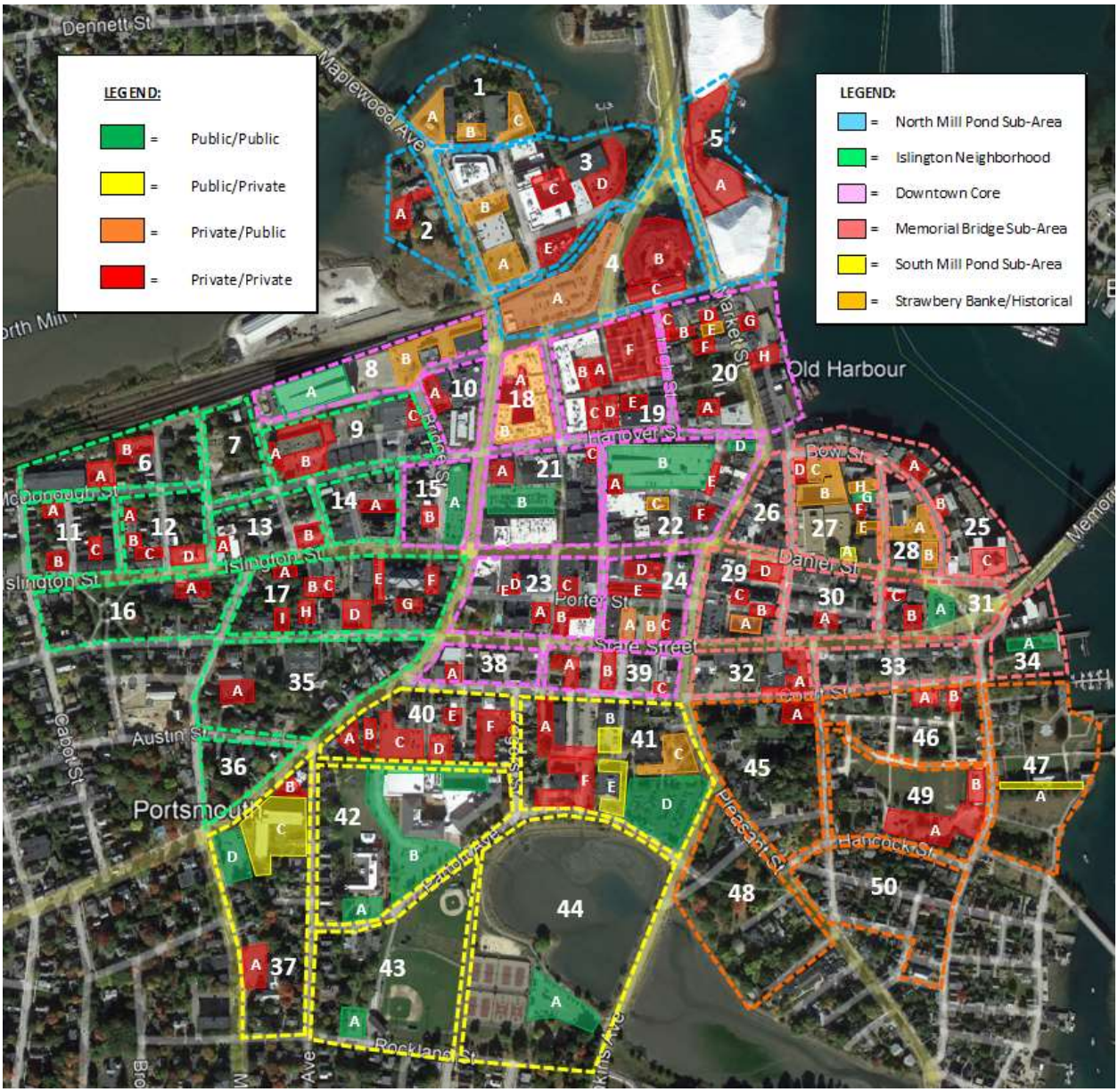
Blk	ID	Facility Name	Ownership	Access	Commercial	Residential	Business	Hotel	Institutional	Total
NM	1A	Cindy Ann Cleaners	Private	Public	41					41
NM	1B	31 Raynes Ave Lot	Private	Public	17					17
NM	1C	Vanguard Key Club	Private	Public	43					43
NM	2A	Mortgage Network	Private	Private			25			25
NM	3A	111 Maplewood Front Lot	Private	Public	39					39
NM	3B	111 Maplewood Rear Lot	Private	Public	14					14
NM	3C	Marriott AC Hotel Garage	Private	Private				110		110
NM	3D	New Era Technology Lot	Private	Private			58			58
NM	3E	233 Vaughan St Condos	Private	Private		24				24
NM	4A	Sheraton Public Parking Lot	Private	Public	208					208
NM	4B	Harborside Hotel Garage	Private	Private				191		191
NM	4C	Market Wharf Condo Garage	Private	Private		30				30
NM	5A	Steamship Company Lot	Private	Private			51			51
IN	6A	Safeway Storage Lot	Private	Private			15			15
IN	6B	Regan Electric Lot	Private	Private			13			13
DC	8B	Eastern Bank Lot	Private	Public	42					42
IN	9A	Heinemann Side Lot	Private	Private			11			11
IN	9B	Heinemann Main Lot	Private	Private			81			81
IN	9C	Ferguson Gallery Lot	Private	Private			6			6
DC	10A	Statey Grill Lot	Private	Private			18			18
IN	11A	118 McDonough St Lot	Private	Private		9				9
IN	11B	Measured Wealth Lot	Private	Private			14			14
IN	11C	Islington Townhomes Lot	Private	Private		10				10
IN	12A	Cornwall North Lot	Private	Private		15				15
IN	12B	Ambrose Medicine Lot	Private	Private		10				10
IN	12C	235-243 Islington St Lot	Private	Private		9				9
IN	12D	Exxon Station Lot	Private	Private			5			5
IN	13A	The Kitchen Lot	Private	Private			5			5
IN	13B	Davies Tire & Auto Lot	Private	Private			25			25
IN	14A	Manpower Lot	Private	Private			32			32
DC	15B	40 Bridge St Residential Garage	Private	Private		10				60
IN	16A	AR&T/ Lexie's Joint Lot	Private	Private			15			15
IN	17A	Sole Trng/Atlantic Chiro Lot	Private	Private			18			18
IN	17B	American Legion Lot	Private	Private			20			20
IN	17C	86 Islington St Lot	Private	Private		10				10
IN	17D	Consolidated Employee Lot	Private	Private			46			46
IN	17E	Keefe House Lot	Private	Private		18				18
IN	17F	Portsmouth Historical Society	Private	Private					17	17
IN	17G	Bergeron Appraisal Lot	Private	Private			12			12
IN	17H	567-579 State St Lot	Private	Private		15				15
IN	17I	Whipple School Bldg Lot	Private	Private		19				19
DC	18A	Hampton Inn Lot	Private	Private				60		60
DC	18B	Portwalk Place Garage	Private	Public	170					170
DC	19A	Gated Private Lot	Private	Private			28			28
DC	19B	Resident Inn Lot	Private	Private				26		26
DC	19C	Opus Residential Lot	Private	Private		28				28
DC	19D	Opus Garage	Private	Private		21				21
DC	19E	Hilton Garden Inn Lot	Private	Private				28		28
DC	19F	The Hill	Private	Private			16			16
DC	20A	The Soupery	Private	Private			10			10
DC	20B	Permit Lot	Private	Private		8				8
DC	20C	Hanover Hill Place	Private	Private			8			8
DC	20D	Erin Elizabeth Salon	Private	Private			8			8
DC	20E	200 Market St Lot	Private	Public	17					17
DC	20F	Afford -A- Move Lot	Private	Private			15			15
DC	20G	Ceres Tenant Lot	Private	Private		20				20
DC	20H	Portsmouth Harbor Lot	Private	Private			19			19
DC	21A	25 Maplewood Condo Garage	Private	Private		19				19
DC	21C	Legends Lot	Private	Private			8			8
DC	22A	Gilley's Diner	Private	Private			7			7
DC	22C	One Market Square Lot	Private	Public	24					24
DC	22E	36-46 Market Street Lot	Private	Private			9			9
DC	22F	Antheneum Lot	Private	Private			12			12

Table 4: Private Off-Street Parking Facilities (2 of 2)

Blk	ID	Facility Name	Ownership	Access	Commercial	Residential	Business	Hotel	Institutional	Total
DC	23A	Rockingham Bldg Lot	Private	Private		30				30
DC	23B	TD Bank Lot	Private	Private			30			30
DC	23C	82-86 Congress St Garage	Private	Private			14			14
DC	23D	110 Congress St Permit Lot	Private	Private		7				7
DC	23E	Flatbread Employee Parking	Private	Private			4			4
DC	24A	M&T Bank	Private	Public	20					20
DC	24B	People's United Bank	Private	Public	22					22
DC	24C	Book & Bar Alley Parking	Private	Private			5			5
DC	24D	8-26 Congress St Garage	Private	Private			20			20
DC	24E	12-32 Porter St Condos	Private	Private		11				11
MB	25A	113 Bow St Lot	Private	Private		17				17
MB	25B	Ale House Inn Lot	Private	Private			6			6
MB	25C	Harbor Place Garage	Private	Private			83			83
MB	27B	GSA Upper Lot	Private	Public	43					43
MB	27C	GSA Lower Lot	Private	Public	33					33
MB	27D	GSA Garage	Private	Private			44			44
MB	27E	Old City Hall Lot	Private	Public	24					24
MB	27F	Chapel Court - Private	Private	Private		10				10
MB	27H	Chapel Street - UPP	Private	Public	25					25
MB	28A	Chapel St /St Johns Lot	Private	Public	31					31
MB	28B	Bow St /St Johns Lot	Private	Public	23					23
MB	29A	Piscataqua Bank Lot	Private	Public	26					26
MB	29B	Oppenheimer Lot	Private	Private			9			9
MB	29C	Oppenheimer Garage	Private	Private			12			12
MB	29D	Brick Market Garage	Private	Private			67			67
MB	30A	Sheafe Apartment Lots	Private	Private		15				15
MB	31B	Parkside Garage	Private	Private		12				12
MB	31C	Piscataqua Landing Garage	Private	Private		17				17
MB	32A	Temple Israel Lot	Private	Private					50	50
IN	35A	Redemption Hill Church Lot	Private	Private					16	16
SMP	37A	1st United Methodist Church	Private	Private					25	25
SMP	37B	Thomas Haven House Lot	Private	Private		9				9
DC	38A	State Farm Insurance	Private	Private			17			17
DC	39A	TD Bank Lot	Private	Private			14			14
DC	39B	Court Pl Parking Lot	Private	Private			24			24
DC	39C	Northeast Auctions Lot	Private	Private			4			4
SMP	40A	Joe Plaia Attorney Lot	Private	Private			8			8
SMP	40B	Upton & Hatfield Lot	Private	Private			13			13
SMP	40C	Middle St Baptist Church Lot	Private	Private					58	58
SMP	40D	The Hotel Portsmouth Lot	Private	Private				33		33
SMP	40E	Life Styled Interior Design Lot	Private	Private			10			10
SMP	40F	Rodger Apartments Lot	Private	Private		47				47
SMP	41A	Feaster Apartments	Private	Private		48				48
SMP	41C	Citizens Bank Lot	Private	Public	34					34
SMP	41F	Petersen Lot	Private	Private			30			30
SB	45A	The Sailmaker's House	Private	Private					15	15
SB	46A	Strawberry Banke Permit Only	Private	Private					20	20
SB	46B	454 Court Street Permit Lot	Private	Private			7			7
SB	49A	Strawberry Banke Visitors Lot	Private	Private					88	88
SB	49B	The Puddle Dock Lot	Private	Private			15			15
TOTALS					**896**	**498**	**1,046**	**448**	**289**	**3,227**

The location of each off-street parking facility, within the block and district, and type classification is shown in ***Figure 8*** on the following page. Please note that the ID numbers associated with each public and private off-street parking facility shown in ***Tables 3*** and ***4*** correspond to the block and facility number shown in the following figure.

Figure 8: Off-Street Parking Facilities by Location (2023)



Observed Occupancy and Utilization

Occupancy counts were performed across the study area to establish baseline conditions on Friday, May 5th and Saturday, May 6th, 2023. The counts were planned around the Cinco de Mayo holiday in anticipation of higher than typical activity levels. The weather during observations was sunny, dry and comfortable. Counts were executed at mid-day (9:00 AM to 2:00 PM) and in the evening (5:00 PM to 9:00 PM) on both days. Data was collected on a facility-by-facility basis during single-pass counts across the whole of the study area at each interval. For each interval and at each facility, data was collected on three aspects: *Occupancy* (e.g., the number of vehicles parked), *Adequacy* (e.g., the number of spaces available, please see ***Glossary*** for definition), and *Utilization* (e.g., the percentage of supply in each facility that was used).

For this series of observations, the On-Street Parking Supply was adjusted by a ten (10) space reduction to reflect that capacity rendered unusable by the barriers in on-street parking to create supplemental seating for area restaurants; these deductions were taken on each block face where they occurred. Similarly, the supply of public off-street parking supply was reduced by three hundred (300) spaces to reflect those areas not in service in the Hanover Garage during observations. These areas were undergoing a planned program of repairs for the duration of the 2023 calendar year. As a result, utilization and adequacy were evaluated relative to a total parking supply of 6,523 spaces.

Friday, May 5th, 2023 Mid-Day Conditions

Across the entirety of the study area, DESMAN counted a total of 3,829 vehicles parked at mid-day, against 6,523 spaces, leaving 2,703 spaces available across the study area and an aggregate utilization rate of 59%. This is shown in ***Table 5*** on the following page.

In the 2012 study, there were 5,663 total parking spaces in the study area with peak occupancy on a weekday[8] recorded as 3,371 vehicles for an aggregate utilization rate of 65%. Since the 2012 study, the study area supply has increased by 14% (+805 spaces) and weekday mid-day occupancy has grown by roughly 12% (+458 vehicles) resulting in a 7% drop in aggregate utilization.

The aggregate utilization rate across all on-street parking spaces (1,329 spaces) was 66%, with 877 vehicles parked and 452 spaces available. In contrast, the 2012 study reported a total On-Street Supply of 1,203 spaces (-126 spaces less than current conditions) parking 747 vehicles (-130 fewer vehicles than current conditions) for a utilization rate of 62%, leaving 456 spaces open.

Within the parking industry, on-street parking areas are considered to be 'effectively full' when 85% or more of the spaces contained therein are occupied. While technically there is still available capacity in the area, the difficulty in finding that last open space or two while also negotiating other drivers and surrounding traffic, pedestrians, and other distractions may cause a driver to perceive the area as 'full.' For this analysis, the consulting team tested the number of both On- and Off-Street parking areas running at or above 85% occupancy as a gauge to determine where perceived issues might be located.

None of the sub-districts in the study area reported an aggregate utilization rate of 85% or greater, and only one sub-district (North Mill Pond) posted a utilization rate in one of the on-street subdivision (Zone A Meters). However, of the 78 blocks within the study area with on-street parking areas surveyed, the consulting team recorded 19 (24%) blocks where 85% of greater utilization was observed during mid-day.

[8] October 2011 Thursday at noon.

Table 5: Weekday Mid-Day Field Observations

PARKING SUPPLY (MAY 2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	130	-	-	-	-	3	-	*145*	-	-	-	-	-	-	-	-	132	5	359	355	-	-	*851*	**996**
Islington Neighborhood	-	41	37	-	280	14	2	8	*382*	-	-	-	-	-	-	-	-	458	3	5	-	-	-	*466*	**848**
Downtown Core	217	57	-	-	5	-	12	5	*296*	-	149	9	-	-	1,180	18	2	332	7	249	95	170	-	*2,211*	**2,507**
Memorial Bridge Sub-Area	207	8	9	-	-	-	-	-	*224*	-	34	2	16	-	-	-	-	64	10	246	235	-	-	*607*	**831**
South Mill Pond Sub-Area	-	17	-	-	161	-	-	-	*178*	140	-	26	432	-	-	-	-	283	9	23	-	-	-	*913*	**1,091**
Strawberry Banke Sub-Area	-	4	-	13	78	9	-	-	*104*	-	-	-	10	-	-	-	-	126	4	15	-	-	-	*155*	**259**
Grand Total	**436**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	***1,329***	**140**	**183**	**37**	**458**	**-**	**1,180**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**-**	***5,203***	**6,532**

OBSERVED OCCUPANCY (FRIDAY, 5/5/2023 @ MID-DAY)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	57	-	-	-	-	-	-	*69*	-	-	-	-	-	-	-	-	56	1	146	298	-	-	*501*	**570**
Islington Neighborhood	-	31	29	-	206	11	-	1	*278*	-	-	-	-	-	-	-	-	171	-	3	-	-	-	*174*	**452**
Downtown Core	160	27	-	-	3	-	3	-	*193*	-	126	-	-	-	695	-	-	164	1	127	83	146	-	*1,342*	**1,535**
Memorial Bridge Sub-Area	144	3	7	-	-	-	-	-	*154*	-	19	-	7	-	-	-	-	37	-	101	235	-	-	*399*	**553**
South Mill Pond Sub-Area	-	8	-	-	112	-	-	-	*120*	79	-	2	283	-	-	-	-	96	1	3	-	-	-	*464*	**584**
Strawberry Banke Sub-Area	-	2	-	8	47	6	-	-	*63*	-	-	-	9	-	-	-	-	62	-	1	-	-	-	*72*	**135**
Grand Total	**316**	**128**	**36**	**8**	**368**	**17**	**3**	**1**	***877***	**79**	**145**	**2**	**299**	**-**	**695**	**-**	**-**	**586**	**3**	**381**	**616**	**146**	**-**	***2,952***	**3,829**

PARKING ADEQUACY (FRIDAY, 5/5/2023 @ MID-DAY)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	-	73	-	-	-	-	3	-	*76*	-	-	-	-	-	-	-	-	76	4	213	57	-	-	*350*	**426**
Islington Neighborhood	-	10	8	-	74	3	2	7	*104*	-	-	-	-	-	-	-	-	287	3	2	-	-	-	*292*	**396**
Downtown Core	57	30	-	-	2	-	9	5	*103*	-	23	9	-	-	485	18	2	168	6	122	12	24	-	*869*	**972**
Memorial Bridge Sub-Area	63	5	2	-	-	-	-	-	*70*	-	15	2	9	-	-	-	-	27	10	145	-	-	-	*208*	**278**
South Mill Pond Sub-Area	-	9	-	-	49	-	-	-	*58*	61	-	24	149	-	-	-	-	187	8	20	-	-	-	*449*	**507**
Strawberry Banke Sub-Area	-	2	-	5	31	3	-	-	*41*	-	-	-	1	-	-	-	-	64	4	14	-	-	-	*83*	**124**
Grand Total	**120**	**129**	**10**	**5**	**156**	**6**	**14**	**12**	***452***	**61**	**38**	**35**	**159**	**-**	**485**	**18**	**2**	**809**	**35**	**516**	**69**	**24**	**-**	***2,251***	**2,703**

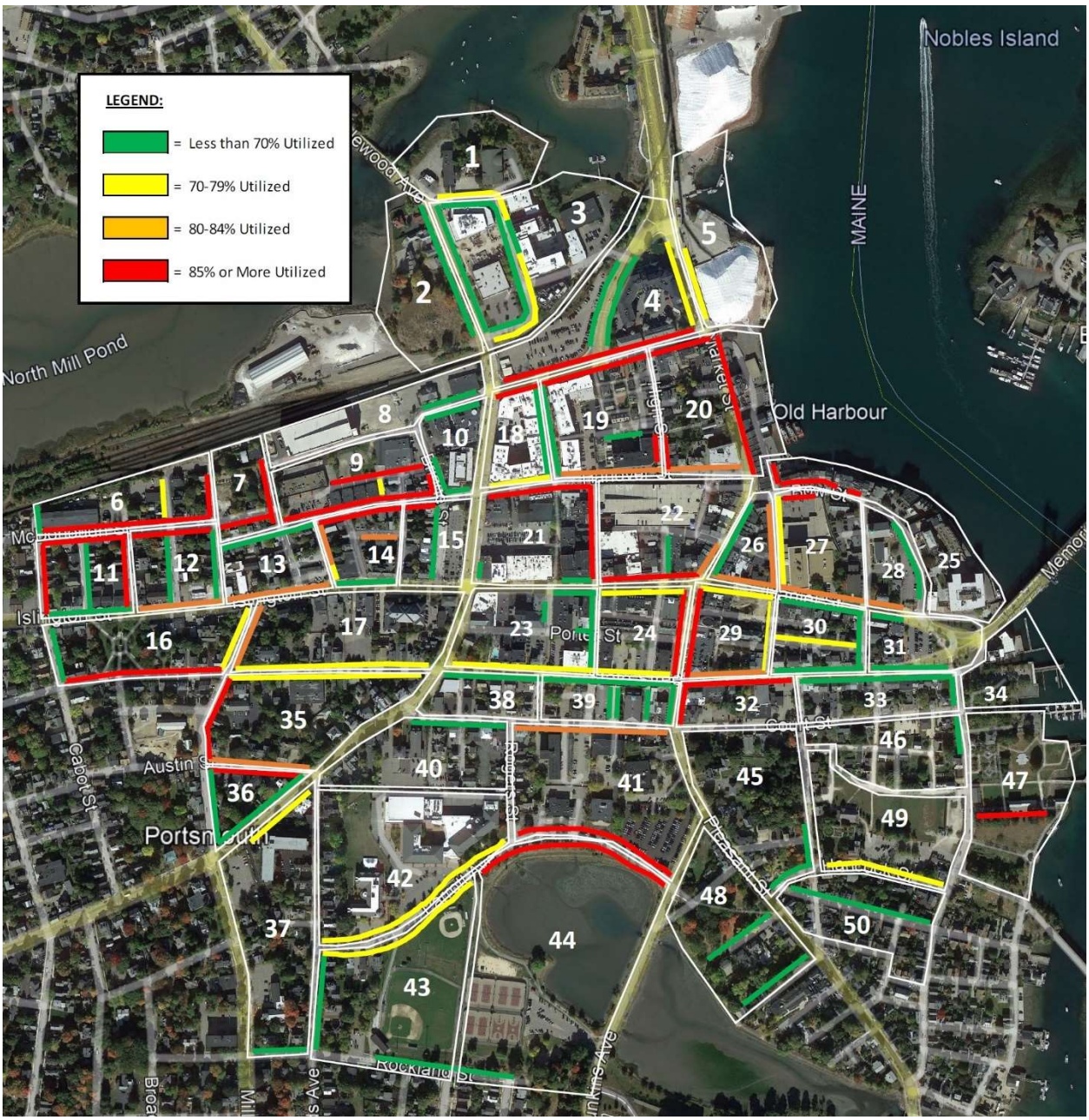
PARKING UTILIZATION (FRIDAY, 5/5/2023 @ MID-DAY)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	100%	44%					0%		48%									42%	20%	41%	84%			59%	57%
Islington Neighborhood		76%	78%		74%	79%	0%	13%	73%									37%	0%	60%				37%	53%
Downtown Core	74%	47%			60%		25%	0%	65%		85%	0%			59%	0%	0%	49%	14%	51%	87%	86%		61%	61%
Memorial Bridge Sub-Area	70%	38%	78%						69%		56%	0%	44%					58%	0%	41%	100%			66%	67%
South Mill Pond Sub-Area		47%			70%				67%	56%		8%	66%					34%	11%	13%				51%	54%
Strawberry Banke Sub-Area		50%		62%	60%	67%			61%				90%					49%	0%	7%				46%	52%
Grand Total	**72%**	**50%**	**78%**	**62%**	**70%**	**74%**	**18%**	**8%**	**66%**	**56%**	**79%**	**5%**	**65%**	**0%**	**59%**	**0%**	**0%**	**42%**	**8%**	**42%**	**90%**	**86%**	**0%**	**57%**	**59%**

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Utilization Measures	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
Aggregate Utilization	72%	50%	78%	62%	70%	74%	18%	8%	***66%***	56%	79%	5%	65%	0%	59%	0%	0%	42%	8%	42%	90%	86%	0%	57%	**59%**
Total Blocks	36	31	31	26	33	27	28	27	***239***	34	27	28	28	29	26	26	26	35	31	31	32	26	25	404	**643**
Areas @ 85% or higher use	6	2	3	-	6	1	-	1	***19***	-	2	-	1	-	-	-	-	2	1	1	6	1	-	14	**33**
Areas below 85% use	30	29	28	26	27	26	28	26	***220***	34	25	28	27	-	26	26	26	33	30	30	26	25	25	361	**581**

The largest concentrations of on-street block faces at 85% or higher utilization were among Zone A Meters and Unregulated spaces. ***Figure 9***, below, shows the location of individual block faces with on-street parking spaces and their observed utilization rates during Weekday Mid-Day surveys.

Figure 9: Weekday Mid-Day On-Street Utilization Rates

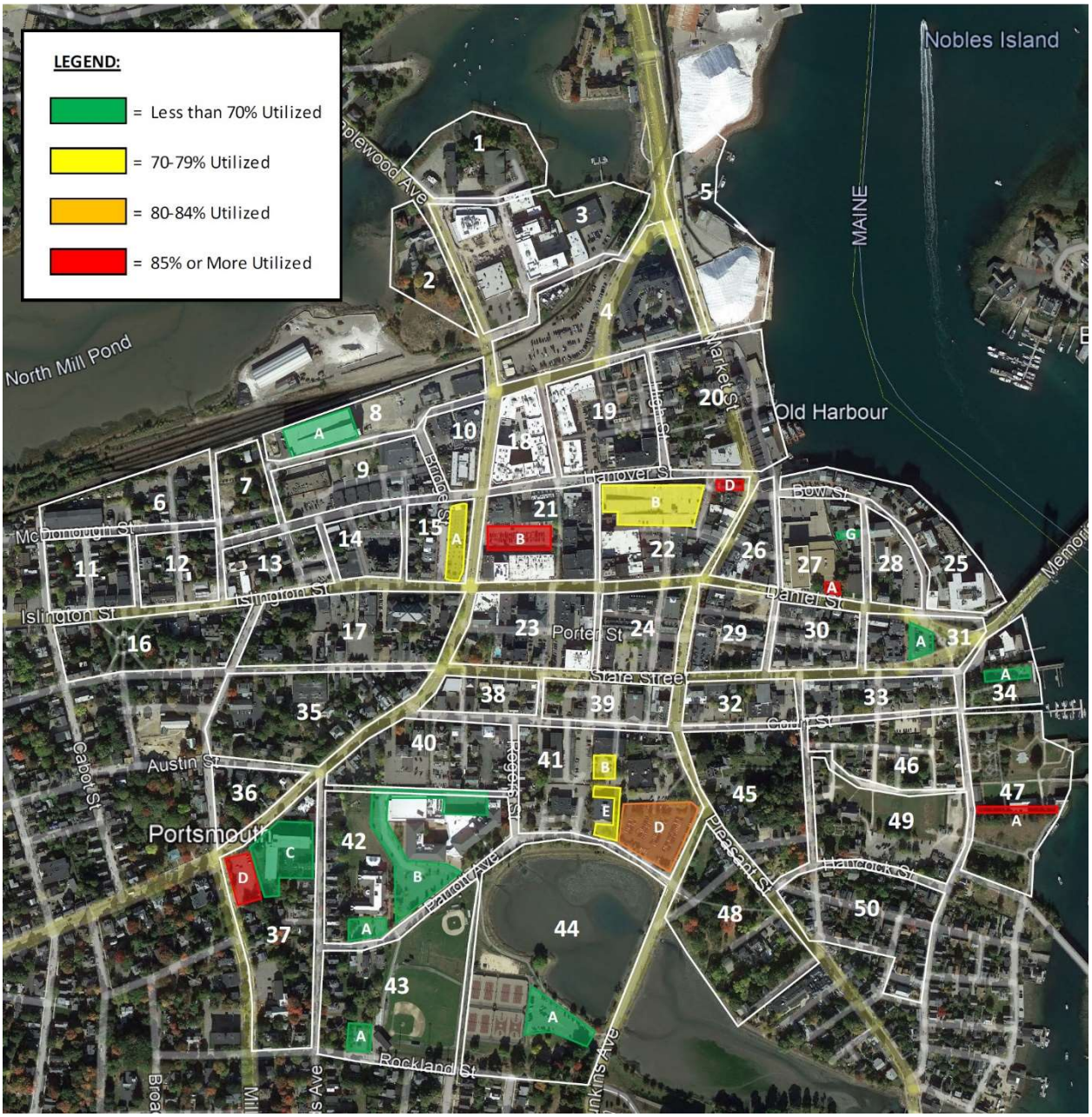


The current parking supply inventory within the defined study area includes 16 public parking lots[9] accounting for a total of 818 spaces and two public parking garages with a combined capacity on the

[9] The Bridge Street lot, the Worth lot, the Portsmouth Gas Light Company lot, the Chapel Court area, the Memorial Bridge lot, the Portsmouth Love Wall lot, the Portsmouth Housing Authority lot, the Masonic Temple lot, the Portsmouth Fire Department

survey days of 1,200 spaces[10]. The Public Off-Street supply (2,018 spaces) contained a total of 1,220 vehicles at mid-day during the weekday observations, resulting in an aggregate utilization rate of 60% and 798 available parking spaces. However, as ***Figure 10*** illustrates, four public off-street parking facilities operating at 85% or greater utilization at mid-day.

Figure 10: Weekday Mid-Day Public Off-Street Utilization Rates

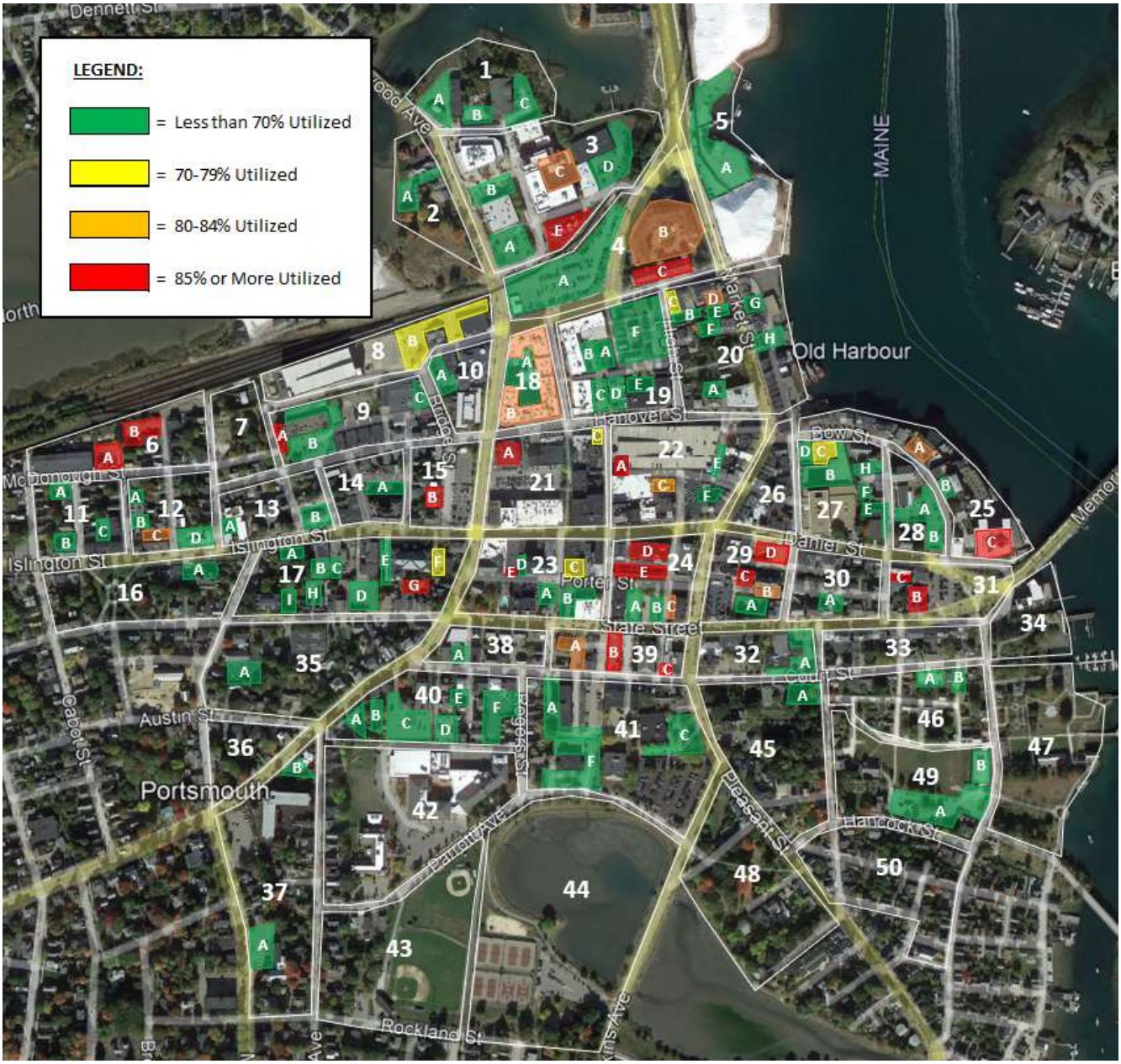


lot, the Parrott Avenue lot, the Portsmouth District Court lot, the Portsmouth Public Library lot, the Portsmouth Middle School lot, the Baseball Field lot, the South Mill Pond lot, and the Water Street Permit lot.

[10] The Foundry Place Garage has 600 spaces and the Hanover Garage has an available capacity of roughly 600 spaces due to on-going repair work which took ~ 300 spaces out of service.

In comparison with the 2012 study observations of Public Off-Street parking, total supply has increased by 25% (+403 spaces) and occupancy has grown by 11% (+123 cars), but total utilization has fallen by 8% (from 68% in 2012 to 60% in 2023).

Figure 11: Weekday Mid-Day Private Off-Street Utilization Rates



The 2012 study did not provide a detailed accounting of the number of private parking facilities, but did state there were a total of 1,662 spaces contained within privately-owned parking lots and garages. For this study, the consulting team identified and inventoried a total 110 private off-street facilities (12

garages and 98 lots) containing 3,121 spaces within the defined study. This would suggest[11] that the private off-street parking supply has almost doubled since 2012.

In the 2012 study, at noon of the weekday survey date, the 1,662 private spaces were roughly 53% occupied by 878 vehicles, leaving 784 spaces unused. Under current conditions, the 3,121 private parking spaces were occupied by 1,668 vehicles for an aggregate utilization rate of 53%, leaving 1,453 spaces vacant.

The majority of the private facilities shown in ***Figure 11*** on the prior page which are marked red indicating utilization rates of 85% or higher are private parking garages attached to residential or office buildings[12]. Of the 855 spaces contained in private parking garages, the consulting team confirmed or assumed 88% were occupied at mid-day. In contrast, of the 2,330 parking spaces in private lots across the area, only 42% were in use in the aggregate.

Friday, May 5th, 2023 Evening Conditions

Across the entirety of the study area, DESMAN counted a total of 4,273 vehicles parked on a Friday evening, against 6,532 spaces, leaving 2,259 spaces available across the study area and an aggregate utilization rate of 65%. This is shown in ***Table 6*** on the following page.

In the 2012 study, there were 5,663 total parking spaces in the study area with peak occupancy on a weekday evening[13] was recorded as 2,739 vehicles for an aggregate utilization rate of 48%. Since the 2012 study, the study area supply has increased by 14% (+805 spaces) and the weekday evening occupancy has grown by roughly 53% (+1,470 vehicles) resulting in a 17% rise in aggregate utilization.

None of the sub-districts in the study area reported an aggregate utilization rate of 85% or greater, although the Memorial Bridge District averaged 81% utilization across the area.

The aggregate utilization rate across all On-Street parking spaces (1,329 spaces) was 79%, with 1,055 vehicles parked and 274 spaces available. In contrast, the 2012 study reported a total On-Street Supply of 1,203 spaces (-126 spaces less than current conditions) parking 735 vehicles (-320 fewer vehicles than current conditions) for a utilization rate of 61%, leaving 468 spaces open.

The North Mill Pond Sub-Area and Memorial Bridge Sub-Area experience aggregate utilization of On-Street parking supply of 90% and 89% respectively, and On-Street parking across the Downtown Core was at 84% utilization. In practical terms, on the Friday evening surveyed, the North Mill Pond Sub-Area had only 14 on-street spaces available, the Memorial Bridge Sub-Area had 25 open on-street spaces, and there were only 46 curbside spaces available in the Downtown Core.

[11] The current (2023) study area does include several blocks within the Islington Neighborhood which were omitted in the 2012 study area but the private parking facilities in this expanded area would not account for more than a 10-15% increase over the 2012 private inventory.

[12] Per standard policy, consulting team personnel assumed any underground facility that could not be legally entered in order to perform an independent occupancy survey was 100% utilized and recorded it as such.

[13] October 2011 Thursday at 6:00 PM.

Metered on-street parking spaces were 90% utilized among Zone A meters and 86% utilized among Zone B meters. Of the 78 blocks within the study area with on-street parking areas surveyed, the consulting team recorded 38 (49%) blocks where 85% of greater utilization was observed during mid-day.

Table 6: Weekday Evening Field Observations

PARKING SUPPLY (MAY 2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	130	-	-	-	-	3	-	*145*	-	-	-	-	-	-	-	-	132	5	359	355	-	-	*851*	**996**
Islington Neighborhood	-	41	37	-	280	14	2	8	*382*	-	-	-	-	-	-	-	-	458	3	5	-	-	-	*466*	**848**
Downtown Core	217	57	-	-	5	-	12	5	*296*	-	149	9	-	-	1,180	18	2	332	7	249	95	170	-	*2,211*	**2,507**
Memorial Bridge Sub-Area	207	8	9	-	-	-	-	-	*224*	-	34	2	16	-	-	-	-	64	10	246	235	-	-	*607*	**831**
South Mill Pond Sub-Area	-	17	-	-	161	-	-	-	*178*	140	-	26	432	-	-	-	-	283	9	23	-	-	-	*913*	**1,091**
Strawberry Banke Sub-Area	-	4	-	13	78	9	-	-	*104*	-	-	-	10	-	-	-	-	126	4	15	-	-	-	*155*	**259**
Grand Total	**436**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	***1,329***	**140**	**183**	**37**	**458**	**-**	**1,180**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**-**	***5,203***	**6,532**

OBSERVED OCCUPANCY (FRIDAY EVENING, 5/5/2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	116	-	-	-	-	3	-	*131*	-	-	-	-	-	-	-	-	68	1	157	329	-	-	*555*	**686**
Islington Neighborhood	-	35	13	-	200	9	-	1	*258*	-	-	-	-	-	-	-	-	186	1	3	-	-	-	*190*	**448**
Downtown Core	195	46	-	-	2	-	7	-	*250*	-	103	1	-	-	764	1	-	160	-	149	74	151	-	*1,403*	**1,653**
Memorial Bridge Sub-Area	185	5	9	-	-	-	-	-	*199*	-	34	2	6	-	-	-	-	35	4	156	235	-	-	*472*	**671**
South Mill Pond Sub-Area	-	17	-	-	123	-	-	-	*140*	72	-	11	328	-	-	-	-	101	-	14	-	-	-	*526*	**666**
Strawberry Banke Sub-Area	-	3	-	11	54	9	-	-	*77*	-	-	-	-	-	-	-	-	63	-	9	-	-	-	*72*	**149**
Grand Total	**392**	**222**	**22**	**11**	**379**	**18**	**10**	**1**	***1,055***	**72**	**137**	**14**	**334**	**-**	**764**	**1**	**-**	**613**	**6**	**488**	**638**	**151**	**-**	***3,218***	**4,273**

PARKING ADEQUACY (FRIDAY EVENING, 5/5/2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	-	14	-	-	-	-	-	-	*14*	-	-	-	-	-	-	-	-	64	4	202	26	-	-	*296*	**310**
Islington Neighborhood	-	6	24	-	80	5	2	7	*124*	-	-	-	-	-	-	-	-	272	2	2	-	-	-	*276*	**400**
Downtown Core	22	11	-	-	3	-	5	5	*46*	-	46	8	-	-	416	17	2	172	7	100	21	19	-	*808*	**854**
Memorial Bridge Sub-Area	22	3	-	-	-	-	-	-	*25*	-	-	-	10	-	-	-	-	29	6	90	-	-	-	*135*	**160**
South Mill Pond Sub-Area	-	-	-	-	38	-	-	-	*38*	68	-	15	104	-	-	-	-	182	9	9	-	-	-	*387*	**425**
Strawberry Banke Sub-Area	-	1	-	2	24	-	-	-	*27*	-	-	-	10	-	-	-	-	63	4	6	-	-	-	*83*	**110**
Grand Total	**44**	**35**	**24**	**2**	**145**	**5**	**7**	**12**	***274***	**68**	**46**	**23**	**124**	**-**	**416**	**17**	**2**	**782**	**32**	**409**	**47**	**19**	**-**	***1,985***	**2,259**

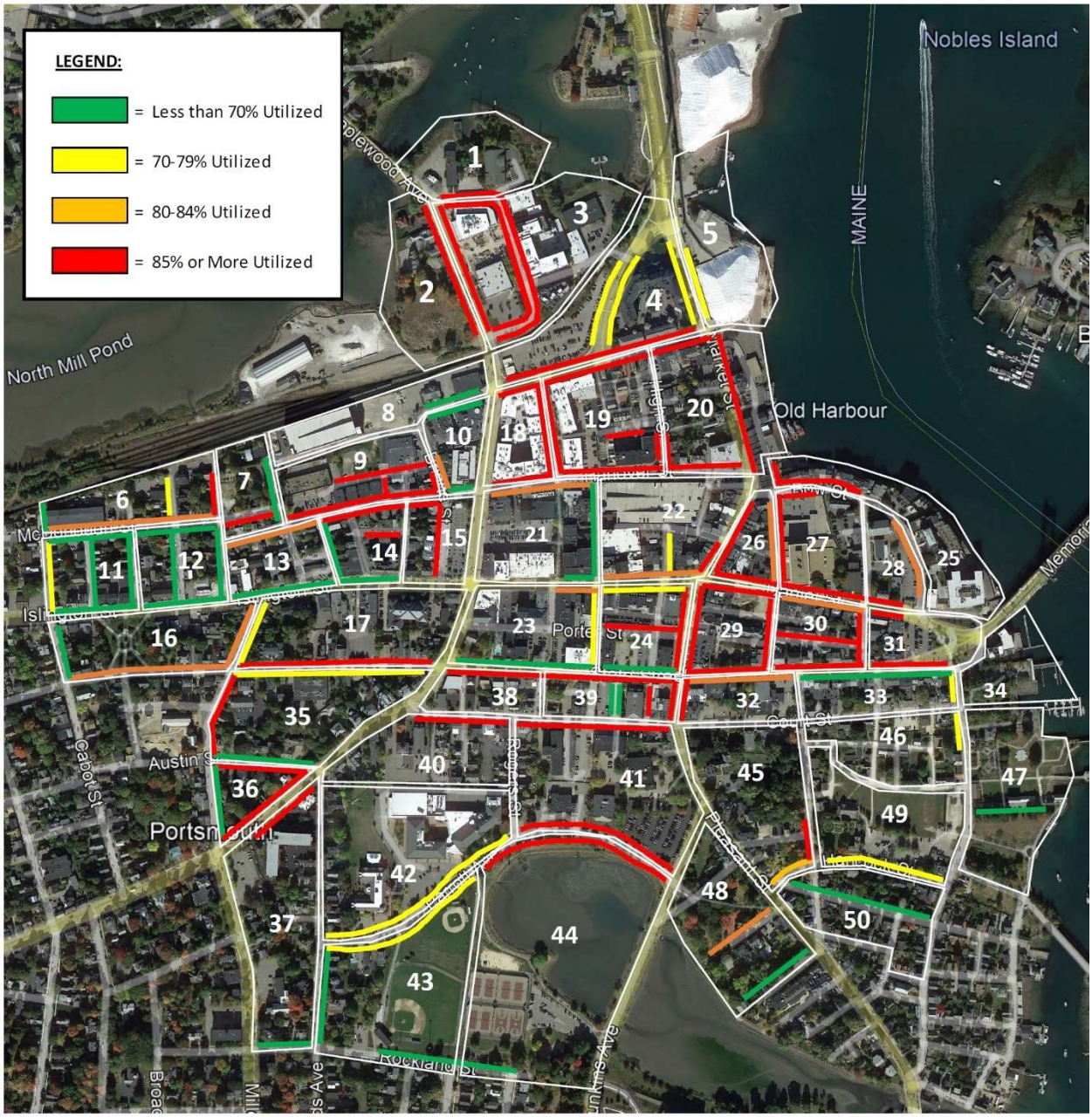
PARKING UTILIZATION (FRIDAY EVENING, 5/5/2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	100%	89%					100%		90%									52%	20%	44%	93%			65%	69%
Islington Neighborhood		85%	35%		71%	64%	0%	13%	68%									41%	33%	60%				41%	53%
Downtown Core	90%	81%			40%		58%	0%	84%		69%	11%			65%	6%	0%	48%	0%	60%	78%	89%		63%	66%
Memorial Bridge Sub-Area	89%	63%	100%						89%		100%	100%	38%					55%	40%	63%	100%			78%	81%
South Mill Pond Sub-Area		100%			76%				79%	51%		42%	76%					36%	0%	61%				58%	61%
Strawberry Banke Sub-Area		75%		85%	69%	100%			74%				0%					50%	0%	60%				46%	58%
Grand Total	**90%**	**86%**	**48%**	**85%**	**72%**	**78%**	**59%**	**8%**	**79%**	**51%**	**75%**	**38%**	**73%**	**0%**	**65%**	**6%**	**0%**	**44%**	**16%**	**54%**	**93%**	**89%**	**0%**	**62%**	**65%**

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot (12)				Public Garage (2)				Private Lot (37)			Private Garage (11)			Sub -	GRAND
Utilization Measures	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
Aggregate Utilization	90%	86%	48%	85%	72%	78%	59%	8%	***79%***	51%	75%	38%	73%	0%	65%	6%	0%	44%	16%	54%	93%	89%	0%	62%	**65%**
Total Areas	36	31	31	26	33	27	28	27	***239***	34	27	28	28	29	26	26	26	35	31	31	32	26	25	404	**643**
Areas @ 85% or higher use	15	10	1	1	7	1	2	1	***38***	-	4	4	1	-	1	-	-	1	1	1	7	1	-	21	**59**
Areas below 85% use	21	21	30	25	26	26	26	26	***201***	34	23	24	27	-	25	26	26	34	30	30	25	25	25	354	**555**

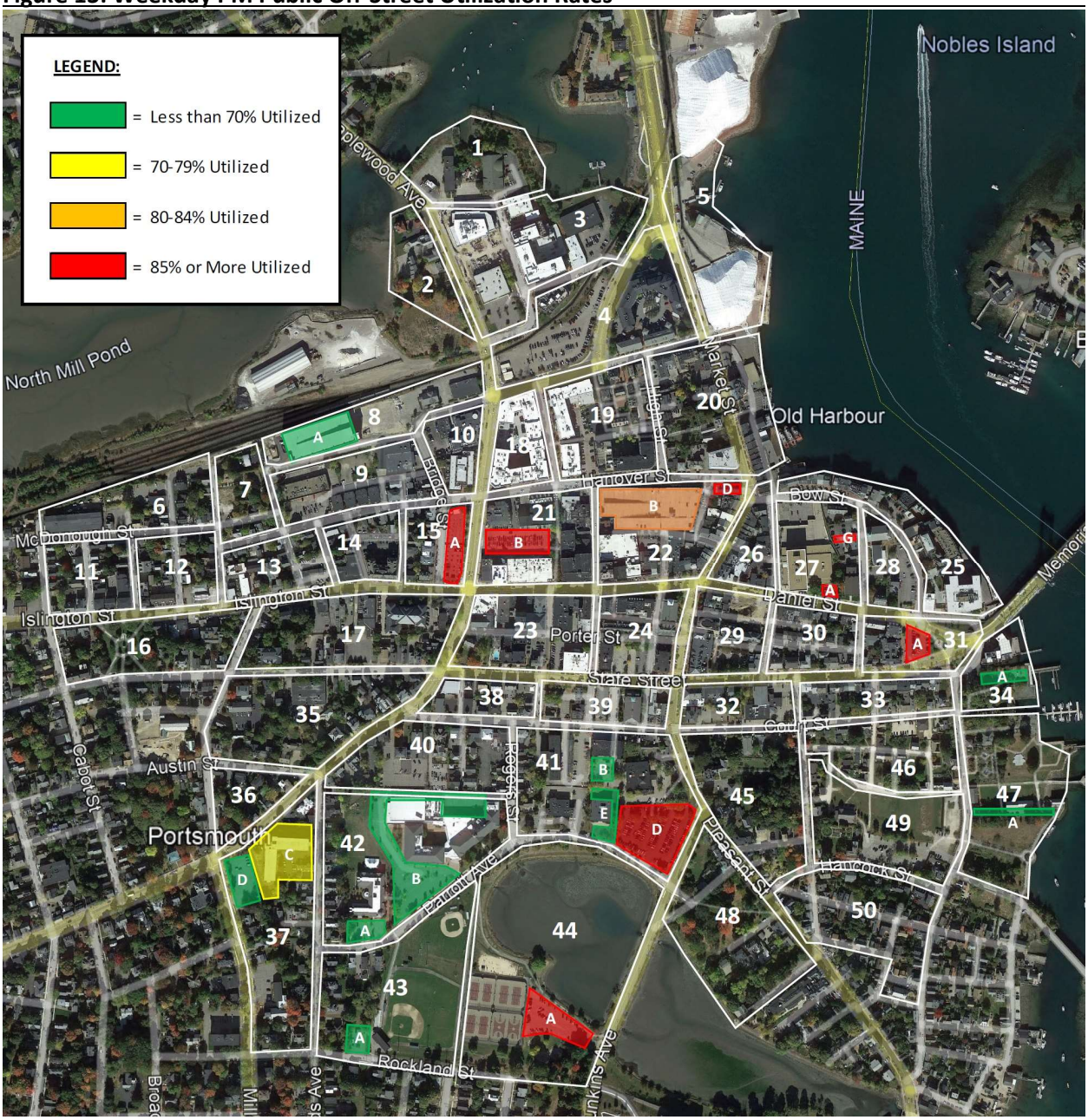
As shown in ***Figure 12***, below, the only areas of on-street parking with lower utilization rates are located on the periphery of the study area in the Islington Neighborhood South Mill Pond Sub-Area, and Strawberry Banke Sub-Area, primarily among unregulated spaces or those governed by time limits.

Figure 12: Weekday Evening On-Street Utilization Rates



The Public Off-Street supply (2,018 spaces) contained a total of 1,322 vehicles in the evening during the weekday observations, resulting in an aggregate utilization rate of 66% and 696 available parking spaces. As ***Figure 13*** on the next page illustrates, the public lots in the Downtown Core and Memorial Bridge Sub-Area were operating near or at capacity and the Hanover Garage was highly utilized. In addition, the Parrott Avenue and South Mill Pond lots were also highly utilized, potentially by employees or citizens wishing to avoid meter fees levied in the Downtown Core and Memorial Bridge Sub-Area.

Figure 13: Weekday PM Public Off-Street Utilization Rates



The 2012 study reported a total Public Off-Street supply of 1,615 spaces and a peak weekday evening[14] utilization rate of 63%, with 1,010 vehicles parked and 605 spaces available. Relative to this, it appears current conditions on a weekday evening reflect 31% growth in occupancy (+312 vehicles) in addition to the 25% increase in supply (+403 spaces), resulting in a net increase in utilization of 3% on a weekday evening.

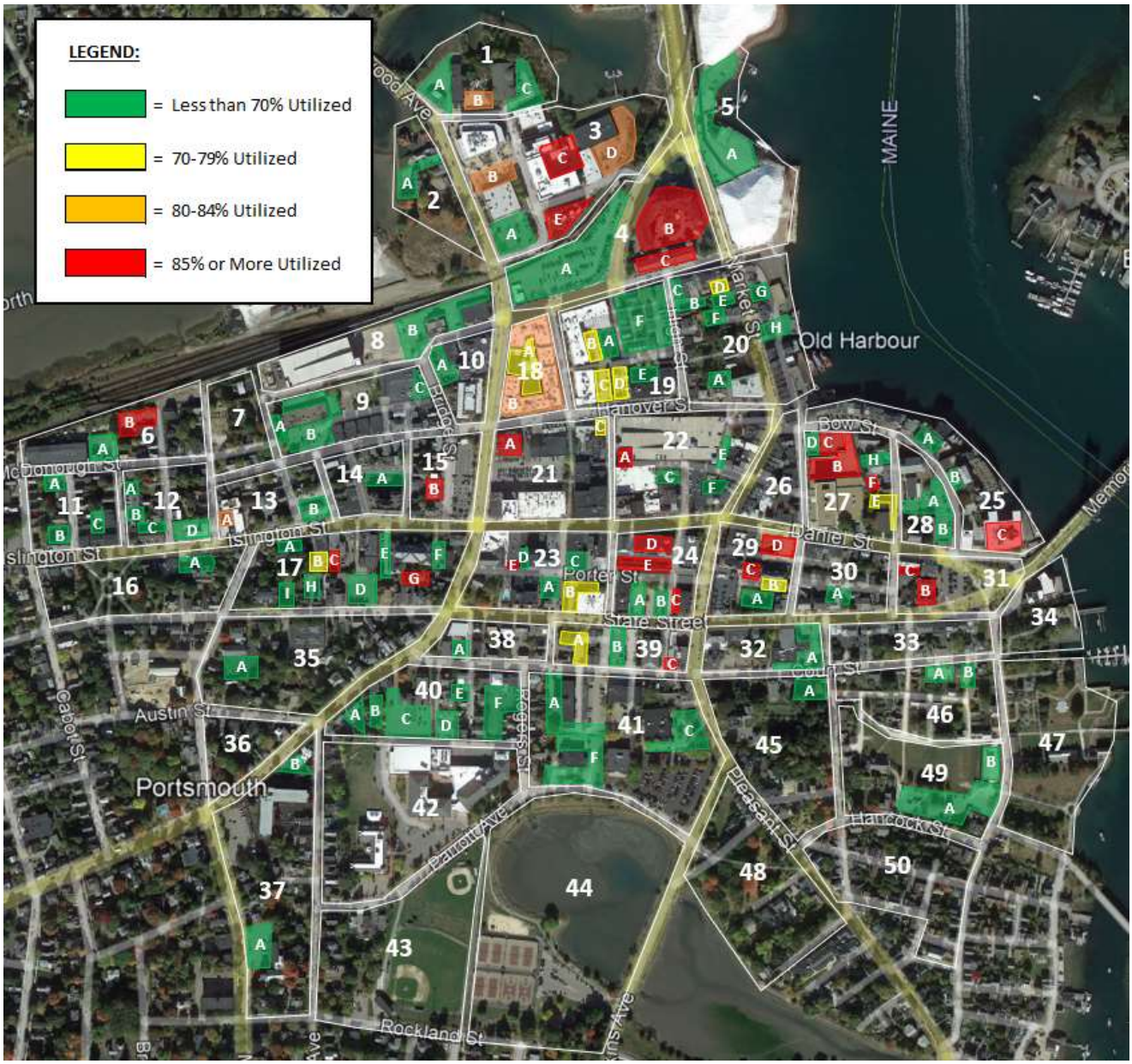
In the 2012 study, the 1,662 private spaces within the study area were roughly 29% occupied by 653 vehicles, leaving 1,009 spaces unused.

[14] 6:00 pm on an October Thursday in 2011.

Under current conditions, the 3,185 private parking spaces were occupied by 1,896 vehicles for an aggregate utilization rate of 58%, leaving 1,289 spaces vacant. So, while there is 87% more private supply (+1,459 spaces) in 2023 than 2012, there are also 180% more parkers (+1,179 vehicles) resulting in an overall utilization rate across private facilities that is twice as high (from 29% to 58%) now as it was during the prior study.

A significant number of the private facilities shown in ***Figure 14*** below with utilization rates of 85% or higher are private lots offering public parking for a fee in addition to the private garages across the area.

Figure 14: Weekday PM Private Off-Street Utilization Rates



Saturday, May 6th, 2023 Mid-Day Conditions

Across the entirety of the study area, DESMAN counted a total of 3,802 vehicles parked on a Saturday afternoon, against 6,532 spaces, leaving 2,666 spaces available and an aggregate utilization rate of 59%. This is shown in ***Table 7*** on the following page.

In 2012 study, there were 5,663 total parking spaces in the study area with the peak occupancy on a Saturday afternoon[15] recorded as 2,406 vehicles for an aggregate utilization rate of 42%. Since the 2012 study, the study area supply has increased by 14% (+805 spaces) and weekend mid-day occupancy has grown by roughly 11% (+260 vehicles) resulting in a 17% rise in aggregate utilization.

None of the sub-districts in the study area reported an aggregate utilization rate of 85% or greater, although the Memorial Bridge Sub-Area averaged 82% utilization across the area.

The aggregate utilization rate across all On-Street parking spaces (1,329 spaces) was 65%, with 870 vehicles parked and 459 spaces available. In contrast, the 2012 study reported a total On-Street Supply of 1,203 spaces (-126 spaces less than current conditions) parking 463 vehicles (-407 fewer vehicles than current conditions) for a utilization rate of 38%, leaving 740 spaces open.

The Memorial Bridge Sub-Area experienced aggregate utilization of the On-Street parking supply at 89%. In practical terms, the Memorial Bridge Sub-Area had just 25 open on-street spaces.

Metered on-street parking spaces were 85% utilized among Zone A meters but only 49% utilized among Zone B meters. Of the 78 blocks within the study area with on-street parking areas surveyed, the consulting team recorded 24 (30%) blocks where 85% of greater utilization was observed during mid-day.

As shown in ***Figure 15***, on the following page, most of the Zone A Meter areas and a significant portion of the Zone B Meter areas are highly utilized. Unregulated curbside areas in the Islington Neighborhood and the South Mill Pond District are also highly utilized, but primarily in conjunction with dense residential districts or adjacent to Public Off-Street parking facilities governed only by time limits.

[15] October 2011 Saturday at 2:00 PM.

Table 7: Weekend Mid-Day Field Observations

PARKING SUPPLY (MAY 2023)

	ON-STREET									OFF-STREET																
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	130	-	-	-	-	3	-	*145*	-	-	-	-	-	-	-	-	132	5	359	355	-	-	*851*	**996**
Islington Neighborhood	-	41	37	-	280	14	2	8	*382*	-	-	-	-	-	-	-	-	458	3	5	-	-	-	*466*	**848**
Downtown Core	217	57	-	-	5	-	12	5	*296*	-	149	9	-	-	1,180	18	2	332	7	249	95	170	-	*2,211*	**2,507**
Memorial Bridge Sub-Area	207	8	9	-	-	-	-	-	*224*	-	34	2	16	-	-	-	-	64	10	246	235	-	-	*607*	**831**
South Mill Pond Sub-Area	-	17	-	-	161	-	-	-	*178*	140	-	26	432	-	-	-	-	283	9	23	-	-	-	*913*	**1,091**
Strawberry Banke Sub-Area	-	4	-	13	78	9	-	-	*104*	-	-	-	10	-	-	-	-	126	4	15	-	-	-	*155*	**259**
Grand Total	**436**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	***1,329***	**140**	**183**	**37**	**458**	**-**	**1,180**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**-**	***5,203***	**6,532**

OBSERVED OCCUPANCY (SATURDAY, 5/6/2023 @ MID-DAY)

	ON-STREET									OFF-STREET																
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	10	63	-	-	-	-	3	-	*76*	-	-	-	-	-	-	-	-	47	-	113	292	-	-	*452*	**528**
Islington Neighborhood	-	30	14	-	148	8	1	-	*201*	-	-	-	-	-	-	-	-	144	-	4	-	-	-	*148*	**349**
Downtown Core	174	14	-	-	2	-	5	-	*195*	-	139	6	-	-	644	-	-	148	-	120	71	153	-	*1,281*	**1,476**
Memorial Bridge Sub-Area	186	7	7	-	-	-	-	-	*200*	-	31	-	13	-	-	-	-	43	-	162	235	-	-	*484*	**684**
South Mill Pond Sub-Area	-	9	-	-	118	-	-	-	*127*	77	-	9	365	-	-	-	-	85	2	23	-	-	-	*561*	**688**
Strawberry Banke Sub-Area	-	4	-	8	51	8	-	-	*71*	-	-	-	-	-	-	-	-	65	-	5	-	-	-	*70*	**141**
Grand Total	**370**	**127**	**21**	**8**	**319**	**16**	**9**	**-**	***870***	**77**	**170**	**15**	**378**	**-**	**644**	**-**	**-**	**532**	**2**	**427**	**598**	**153**	**-**	***2,996***	**3,866**

PARKING ADEQUACY (SATURDAY, 5/6/2023 @ MID-DAY)

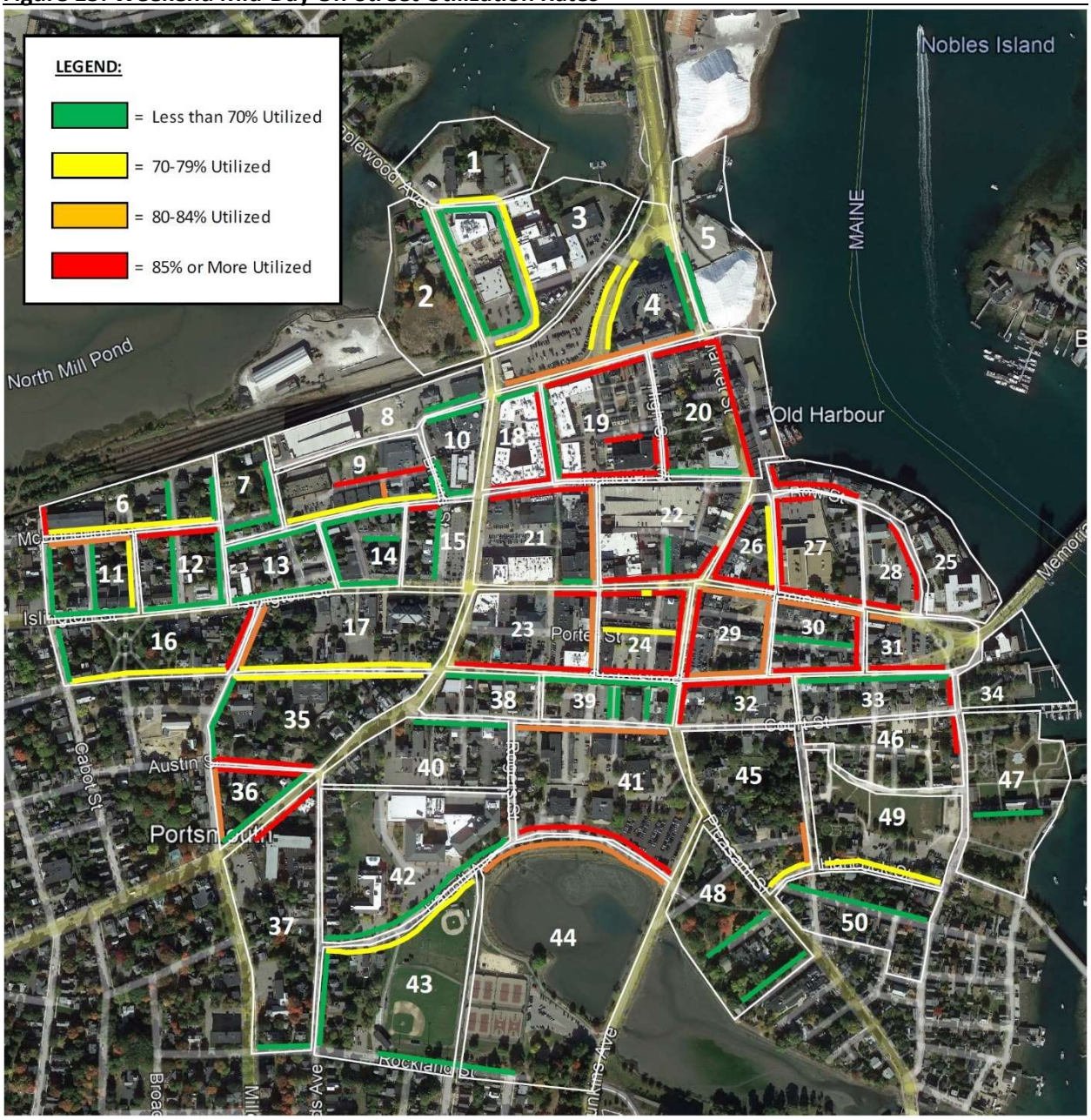
	ON-STREET									OFF-STREET																
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	2	67	-	-	-	-	-	-	*69*	-	-	-	-	-	-	-	-	85	5	246	63	-	-	*399*	**468**
Islington Neighborhood	-	11	23	-	132	6	1	8	*181*	-	-	-	-	-	-	-	-	314	3	1	-	-	-	*318*	**499**
Downtown Core	43	43	-	-	3	-	7	5	*101*	-	10	3	-	-	536	18	2	184	7	129	24	17	-	*930*	**1,031**
Memorial Bridge Sub-Area	21	1	2	-	-	-	-	-	*24*	-	3	2	3	-	-	-	-	21	10	84	-	-	-	*123*	**147**
South Mill Pond Sub-Area	-	8	-	-	43	-	-	-	*51*	63	-	17	67	-	-	-	-	198	7	-	-	-	-	*352*	**403**
Strawberry Banke Sub-Area	-	-	-	5	27	1	-	-	*33*	-	-	-	10	-	-	-	-	61	4	10	-	-	-	*85*	**118**
Grand Total	**66**	**130**	**25**	**5**	**205**	**7**	**8**	**13**	***459***	**63**	**13**	**22**	**80**	**-**	**536**	**18**	**2**	**863**	**36**	**470**	**87**	**17**	**-**	***2,207***	**2,666**

PARKING UTILIZATION (SATURDAY, 5/6/2023 @ MID-DAY)

	ON-STREET									OFF-STREET																
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	83%	48%					100%		52%									36%	0%	31%	82%			53%	53%
Islington Neighborhood		73%	38%		53%	57%	50%	0%	53%									31%	0%	80%				32%	41%
Downtown Core	80%	25%			40%		42%	0%	66%		93%	67%			55%	0%	0%	45%	0%	48%	75%	90%		58%	59%
Memorial Bridge Sub-Area	90%	88%	78%						89%		91%	0%	81%					67%	0%	66%	100%			80%	82%
South Mill Pond Sub-Area		53%			73%				71%	55%		35%	84%					30%	22%	100%				61%	63%
Strawberry Banke Sub-Area		100%		62%	65%	89%			68%				0%					52%	0%	33%				45%	54%
Grand Total	**85%**	**49%**	**46%**	**62%**	**61%**	**70%**	**53%**	**0%**	**65%**	**55%**	**93%**	**41%**	**83%**	**0%**	**55%**	**0%**	**0%**	**38%**	**5%**	**48%**	**87%**	**90%**	**0%**	**58%**	**59%**

	ON-STREET									OFF-STREET																
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot (12)				Public Garage (2)				Private Lot (37)			Private Garage (11)			Sub -	GRAND
Utilization Measures	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
Aggregate Utilization	85%	49%	46%	62%	61%	70%	53%	0%	***65%***	55%	93%	41%	83%	0%	55%	0%	0%	38%	5%	48%	87%	90%	0%	58%	**59%**
Total Areas	36	31	31	26	33	27	28	27	***239***	34	27	28	28	29	26	26	26	35	31	31	32	26	25	404	**643**
Areas @ 85% or higher use	14	3	-	-	4	1	2	-	***24***	-	4	3	2	-	-	-	-	1	1	3	7	1	-	22	**46**
Areas below 85% use	22	28	31	26	29	26	26	27	***215***	34	23	25	26	-	26	26	26	34	30	28	25	25	25	353	**568**

Figure 15: Weekend Mid-Day On-Street Utilization Rates

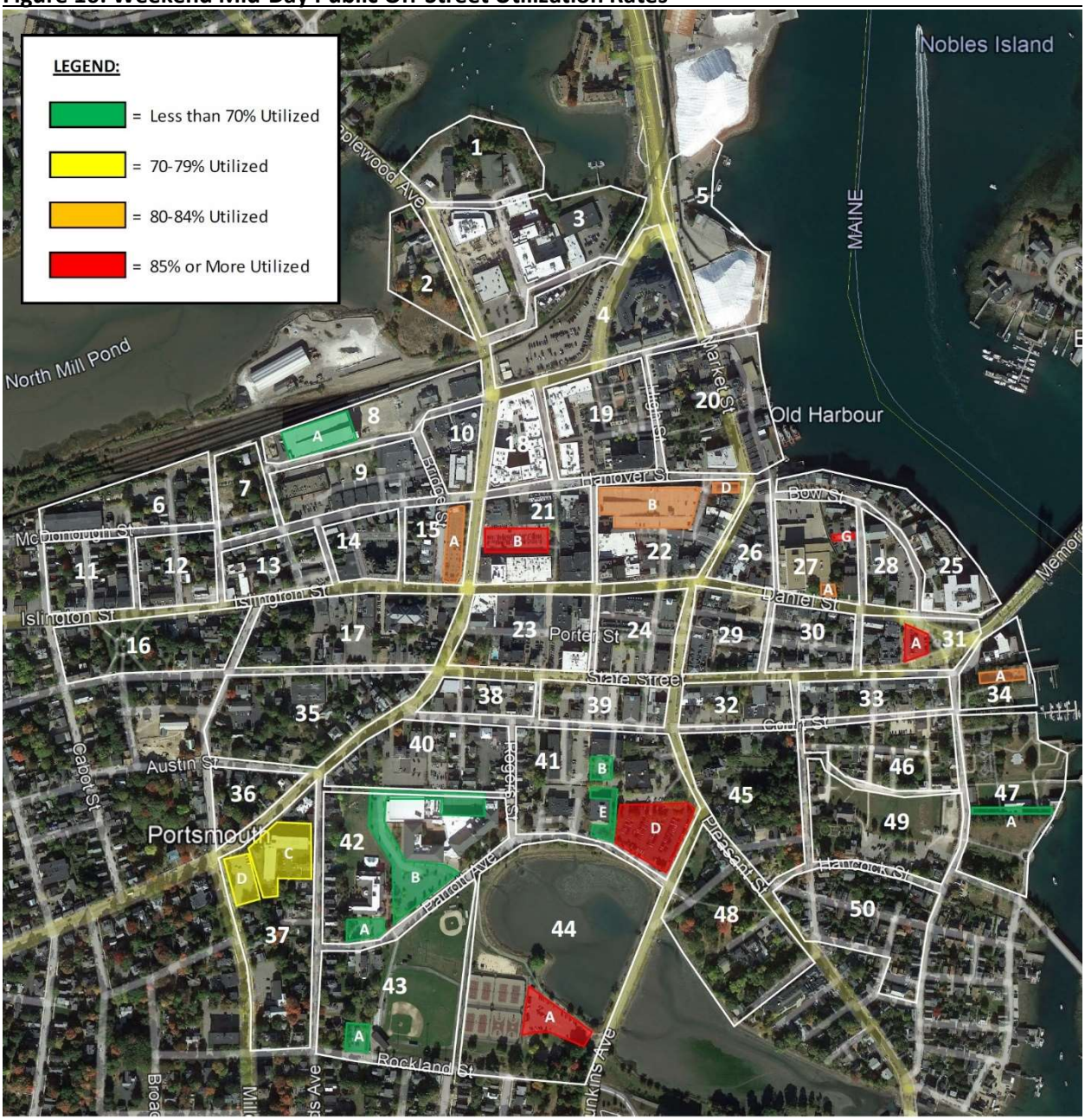


The Public Off-Street supply (2,018 spaces) contained a total of 1,284 vehicles during the Saturday afternoon observations, resulting in an aggregate utilization rate of 64% and 734 available parking spaces.

The 2012 study did not report on the state of total Public Off-Street supply on the surveyed Saturday afternoon, so no comparison of earlier and recent conditions can be provided.

As ***Figure 16*** on the next page illustrates, the public lots in the Downtown Core and Memorial Bridge Districts were operating near or at capacity and the Hanover Garage was highly utilized. In addition, the Parrott Avenue and South Mill Pond lots were also highly utilized, potentially by employees or citizens wishing to avoid meter fees levied in the Downtown Core and Memorial Bridge Districts.

Figure 16: Weekend Mid-Day Public Off-Street Utilization Rates

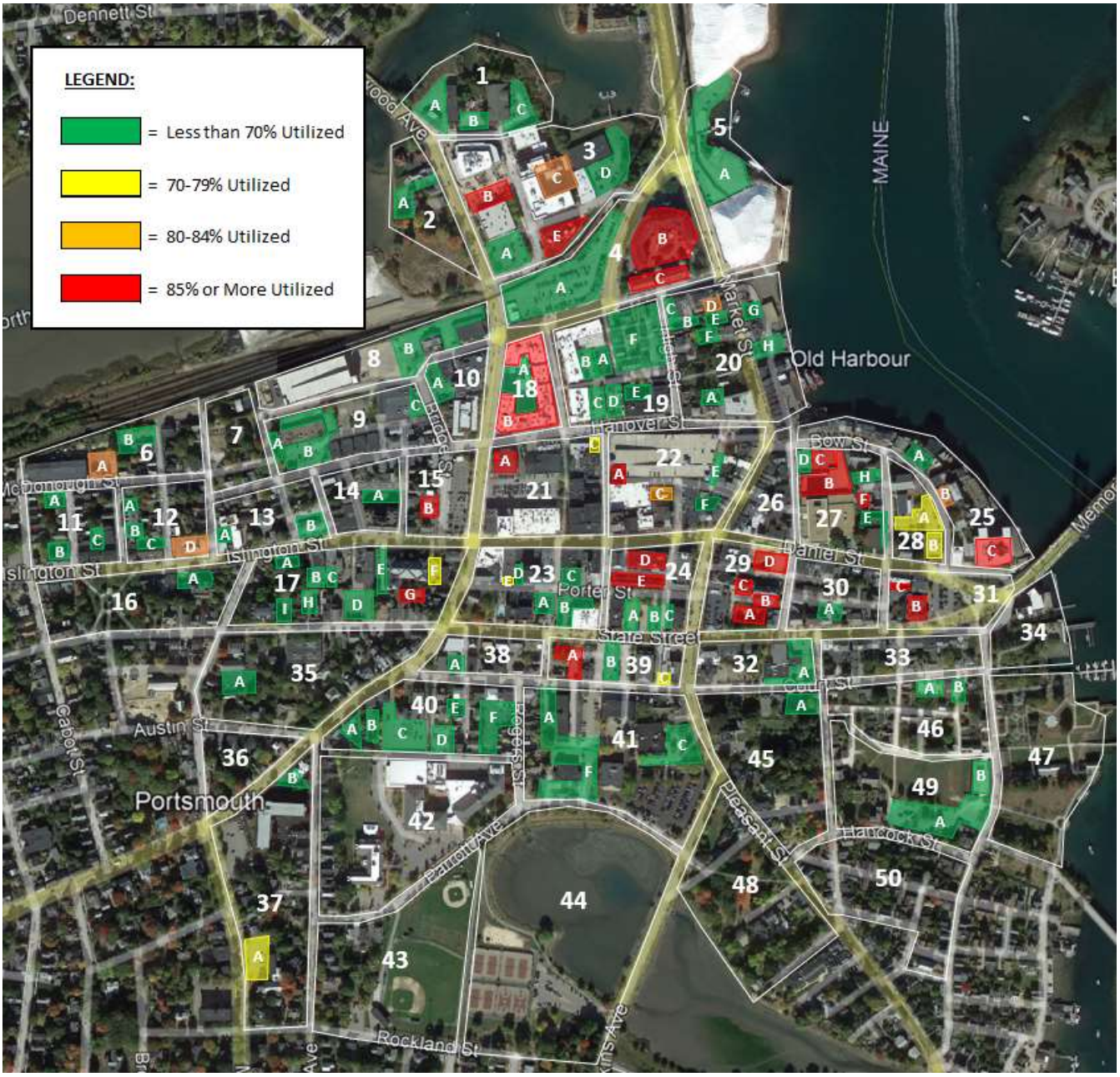


Under current conditions, the 3,121 private parking spaces were occupied by 1,648 vehicles for an aggregate utilization rate of 52%, leaving 1,473 spaces vacant.

The 2012 study did not report on the state of total Private Off-Street supply on the surveyed Saturday afternoon, so no comparison of earlier and recent conditions can be provided.

Five of the private facilities shown in ***Figure 17*** on next page, had utilization rates of 85% or higher offering public parking for a fee. They are located in the North Mill Pond District, Downtown Core, and Memorial Bridge District. The remainder are private garages serving residential or office buildings, or small surface lots associated with a single business.

Figure 17: Weekend Mid-Day Private Off-Street Utilization Rates



Saturday, May 6th, 2023 Evening Conditions

Across the entirety of the study area, DESMAN counted a total of 4,651 vehicles parked on a Saturday evening, against 6,532 spaces, leaving 1,881 spaces available across the study area and an aggregate utilization rate of 71%. Total utilization across the Memorial Bridge Sub-Area was 88% with just 84 spaces available. This is shown in ***Table 8*** on the following page.

Table 8: Weekend Evening Field Observations

PARKING SUPPLY (MAY 2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	130	-	-	-	-	3	-	*145*	-	-	-	-	-	-	-	-	132	5	359	355	-	-	*851*	**996**
Islington Neighborhood	-	41	37	-	280	14	2	8	*382*	-	-	-	-	-	-	-	-	458	3	5	-	-	-	*466*	**848**
Downtown Core	217	57	-	-	5	-	12	5	*296*	-	149	9	-	-	1,180	18	2	332	7	249	95	170	-	*2,211*	**2,507**
Memorial Bridge Sub-Area	207	8	9	-	-	-	-	-	*224*	-	34	2	16	-	-	-	-	64	10	246	235	-	-	*607*	**831**
South Mill Pond Sub-Area	-	17	-	-	161	-	-	-	*178*	140	-	26	432	-	-	-	-	283	9	23	-	-	-	*913*	**1,091**
Strawberry Banke Sub-Area	-	4	-	13	78	9	-	-	*104*	-	-	-	10	-	-	-	-	126	4	15	-	-	-	*155*	**259**
Grand Total	**436**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	*1,329*	**140**	**183**	**37**	**458**	**-**	**1,180**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**-**	*5,203*	6,532

OBSERVED OCCUPANCY (SATURDAY EVENING, 5/6/2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	12	115	-	-	-	-	-	-	*127*	-	-	-	-	-	-	-	-	77	-	206	342	-	-	*625*	**752**
Islington Neighborhood	-	38	24	-	179	5	-	1	*247*	-	-	-	-	-	-	-	-	182	-	1	-	-	-	*183*	**430**
Downtown Core	210	51	-	-	5	-	6	-	*272*	-	142	-	-	-	870	16	1	178	2	156	72	158	-	*1,595*	**1,867**
Memorial Bridge Sub-Area	191	8	9	-	-	-	-	-	*208*	-	34	2	15	-	-	-	-	48	5	184	235	-	-	*523*	**731**
South Mill Pond Sub-Area	-	16	-	-	121	-	-	-	*137*	62	-	7	344	-	-	-	-	111	-	2	-	-	-	*526*	**663**
Strawberry Banke Sub-Area	-	4	-	8	67	9	-	-	*88*	-	-	-	10	-	-	-	-	95	-	15	-	-	-	*120*	**208**
Grand Total	**413**	**232**	**33**	**8**	**372**	**14**	**6**	**1**	*1,079*	**62**	**176**	**9**	**369**	**-**	**870**	**16**	**1**	**691**	**7**	**564**	**649**	**158**	**-**	*3,572*	4,651

PARKING ADEQUACY (SATURDAY EVENING, 5/6/2023)

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	-	15	-	-	-	-	3	-	*18*	-	-	-	-	-	-	-	-	55	5	153	13	-	-	*226*	**244**
Islington Neighborhood	-	3	13	-	101	9	2	7	*135*	-	-	-	-	-	-	-	-	276	3	4	-	-	-	*283*	**418**
Downtown Core	7	6	-	-	-	-	6	5	*24*	-	7	9	-	-	310	2	1	154	5	93	23	12	-	*616*	**640**
Memorial Bridge Sub-Area	16	-	-	-	-	-	-	-	*16*	-	-	-	1	-	-	-	-	16	5	62	-	-	-	*84*	**100**
South Mill Pond Sub-Area	-	1	-	-	40	-	-	-	*41*	78	-	19	88	-	-	-	-	172	9	21	-	-	-	*387*	**428**
Strawberry Banke Sub-Area	-	-	-	5	11	-	-	-	*16*	-	-	-	-	-	-	-	-	31	4	-	-	-	-	*35*	**51**
Grand Total	**23**	**25**	**13**	**5**	**152**	**9**	**11**	**12**	*250*	**78**	**7**	**28**	**89**	**-**	**310**	**2**	**1**	**704**	**31**	**333**	**36**	**12**	**-**	*1,631*	1,881

PARKING UTILIZATION (SATURDAY EVENING, 5/6/2023)

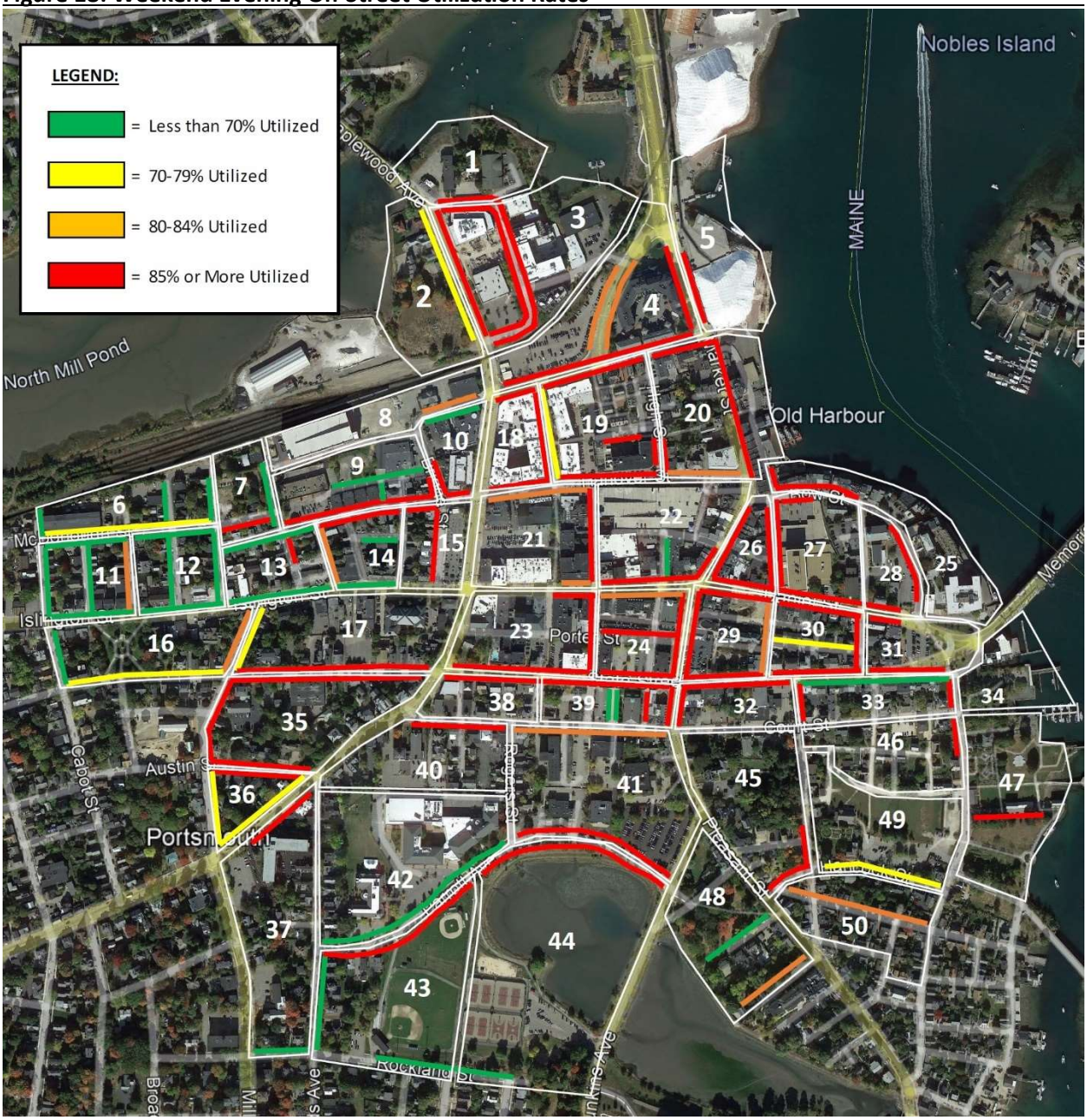
	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Area	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
North Mill Pond Sub-Area	100%	88%					0%		88%									58%	0%	57%	96%			73%	76%
Islington Neighborhood		93%	65%		64%	36%	0%	13%	65%									40%	0%	20%				39%	51%
Downtown Core	97%	89%			100%		50%	0%	92%		95%	0%			74%	89%	50%	54%	29%	63%	76%	93%		72%	74%
Memorial Bridge Sub-Area	92%	100%	100%						93%		100%	100%	94%					75%	50%	75%	100%			86%	88%
South Mill Pond Sub-Area		94%			75%				77%	44%		27%	80%					39%	0%	9%				58%	61%
Strawberry Banke Sub-Area		100%		62%	86%	100%			85%				100%					75%	0%	100%				77%	80%
Grand Total	**95%**	**90%**	**72%**	**62%**	**71%**	**61%**	**35%**	**8%**	**81%**	**44%**	**96%**	**24%**	**81%**	**0%**	**74%**	**89%**	**50%**	**50%**	**18%**	**63%**	**95%**	**93%**	**0%**	**69%**	**71%**

	ON-STREET									OFF-STREET															
	Metered		Time Limited		Un-	Permit	Other	HC	Sub-	Public Lot (12)				Public Garage (2)				Private Lot (37)			Private Garage (11)			Sub -	GRAND
Utilization Measures	Zone A	Zone B	2-Hour	4-Hour	Regulated				Total	Permit	Metered	HC	Other	Permit	Metered	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
Aggregate Utilization	95%	90%	72%	62%	71%	61%	35%	8%	***81%***	44%	96%	24%	81%	0%	74%	89%	50%	50%	18%	63%	95%	93%	0%	69%	**71%**
Total Areas	36	31	31	26	33	27	28	27	***239***	34	27	28	28	29	26	26	26	35	31	31	32	26	25	404	**643**
Areas @ 85% or higher use	18	14	3	-	9	1	-	1	***46***	-	5	2	3	-	1	1	-	2	1	4	8	1	-	28	**74**
Areas below 85% use	18	17	28	26	24	26	28	26	***193***	34	22	26	25	-	25	25	26	33	30	27	24	25	25	347	**540**

In the 2012 study, there were 5,663 total parking spaces in the study area and peak occupancy on a weekend evening[16] was recorded as 2,717 vehicles for an aggregate utilization rate of 48%. Since the 2012 study, the study area supply has increased by 14% (+805 spaces) and weekend evening occupancy has grown by roughly 69% (+1,870 vehicles) resulting in a 23% rise in aggregate utilization.

As shown in ***Figure 18***, below, the only areas of on-street parking with significant availability are located on the periphery of the study area in the Islington Neighborhood and the South Mill Pond Sub-Area.

Figure 18: Weekend Evening On-Street Utilization Rates

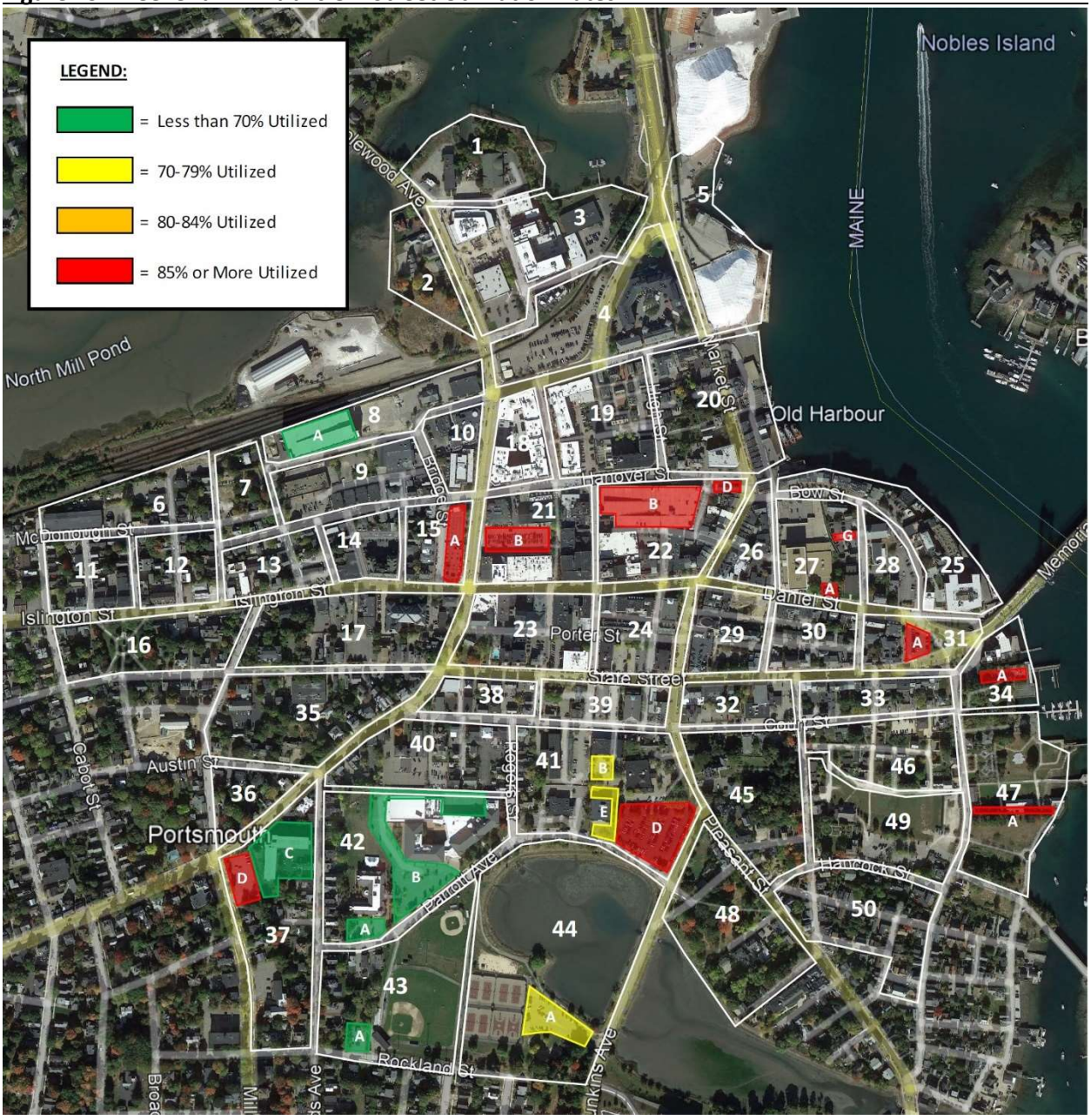


[16] October 2011 Saturday at 6:00 PM.

The aggregate weekend evening utilization rate across all On-Street parking spaces (1,329 spaces) was 81%, with 1,079 vehicles parked and 250 spaces available. In contrast, the 2012 study reported a total On-Street Supply of 1,203 spaces (-126 spaces less than current conditions) parking 533 vehicles (-546 fewer vehicles than current conditions) for a utilization rate of 44%, leaving 670 spaces open.

The North Mill Pond Sub-Area, Downtown Core, Memorial Bridge Sub-Area, and Strawberry Banke Sub-Area all experienced aggregate utilization of 85% or higher; combined these areas had fewer than 75 available spaces. Metered on-street parking spaces were 95% utilized within Zone A and 90% within Zone B. Forty-Six (59%) blocks within the study area with on-street parking were 85% or greater utilized.

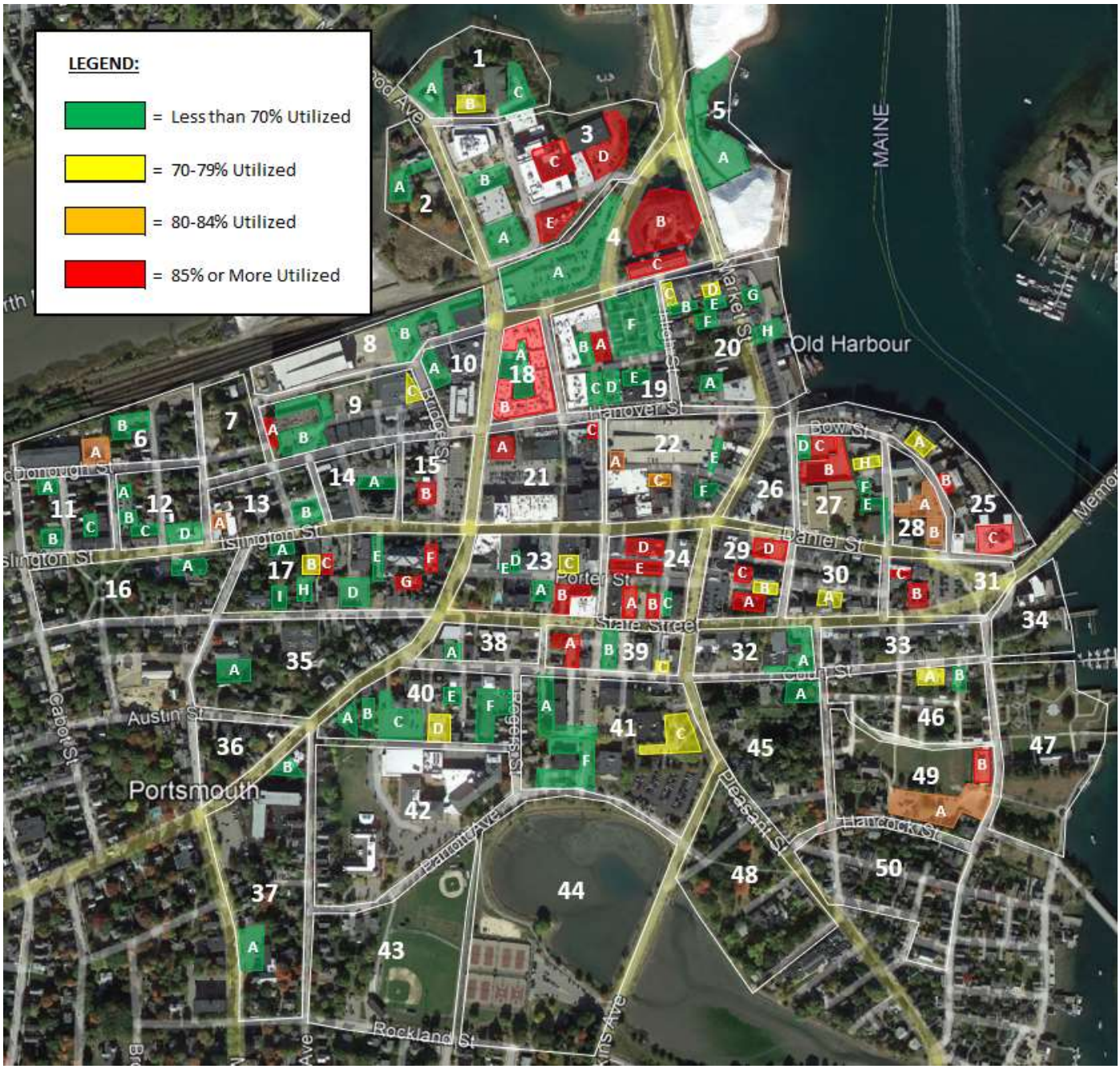
Figure 19: Weekend PM Public Off-Street Utilization Rates



The Public Off-Street supply (2,018 spaces) contained a total of 1,503 vehicles in the evening during the weekday observations, resulting in an aggregate utilization rate of 74% and 515 available parking spaces. As ***Figure 19*** on the prior page shows, all Public Off-Street Parking facilities within the Downtown Core and Memorial Bridge Sub-Area were running at 85% or greater utilization. The 2012 study did not record or report on total Public Off-Street Supply conditions, so there is no basis for comparison between observed conditions during the prior (2012) study.

Under current conditions, the 3,121 private parking spaces were occupied by 2,005 vehicles for an aggregate utilization rate of 64%, leaving 1,116 spaces vacant. ***Figure 20*** shows utilization by facility.

Figure 20: Weekend PM Private Off-Street Utilization Rates



Conclusions

Based on the analysis to date, the consulting team has drawn the following conclusions:

1. Downtown Portsmouth and its public parking system has grown in size and complexity significantly since the prior (2012) study.
2. Utilization of on-street spaces suggests that changes in policy regulating use and turnover are due for revision. For facilities currently unregulated, but consistently highly utilized (85% or greater), this may require instituting regulations such as time-limits or permits. For facilities that are already metered or subject to a fee, this would mean increasing rates to redistribute demand equitably across the public system.
3. The proliferation of private parking facilities offering public parking on a fee-for-use basis at significantly higher rates than those charged in public facilities suggests the market could bear an abundant increase in public rates, if warranted or needed.
4. Looking at the study area as a whole, there is slightly additional capacity left within the public parking system to support additional growth or development in the future but is like to be absorbed before then. This does not include the Downtown Core that is regularly reaching over capacity. The study area as a whole is running out of time before the additional capacity is gone.
5. Overall, it is evident via this study that Portsmouth needs additional parking capacity to continue its long history as a thriving market and destination central for the east coast. Via the principals…

EXHIBIT A: SUPPLY INVENTORY DETAIL (1 of 3)

			ON-STREET									OFF-STREET														
			Metered		Time Limited		Un-				Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Blk	Id	Name/Description	Zone A	Zone B	2-Hour	4-Hour	Regulated	Permit	Other	HC	Total	Permit	Meters	HC	Other	Permit	Hourly	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
NM	1	Raynes Ave		6							6															0	6
NM	1	Maplewood Ave									0															0	0
NM	1A	Cindy Ann Cleaners									0											41				41	41
NM	1B	31 Raynes Ave Lot									0											17				17	17
NM	1C	Vanguard Key Club									0										1	42				43	43
NM	2	Maplewood Ave		23							23															0	23
NM	2A	Mortgage Network									0									23	2					25	25
NM	3	Raynes Ave		8							8															0	8
NM	3	Vaughan St- Left		15							15															0	15
NM	3	Vaughan St- Right		19					3		22															0	22
NM	3	Green St									0															0	0
NM	3	Maplewood Ave		19							19															0	19
NM	3A	111 Maplewood Front Lot									0										2	37				39	39
NM	3B	111 Maplewood Rear Lot									0											14				14	14
NM	3C	Marriott AC Hotel Garage									0												110			110	110
NM	3D	New Era Technology Lot									0									58						58	58
NM	3E	233 Vaughan St Condos									0												24			24	24
NM	4	Russell St		26							26															0	26
NM	4	Deer St	12								12															0	12
NM	4A	Sheraton Public Parking Lot									0											208				208	208
NM	4B	Harborside Hotel Garage									0												191			191	191
NM	4C	Market Wharf Condo Garage									0												30			30	30
NM	5	Market St		14							14															0	14
NM	5A	Steamship Company Lot									0									51						51	51
IN	6	Brewster St					6				6															0	6
IN	6	Langdon St					10				10															0	10
IN	6	Cornwall St					4				4															0	4
IN	6	McDonough St					10				10															0	10
IN	6	Cabot St					20				20															0	20
IN	6A	Safeway Storage Lot									0									15						15	15
IN	6B	Regan Electric Lot									0									13						13	13
IN	7	Rock St									0															0	0
IN	7	Sudbury St					6			1	7															0	7
IN	7	Brewster St									0															0	0
DC	8	Deer St		7							7															0	7
DC	8	Foundry Pl									0															0	0
DC	8A	Foundry Place Garage									0						600									600	600
DC	8B	Eastern Bank Lot									0										2	40				42	42
IN	9	Foundry Pl									0															0	0
IN	9	Bridge St		2							2															0	2
IN	9	Autumn St						3			3															0	3
IN	9	Hill St						11			11															0	11
IN	9	Hanover St					14				14															0	14
IN	9	Rock St					11				11															0	11
IN	9A	Heinemann Side Lot									0									11						11	11
IN	9B	Heinemann Main Lot									0									81						81	81
IN	9C	Ferguson Gallery Lot									0									6						6	6
DC	10	Deer St		6							6															0	6
DC	10	Maplewood Ave									0															0	0
DC	10	Hanover St					3				3															0	3
DC	10	Bridge St		8							8															0	8
DC	10A	Statey Grill Lot									0											18				18	18
IN	11	McDonough St					9				9															0	9
IN	11	Cornwall St					7			1	8															0	8
IN	11	Rockingham St					8			1	9															0	9
IN	11	Islington St			10					1	11															0	11
IN	11	Cabot St					8				8															0	8
IN	11A	118 McDonough St Lot									0									8	1					9	9
IN	11B	Measured Wealth Lot									0									14						14	14
IN	11C	Islington Townhomes Lot									0									10						10	10
IN	12	McDonough St					8				8															0	8
IN	12	Brewster St									0															0	0
IN	12	Langdon St					10				10															0	10
IN	12	Islington St			8						8															0	8
IN	12	Cornwall St					8				8															0	8
IN	12A	Cornwall North Lot									0									15						15	15
IN	12B	Ambrose Medicine Lot									0									10						10	10
IN	12C	235-243 Islington St Lot									0									9						9	9
IN	12D	Exxon Station Lot									0											5				5	5
IN	13	Hanover St					6			1	7															0	7
IN	13	Pearl St									0															0	0
IN	13	Rock St					7				7															0	7
IN	13	Islington St			13					2	15															0	15
IN	13	Brewster St					5		2		7															0	7
IN	13A	The Kitchen Lot									0									5						5	5
IN	13B	Davies Tire & Auto Lot									0									25						25	25
IN	14	Hanover St					10				10															0	10
IN	14	Tanner St									0															0	0
IN	14	Tanner Ct					7				7															0	7
IN	14	Parker St									0															0	0
IN	14	Islington St			6					1	7															0	7
IN	14	Pearl St					9				9															0	9
IN	14A	Manpower Lot									0									32						32	32
DC	15	Hanover St					2				2															0	2
DC	15	Maplewood Ave									0															0	0
DC	15	Bridge St		10							10															0	10
DC	15	Islington St									0															0	0
DC	15	Tanner St									0															0	0
DC	15A	Bridge St Lot									0		59	3												62	62
DC	15B	40 Bridge St Residential Garage									0												10			10	10
IN	16	Islington St									0															0	0
IN	16	Summer St					8				8															0	8
IN	16	State St					18				18															0	18
IN	16	Cabot St					6				6															0	6
IN	16A	AR&T/ Lexie's Joint Lot									0									15						15	15
IN	17	Islington St									0															0	0
IN	17	Middle St									0															0	0
IN	17	State St		21							21															0	21
IN	17	Summer St					8				8															0	8
IN	17A	Sole Trng/Atlantic Chiro Lot									0									18						18	18
IN	17B	American Legion Lot									0									19	1					20	20
IN	17C	86 Islington St Lot									0									10						10	10
IN	17D	Consolidated Employee Lot									0									46						46	46
IN	17E	Keefe House Lot									0									18						18	18
IN	17F	Portsmouth Historical Society									0									17						17	17
IN	17G	Bergeron Appraisal Lot									0									12						12	12
IN	17H	567-579 State St Lot									0									15						15	15
IN	17I	Whipple School Bldg Lot									0									19						19	19
DC	18	Deer St	2								2															0	2
DC	18	Portwalk Pl	3						3		6															0	6
DC	18	Hanover St	4						1		5															0	5
DC	18	Maplewood Ave									0															0	0
DC	18A	Hampton Inn Lot									0											60				60	60
DC	18B	Portwalk Place Garage									0													170		170	170
DC	19	Deer St	11								11															0	11
DC	19	High St	2								2															0	2
DC	19	Hanover St	12								12															0	12
DC	19	Portwalk Pl	15								15															0	15
DC	19	Garden Way							4		4															0	4
DC	19A	Gated Private Lot									0									28						28	28
DC	19B	Resident Inn Lot									0									26						26	26
DC	19C	Opus Residential Lot									0									28						28	28
DC	19D	Opus Garage									0												21			21	21
DC	19E	Hilton Garden Inn Lot									0									28						28	28
DC	19F	The Hill									0									16						16	16
DC	20	Deer St	7						1		8															0	8
DC	20	Market St	15								15															0	15
DC	20	Hanover St	5						1		6															0	6
DC	20	High St	7								7															0	7
DC	20A	The Soupery									0									10						10	10
DC	20B	Permit Lot									0									8						8	8
DC	20C	Hanover Hill Place									0											8				8	8
DC	20D	Erin Elizabeth Salon									0											8				8	8
DC	20E	200 Market St Lot									0											17				17	17
DC	20F	Afford -A- Move Lot									0									15						15	15
DC	20G	Ceres Tenant Lot									0									20						20	20
DC	20H	Portsmouth Harbor Lot									0									19						19	19

EXHIBIT A: SUPPLY INVENTORY DETAIL (2 of 3)

			ON-STREET									OFF-STREET															
			Metered		Time Limited		Un-				Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Blk	Id	Name/Description	Zone A	Zone B	2-Hour	4-Hour	Regulated	Permit	Other	HC	Total	Permit	Meters	HC	Other	Permit	Hourly	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
DC	21	Hanover St	10						1		11															0	11
DC	21	Fleet St	8								8															0	8
DC	21	Congress St	5								5															0	5
DC	21	Maplewood Ave							1		1															0	1
DC	21A	25 Maplewood Condo Garage									0												19			19	19
DC	21B	Worth Lot									0		79	5												84	84
DC	21C	Legends Lot									0									8						8	8
DC	22	Hanover St									0															0	0
DC	22	Market St	11								11															0	11
DC	22	High St	8								8															0	8
DC	22	Congress St	11								11															0	11
DC	22	Fleet St									0															0	0
DC	22A	Gilley's Diner									0											7				7	7
DC	22B	Hanover Garage									0						880	18	2							900	900
DC	22C	One Market Square Lot									0										1	23				24	24
DC	22D	Portsmouth Gas Light Co.									0		11	1												12	12
DC	22E	36-46 Market Street Lot									0									9						9	9
DC	22F	Antheneum Lot									0									12						12	12
DC	23	Congress St	5								5															0	5
DC	23	Fleet St	8								8															0	8
DC	23	Porter St									0															0	0
DC	23	State St	22								22															0	22
DC	23	Chestnut St									0															0	0
DC	23A	Rockingham Bldg Lot									0									30						30	30
DC	23B	TD Bank Lot									0										2	28				30	30
DC	23C	82-86 Congress St Garage									0												14			14	14
DC	23D	110 Congress St Permit Lot									0									7						7	7
DC	23E	Flatbread Employee Parking									0									4						4	4
DC	24	Congress St	7								7															0	7
DC	24	Pleasant St	16								16															0	16
DC	24	Porter St		8							8															0	8
DC	24	State St	3								3															0	3
DC	24	Fleet St									0															0	0
DC	24A	M&T Bank									0										2	18				20	20
DC	24B	People's United Bank									0											22				22	22
DC	24C	Book & Bar Alley Parking									0									5						5	5
DC	24D	8-26 Congress St Garage									0												20			20	20
DC	24E	12-32 Porter St Condos									0												11			11	11
MBD	25	Bow Street	15								15															0	15
MBD	**25A**	113 Bow St Lot									0									17						17	17
MBD	**25B**	Ale House Inn Lot									0									6						6	6
MBD	**25C**	Harbor Place Garage									0												83			83	83
MBD	26	Bow St									0															0	0
MBD	26	Penhallow St	9								9															0	9
MBD	26	Daniel St	10								10															0	10
MBD	26	Market St	10								10															0	10
MBD	27	Bow St	4								4															0	4
MBD	27	Chapel St									0															0	0
MBD	27	Daniel St	12								12															0	12
MBD	27	Penhallow St	12								12															0	12
MBD	27A	Post Office									0									7	1					8	8
MBD	27B	GSA Upper Lot									0										2	41				43	43
MBD	27C	GSA Lower Lot									0										2	31				33	33
MBD	27D	GSA Garage									0												44			44	44
MBD	27E	Old City Hall Lot									0											24				24	24
MBD	27F	Chapel Court - Private									0									10						10	10
MBD	27G	Chapel Court - Public									0		4													4	4
MBD	27H	Chapel Street - UPP									0										2	23				25	25
MBD	28	Bow St	16								16															0	16
MBD	28	Daniel St	4								4															0	4
MBD	28	Chapel St									0															0	0
MBD	28A	Chapel St /St Johns Lot									0										3	28				31	31
MBD	28B	Bow St /St Johns Lot									0											23				23	23
MBD	29	Daniel St	10								10															0	10
MBD	29	Penhallow St	10								10															0	10
MBD	29	State St	6								6															0	6
MBD	29	Pleasant St	18								18															0	18
MBD	29A	Piscataqua Bank Lot									0											26				26	26
MBD	29B	Oppenheimer Lot									0									9						9	9
MBD	29C	Oppenheimer Garage									0												12			12	12
MBD	29D	Brick Market Garage									0												67			67	67
MBD	30	Daniel St	9								9															0	9
MBD	30	Chapel St	6								6															0	6
MBD	30	Sheafe St			9						9															0	9
MBD	30	State St	15								15															0	15
MBD	30	Penhallow St									0															0	0
MBD	30A	Sheafe Apartment Lots									0									15						15	15

EXHIBIT A: SUPPLY INVENTORY DETAIL (3 of 3)

			ON-STREET									OFF-STREET																
			Metered		Time Limited		Un-				Sub-	Public Lot				Public Garage				Private Lot			Private Garage			Sub -	GRAND
Blk	Id	Name/Description	Zone A	Zone B	2-Hour	4-Hour	Regulated	Permit	Other	HC	Total	Permit	Meters	HC	Other	Permit	Hourly	HC	Other	Permit	HC	Other	Permit	Other	HC	Total	TOTAL
MBD	31	Daniel St	6								6															0	6
MBD	31	Scott Ave									0															0	0
MBD	31	State St	3								3															0	3
MBD	31	Chapel St									0															0	0
MBD	31A	Memorial Bridge Lot									0		30	2												32	32
MBD	31B	Parkside Garage									0												12			12	12
MBD	31C	Piscataqua Landing Garage									0												17			17	17
MBD	32	State St	10								10															0	10
MBD	32	Washington St									0															0	0
MBD	32	Court St									0															0	0
MBD	32	Pleasant St									0															0	0
MBD	32A	Temple Israel Lot									0											50				50	50
MBD	33	State St	26								26															0	26
MBD	33	Marcy St		4							4															0	4
MBD	33	Atkinson St		0							0															0	0
MBD	33	Court St		0							0															0	0
MBD	33	Washington St		4							4															0	4
MBD	34	Marcy St									0															0	0
MBD	34A	Portsmouth Love Wall Lot									0				16											16	16
IN	35	State St		18							18															0	18
IN	35	Austin St					11				11															0	11
IN	35	Summer St					6				6															0	6
IN	35A	Redemption Hill Church Lot									0									15	1					16	16
IN	36	Middle St					22				22															0	22
IN	36	Austin St					9				9															0	9
IN	36	Richards Ave									0															0	0
IN	36	Miller/Summer					9				9															0	9
SMP	37	Middle Street					8				8															0	8
SMP	37	Richards Ave									0															0	0
SMP	37	Rockland St					6				6															0	6
SMP	37	Miller Ave									0															0	0
SMP	37A	1st United Methodist Church									0										2	23				25	25
SMP	37B	Thomas Haven House Lot									0									9						9	9
SMP	37C	Portsmouth Housing Authority									0			1	46											47	47
SMP	37D	Masonic Temple Lot									0	14		3	44											61	61
DC	38	State St	10							1	11															0	11
DC	38	Chestnut St									0															0	0
DC	38	Court St									0															0	0
DC	38	Middle St									0															0	0
DC	38A	State Farm Insurance									0									17						17	17
DC	39	State St	9							2	11															0	11
DC	39	Pleasant St	7							1	8															0	8
DC	39	Court Pl		16						1	17															0	17
DC	39	Church St		2							2															0	2
DC	39	Court St									0															0	0
DC	39	Chestnut St									0															0	0
DC	39A	TD Bank Lot									0									14						14	14
DC	39B	Court Pl Parking Lot									0									24						24	24
DC	39C	Northeast Auctions Lot									0									4						4	4
SMP	40	Court St		11							11															0	11
SMP	40	Rogers St									0															0	0
SMP	40	Middle St									0															0	0
SMP	40A	Joe Plaia Attorney Lot									0									8						8	8
SMP	40B	Upton & Hatfield Lot									0									12	1					13	13
SMP	40C	Middle St Baptist Church Lot									0									55	3					58	58
SMP	40D	The Hotel Portsmouth Lot									0									33						33	33
SMP	40E	Life Styled Interior Design Lot									0									10						10	10
SMP	40F	Rodger Apartments Lot									0									47						47	47
SMP	41	Court St		6							6															0	6
SMP	41	Pleasant St									0															0	0
SMP	41	Parrot Ave					17				17															0	17
SMP	41	Rogers St									0															0	0
SMP	41A	Feaster Apartments									0									47	1					48	48
SMP	41B	Portsmouth Fire Department									0				26											26	26
SMP	41C	Citizens Bank Lot									0									33	1					34	34
SMP	41D	Parrott Ave Lot									0			6	186											192	192
SMP	41E	Portsmouth District Court Lot									0				24											24	24
SMP	41F	Petersen/Court Parking									0									29	1					30	30
SMP	42	Rogers St									0															0	0
SMP	42	Parrot Ave					30				30															0	30
SMP	42	Richards Ave									0															0	0
SMP	42A	Portsmouth Public Library									0	16		4												20	20
SMP	42B	Portsmouth Middle School									0	110		8												118	118
SMP	43	Parrot Ave					29				29															0	29
SMP	43	Rockland St					17				17															0	17
SMP	43	Richards Ave					11				11															0	11
SMP	43A	Baseball Field Public Lot									0				20											20	20
SMP	44	Parrot Ave					43				43															0	43
SMP	44	Junkins Ave									0															0	0
SMP	44A	South Mill Pond Playground									0			4	86											90	90
SB	45	Court St									0															0	0
SB	45	Washington St						9			9															0	9
SB	45	Hancock St					7				7															0	7
SB	45	Pleasant St									0															0	0
SB	45A	The Sailmaker's House									0									15						15	15
SB	46	Court St									0															0	0
SB	46	Marcy St		4							4															0	4
SB	46	Washington St									0															0	0
SB	46A	Strawberry Banke Permit Only									0									19	1					20	20
SB	46B	454 Court Street Permit Lot									0									7						7	7
SB	47A	Water Street Permit Lot									0				**10**											10	10
SB	48	Junkins Ave									0															0	0
SB	48	Pleasant St									0															0	0
SB	48	Livermore St				13					13															0	13
SB	48	Wentworth St					19				19															0	19
SB	49	Marcy St									0															0	0
SB	49	Hancock St					27				27															0	27
SB	49	Washington St									0															0	0
SB	49A	Strawberry Banke Visitors Lot									0									85	3					88	88
SB	49B	The Puddle Dock Lot									0											15				15	15
SB	50	Hancock St									0															0	0
SB	50	Marcy St									0															0	0
SB	50	Gates St					25				25															0	25
SB	50	Washington St									0															0	0
SB	50	Gates St									0															0	0
SB	50	Marcy St									0															0	0
SB	50	Howard St									0															0	0
SB	50	Pleasant St									0															0	0
TOTALS			**446**	**257**	**46**	**13**	**524**	**23**	**17**	**13**	**1,339**	**140**	**183**	**37**	**458**	**0**	**1,480**	**18**	**2**	**1,395**	**38**	**897**	**685**	**170**	**0**	**5,503**	**6,842**

DESMAN
Design Management

APPENDIX B

DATE: *Tuesday, January 14, 2025*

TO: *Benjamin Fletcher; Peter Rice; Peter Britz; Jillian Harris; Eric Elby: Mike Casad; Sean Clancy (City of Portsmouth)*

CC: *Parking Utilization Advisory Group; Holly Parker (SLR); Jerry Salzman (DESMAN)*

FROM: *Andrew S. Hill and Reese King-Hill, DESMAN Design Management*

PROJECT: *City of Portsmouth* **PROJECT #:** *20-23121.00-3*

RE: *Task 2 Report - Parking Requirements per Zoning Assessment*

As part of the overall scope of work, DESMAN was tasked with reviewing the parking requirements contained within the City of Portsmouth's Zoning Ordinances. The following document satisfies that commitment and presents findings and recommendations for the City's adoption and implementation.

Methodology

DESMAN evaluated current zoning as it applies to parking requirements for the City of Portsmouth from two perspectives. First, DESMAN benchmarked the parking requirements in place in the City of Portsmouth against five (5) comparable communities as well as industry standards. The intent of this assessment was to review if Portsmouth was aligned with the comparable communities as well as industry standards used to project parking demand for new developments.

As second assessment, DESMAN benchmarked the City of Portsmouth's zoning code against fifteen (15) features common to municipal parking requirements consisting of the following:

1. Conditional Use Waiver: Does the code contain language allowing for a reduction in parking requirements by special grant?
2. Ratio Modification: Does the code contain a mechanism to allow applicants to apply for a modification in the parking (requirement) ratio specific to a land use in order to meet requirements?
3. Reserve Mitigation: Does the code contain a mechanism to allow applicants to mitigate the parking requirement according to the phase of development and/or actual use?
4. Parking Maximums. Does the code include ratios stipulating the maximum amount of parking a developer can build as well as minimum parking requirements?
5. Intrafacility Shared Use: Does the code include language authorizing the use of **a** shared use approach within the project to demonstrate parking requirements different than those mandated by the code?
6. Interfacility Shared Use: Does the code include language allowing applicants to meet some or all of their parking requirement by execution of a shared use agreement between the applicant and another property owner?

7. Remote Parking. Does the code allow the applicant to satisfy some or all of their parking requirement through use of a satellite parking arrangement?
8. District Waivers. Does the code allow for the waiver of parking requirements for particular land uses and/or districts?
9. Bicycle Requirements. Does the code include requirements for bicycle parking for new development and/or change of use?
10. Transit Mitigation. Does the code allow for a reduction in the number of required parking spaces if the project is located near transit?
11. Car Share Mitigation. Does the code allow for a reduction in the number of required parking spaces if the project includes a car share element?
12. Other Mode Mitigation. Does the code allow for a reduction in the number of required parking spaces for inclusion of other elements which promote alternative travel modes, thereby reducing parking demand?
13. Public Supply Credit. Does the code allow the applicant to meet some or all of their parking requirements through the use of a public parking facility?
14. On-Street Credit. Can the applicant use the on-street spaces abutting their development to meet some or all of their parking requirement?
15. In Lieu Payment Option. Can the applicant meet some or all of their parking requirement through the purchase of waivers?

Where appropriate, DESMAN recommended modifications to Portsmouth's zoning code and/or adoption of another community's zoning language.

DESMAN's review did not include an assessment of construction and/or design standards specific to the creation of parking facilities under the existing zoning code.

Comparable Communities

When looking for communities to benchmark against, DESMAN evaluated twenty (20) different communities against the following metrics: *total population*; *total land area; population density; walk score*[1]*; bike score; transit score*; and *median household income*. DESMAN also considered whether they community had fee-for-use (i.e., "paid") off- and on-street public parking facilities, private paid parking facilities, and executed parking reforms[2].

Each metric was informative, but not definitive in of itself. For example, no community with a population density under 1,200 persons per square mile was considered comparable because, as a general rule, lower overall densities tended to translate into smaller downtown cores and/or commercial districts with a more suburban, rather than urban, character. Walk, bike, and transit score varied; for the first two, Portsmouth fell in the middle of the range of values. No community with median household income above $100,000 or less than $50,000 was included in the final five comparable communities as these tended to represent

[1] Per www.walkscore.com, a division of Redfin Realty, which evaluates communities on how walkable, bikeable, and well served by transit they are.

[2] Per www.parkingreform.org which reports on municipalities which have eliminated parking minimums in one or more districts.

municipalities that were far more or far less price-sensitive than Portsmouth, a factor which influences both mode choice and parking behaviors.

Communities without paid off- and on-street public parking facilities were excluded from the final selection, as these are strong influencers on behavior and mode choice. Two of the five selected communities did not have private commercial parking facilities in their downtown, but in both cases, this appeared to be a function of the municipality commanding the market and thereby removing an incentive for commercial operators to open locations in those cities. All the cities, including Portsmouth, had progressive policies with regards to parking requirements, but four of the five comparable communities had actually been recognized for their efforts in parking reform.

Table 1: Comparable Communities Selected for Benchmarking

Town	Population [1]	Land Area (sq mi) [2]	Population Density (ppl/sq. mi)	Walk Score [3, 4]	Bike Score [3, 5]	Transit Score [3, 6]	Median Household Income [7]	Public Paid Off-Street Parking	Public Paid On-Street Parking	Private Paid Parking Options	Parking Reforms [8]
Portsmouth, NH	**21,987**	**15.7**	**1,400**	**47**	**46**	**n/a**	**$ 91,915**	**Y**	**Y**	**Y**	**N**
Portland ME	68,313	21.31	3,206	62	68	4	$ 66,109	Y	Y	Y	Y
Salem MA	44,819	18.3	2,449	70	54	32	$ 72,884	Y	Y	Y	N
Dover NH	33,171	26.7	1,242	33	34	n/a	$ 82,387	Y	Y	N	Y
Burlington VT	44,781	15.49	2,891	59	81	39	$ 59,331	Y	Y	Y	Y
Ithaca, NY	31,710	6.07	5,224	72	58	n/a	$ 76,209	Y	Y	N	Y

Sources/Notes:

1. U.S. Census Bureau, QuickFacts, 2022
2. U.S. Census Bureau, ArcGIS REST Services, Total Land Area only.
3. www.walkscore.com, a division of Redfin
4. Walk Score measures the walkability of any address based on the distance to nearby places and pedestrian friendliness.

90–100 Walker's Paradise	Daily errands do not require a car
70–89 Very Walkable	Most errands can be accomplished on foot
50–69 Somewhat Walkable	Some errands can be accomplished on foot
25–49 Car-Dependent	Most errands require a car

5. Bike Score measures whether an area is good for biking based on bike lanes and trails, hills, road connectivity, and destinations.

90–100 Biker's Paradise	Daily errands can be accomplished on a bike
70–89 Very Bikeable	Biking is convenient for most trips
50–69 Bikeable	Some bike infrastructure
0–49 Somewhat Bikeable	Minimal bike infrastructure

6. Transit Score measures how well a location is served by public transit based on the distance and type of nearby transit lines.

90–100 Rider's Paradise	World-class public transportation
70–89 Excellent Transit	Transit is convenient for most trips
50–69 Good Transit	Many nearby public transportation options
25–49 Some Transit	A few nearby public transportation options
0–24 Minimal Transit	It is possible to get on a bus

7. www.datausa.io, 2021 median household income
8. Per www.parkingreform.org, these are cities which have eliminated parking minimums for all land uses in one or more districts

Preamble

Municipal zoning codes are designed to regulate the use of land within a community and the buildings erected upon that land. Many zoning ordinances begin with a statement of purpose that often includes the phrase "for the health, safety, and general welfare of the public" as defining purpose for this body of laws, regulations, design, and building standards. Simply put, zoning ordinances are enacted to protect

the community by establishing standards and practices to assure that new development is safe and aligned with community values and goals.

If asked, the average citizen would likely respond that the purpose of parking requirements under zoning code is to assure that new projects have adequate parking to support their need. In many municipalities, this is still the primary purpose for the parking requirements in place. However, in the last few decades, municipalities have begun to modify their parking requirements to achieve other goals such as encouraging development, promoting the use of alternative transportation, and reducing congestion among others. This movement is commonly referenced as *Parking Reform* among urban planners, public administrators, transportation professionals, and parking consultants.

Parking Reform can trace it origins back to the teachings of Dr. Donald Shoup, professor emeritus of the Department of Urban Planning at the University of California-Los Angeles. Dr. Shoup began publishing papers in academic publications in the late 1990's regarding issues with minimum parking requirements and public parking policy which eventually were consolidated in his seminal work, The High Price of Free Parking, published in 2005. One of the cornerstones of Dr. Shoup's work charged that municipal parking minimums were doing more damage to the communities that they were intended to protect, by mandating the provision of parking supply for new development that was in excess of actual need for the project. Shoup stated that most parking minimums had no foundation in study or science and often resulted in development which dedicated limited land to meeting these excessive requirements over higher, better land uses.

Shoup argued that the application of parking minimums created financial and spatial barriers to potential developers; drove up project costs which resulted in increased rents; encouraged a less dense, walkable, and attractive streetscape; gave priority to single-occupant vehicle travel resulting in roadway congestion and air pollution; eroded public interest in utilizing alternative modes of transportation such a transit, rideshare services, walking, and biking; and increased the amount of impervious surface in downtown, resulting in more runoff and water pollution. Shoup argued that developers were already bound to provide adequate parking to support their projects by their lenders, investors, and/or own self-interest and allowing them to determine their true need would result in projects that were adequately supplied. In addition, Shoup advanced the theory that developers, freed up from minimum parking requirements, would be incented to find ways to make better use of existing parking assets.

Parking Reform was born from urban planners, public administrators, and transportation and parking professionals who adopted Shoup's ideas and promoted them into public policy. These policies varied according to each municipality and its particular conditions, but the most common change was the modification or elimination of parking minimums. According to the Parking Reform Network, a non-profit organization, over 200 U.S. cities and towns have altered or abolished minimum parking requirements in at least one district.

In some cases, municipalities have traded parking minimums for parking maximums, capping the number of parking spaces a developer can build to support a project. Cities with robust transit service and alternative transportation options like Boston have moved to this policy in an effort to reduce car travel, roadway congestion, and pollution, confident that the market will bear this shift in policy without stalling growth and commerce. Smaller municipalities have also swapped parking minimums for maximums, but set the maximum parking requirements in alignment with studies of actual parking usage to allow developers to build enough parking to support their projects if so inclined.

Widespread adoption of *Parking Reform,* while gaining acceptance, is relatively new and the impacts are still being evaluated. A limited number of studies and anecdotal accounts indicate that the removal of minimum parking requirements has helped stimulate development in areas where it has been implemented. In municipalities where parking maximums have been implemented that are significantly below market standards for parking demand AND a strong transit and alternative transportation network is present, planners and transportation professionals report increasing transit ridership, rideshare service sales, and pedestrian and bicyclist volumes. While *Parking Reform* advocates argue that eliminating parking minimums will reduce project costs, which will translate into lower rents and more affordable housing, this linkage has not been independently confirmed to date.

More conservative urban planners and transportation professionals support *Parking Reform*, but note four potential issues arising from wholesale dismissal of minimum parking requirements:

A. Parking minimums are often the incentive needed to get developers to consider inclusion of elements in their projects that support alternative transportation. In many cases, municipalities offer waivers against the minimum parking requirements for developers will to provide facilities and/or programs in their project that encourage transit use, ridesharing, bicycling, etc. With the 'stick' of minimum parking requirements removed, the 'carrots' these waivers offer are less enticing.

B. *Parking Reform* proponents argue that most developers will still provide parking to support their projects because their lenders, investors, and/or potential tenants will require it and conventional wisdom would support this statement. However, conventional wisdom argued at one time that no lender would offer a mortgage to a borrower who did not have the demonstrated means to make consistent payments. The financial crisis of 2008 demonstrated that the way mortgages were created and held had changed and the originating lender was not always confirming the borrower's financial fitness before issuing the mortgage.

C. Much like the crisis caused by the systemic failure of mortgage-backed securities and collateralized debt obligation bonds, conservative planners and policy experts warn that, when parking issues arise due to elimination of parking minimums, it is the municipality and its taxpayers who will have to address the issue, not the developer.

D. As noted earlier, it has been postulated that the elimination of parking minimums will reduce project costs, which will in turn result in the reduction of sales prices or rental fees for the land uses within the project. *Parking Reform* advocates suggest that this may be the key to introducing more affordable housing into urban cores. However, there has not yet been a study showing how the elimination of parking minimums translated into a reduction in the cost of housing or commercial space for the local citizenry.

DESMAN does not believe the elimination of parking minimums is a universal panacea for promoting growth and development in the municipalities it serves. We support parking reform as a general concept and believe that, if executed in tandem with other policy changes and initiatives to mitigate unintended consequences, it can help to make the communities we work in stronger, more vibrant, and more sustainable. Specific to Portsmouth, DESMAN suggests the city consider the secondary purpose of its parking requirements. As they are currently written, are the parking requirements and features within the zoning ordinances intended to protect abutting neighbors? Attract developers? As the following analysis will show, some of the existing language could be modified to better achieve the city's objectives, depending on what they are.

Parking Requirements

To 'test' Portsmouth's current parking requirements, DESMAN identified a total of twelve land uses[3] and their associated parking requirements to evaluated relative to the five comparable communities as well as parking industry standards established by the Urban Land Institute (ULI) for calculating parking demand. In instances where the other communities or the ULI did not list a comparable requirement for a particular land use, DESMAN noted this as "No Comparable" and included notes, where possible, about how the alternate code or standard was written to address this possibility.

Where possible, DESMAN attempted to present parking requirements in a consistent format to allow for 'apples-to-apples' comparison. For parking requirements based on square footage, this meant converting the requirement to a ratio of x spaces for every 1,000 square feet (KSF) , although this was not a guarantee of equality as some sources based their ratios on gross floor area (GFA) , while others applied the ratio only to gross leasable area (GFA), 'net assignable floor area', or just a portion of the total floor area specific to the use, such as retail space for land uses with a sales center or seating area for certain restaurants.

Depending on the municipality, other land uses were subject to ratios based on the number of residential units, hotel rooms, seating capacity, caregivers, employees on the busiest shift, members, and/or maximum building occupancy. Again, as possible, DESMAN sought to convert these individual requirements into ratios in a consistent format.

Often, these ratios were expressed as a range because municipalities and industry standards applied a sliding scale to parking requirements, depending on the amount of driving land use (e.g., square footage, number of units, etc.) and/or the day of week in the case of the ULI standards, which offered differing ratios for weekday versus weekend use. The collected requirements, as well as key notes describing each, are included on the following page as ***Table 2***.

DESMAN noted the following conditions from this review as follows:

Residential - Four of the five comparable communities addressed residential parking requirements in a single ratio encompassing parking for both residents and their guests. Only Dover, NH and the ULI offered separate ratios for resident and residential visitor parking as Portsmouth does. Both Dover, NH and Burlington, VT varied parking requirements for residential according to zones within the community, while the other communities, including Portsmouth, and the ULI presented universal requirements.

All the other benchmarked ratios were based solely on the number of units, often by type (i.e., studios, one-bedroom, two-bedroom, etc.), with the exception of Portsmouth. Portsmouth determines the required number of parking spaces for residents on a sliding scale based on the square footage per residential unit and the number of residential visitor spaces needed based on the total number of residential units within the project.

[3] Residential, Performance Facility, Health Club, General Office, Medical Office, Consumer/Trade Services, Veterinary Care/Laundries, Retail Stores, Restaurants/Bars, Hotels, Wholesale/Warehouse, and Industrial

Table 2: Parking Requirements

Land Use	Portsmouth, NH [1]	Portland, ME [17]	Salem, MA [25]	Dover, NH [36]	Burlington, VT [47,48]	Ithaca, NY [59]	Industry Standard [68]
Residential - Resident	0.50-1.30 spaces/unit [2]	1.00 space/unit [18]	1.50-2.00 space/unit [26]	1.25-1.40 spaces/unit [37]	1.00-3.00 spaces/unit [49]	1.00+ spaces/unit [60]	0.85-2.50 spaces/unit [69]
Residential - Visitor	0.20-1.00 spaces/unit [3]	No Comparable	No Comparable	0.40-0.50 spaces/unit [38]	No Comparable	No Comparable	0.10-0.15 spaces/unit [70]
Performance Facility	0.40 spaces/seat [4]	0.20 spaces/seat [19]	0.25+ spaces/seat [27]	0.50+ spaces/seat [39]	0.25 spaces/seat [50]	0.20 spaces/seat [61]	0.16-0.40 spaces/seat [71]
Health Club	4.00 spaces/KSF [5]	No Comparable	27.78+ spaces/KSF [28]	No Comparable [40]	2.00-4.00 spaces/KSF [51]	0.20 spaces/person [62]	5.75-7.00 spaces/KSF [72]
General Office	2.86 spaces/KSF [6]	2.50 spaces/KSF [20]	1.00 space/staff [29]	3.33 spaces/KSF [41]	2.00-3.00 spaces/KSF [51]	4.00 spaces/KSF [63]	2.80-3.93 spaces/KSF [73]
Medical Office	4.00 spaces/KSF [7]	2.00 spaces/KSF [21]	1.00+ space/caregiver [30]	0.50+ spaces/exam [42]	2.00-4.00 spaces/KSF [51]	4.00 spaces/KSF [64]	4.60 spaces/KSF
Consumer/Trade Services	2.50 spaces/KSF [8]	No Comparable	No Comparable [31]	No Comparable [40]	2.00-4.00 spaces/KSF [51,52]	No Comparable	3.90-4.35 spaces/KSF [74]
Veterinary Care/Laundries	2.00 spaces/KSF [9]	No Comparable	No Comparable [31]	No Comparable [40]	2.00-4.00 spaces/KSF [51,53]	No Comparable	No Comparable
Retail Stores	3.33 spaces/KSF [10]	1.43-5.00 spaces/KSF [22]	6.67 spaces/KSF [32]	3.64 spaces/KSF [43]	2.00-4.00 spaces/KSF [51,54]	2.00 spaces/KSF [65]	2.80-4.90 spaces/KSF [75]
Restaurants/Bars	10.00 spaces/KSF [11]	6.67 spaces/KSF	15.00+ spaces/restaurant [33]	No Comparable [40]	3.00-5.00 spaces/KSF [51,55]	10.00 spaces/KSF [66]	14.40-18.75 spaces/KSF [76]
Hotel	1.25 spaces/room [12]	0.25 spaces/room [23]	1.00+ spaces/room [34]	1.00+ spaces/room [44]	1.00 spaces/KSF [56]	1.00 space/room	1.15 spaces/room
Hotel - Lounge/Restaurant	10.00 spaces/KSF [13]	No Comparable	No Comparable	2.00 spaces/KSF [45]	No Comparable	No Comparable	7.87-9.00 spaces/KSF [77]
Hotel - Meeting Space	40.00 spaces/KSF [14]	No Comparable	No Comparable	2.00 spaces/KSF [45]	No Comparable	No Comparable	6.00-32.00 spaces/KSF [78]
Wholesale/Warehouse	0.50 spaces/KSF [15]	No Comparable	1.00+ spaces/KSF [35]	No Comparable [40]	0.00-4.00 spaces/KSF [57]	0.50 spaces/worker [67]	No Comparable
Industrial	1.00-2.00 spaces/KSF [16]	1.00 spaces/KSF [24]	No Comparable	1.25 spaces/KSF [46]	2.00-4.00 spaces/KSF [51,58]	0.50 spaces/worker [67]	No Comparable

Notes:

1. Article 11 (Site Development Standards) of City of Portsmouth (NH) Zoning Ordinance
2. Sliding scale based on SF/unit, with units of < 500 SF = 0.50 spaces/unit, units of 500-750 SF = 1.00 spaces/unit, and units of > 750 SF = 1.30 spaces/unit
3. Requires 1.00 space/unit for 1-4 units + 1.00 space/unit for every 5 units thereafter.
4. Same requirement applies to Places of Assembly, although a ratio of 1 space/4 persons is allowed as alternate.
5. Ordinance reads as 1 space/250 SF of Gross Floor Area (GFA)
6. Ordinance reads as 1 space/350 SF GFA for professional, business, and financial services offices
7. Ordinance reads as 1 spaces/250 SF GFA for medical offices, clinics, and ambulatory care centers
8. Includes personal services, copy shops, bike repair, pet grooming, and supply shops for tradesmen
9. Includes veterinary offices, self-service laundries, dry cleaners, and cleaning drop-off/pick-up centers
10. Ordinance reads as 1 spaces/300 SF GFA
11. Ordinance applies to all 'eating and drinking places' and reads as 1 spaces/100 SF GFA
12. Includes guests and hotel staff
13. Applies to any on-site establishment serving food and/or drinks to non-guests as a rate of 1 space/100 SF GFA
14. Applies to conference and banquet space as well at a rate of 1 space/25 SF GFA
15. Does not apply to wholesale lumber yards and/or contractor supplies (no requirement for these)
16. General manufacturing requires 1 space/1000 SF GFA; light industry, R&D, and/or labs require 1 space/500 SF GFA
17. Article 19 of the City of Portland Land Use Code
18. Applies universally to single-family units, duplexs, and multi-family units
19. Applies to theaters and performance halls. Can also be calculated as 1 space/100 SF GFA if fixed seating is not provided or 1 space/150 SF GFA for places of assembly
20. Ordinance reads as 1 space/400 SF GFA; the same ratio applied to government uses.

Notes:

21. Ordinance reads as 1 space/500 SF GFA for hospitals and clinics.
22. Ordiance reads as 1 space/200 SF GFA for the first 2,000 SF, 1 space/700 SF GFA thereafter
23. Ordinance reads as 1 space/4 guest rooms
24. Ordinance reads as 1 space/1,000 SF GFA in excess of 3,000 SF, not including retail areas
25. Section 5.1 of the City of Salem (MA) Zoning Ordinance
26. Base ratio is 1.50 spaces/unit, with a minimum provision of two spaces. Also requires 1 additional space if the dwelling is also the place of occupation.
27. Requirement is one space for every 4 seats, plus one space for every 2 employees.
28. For 'places of commercial recreation' the requirement is one space for every 36SF GFA plus one space for every two employees.
29. Salem's parking requirements for business offices are based on 1 space/employee rather than a ratio of spaces to GFA
30. Salem basis parking requirements for medical offices and clinics on the number of professionals in the building. Salem calls for 1 space/professio 1 space for every 2 employees, and 2 spaces for each professional for patients/ visitors.
31. There is no comparable land uses in the Salem Zoning Ordinances.
32. Salem calls for 1 space for every 150 SF GFA, excluding storage areas.
33. Salem calls for one parking space for every two employees, plus 15 spaces for patrons.
34. Salem calls for 1 space/room plus 1 space for every 2 employees.
35. Salem calls for 1 space for each company vehicle plus 1 space for every 2 employees plus 1 space for every 1,000 SF of GFA, exclusing storage area
36. As taken from City of Dover (NH) Code of Ordinances, Division 2, Article IV (Site Design and Development Criteria), Section 153-14. D
37. 1.25 spaces/unit in the CBD-G zone, otherwise 1.40 spaces/unit.
38. 0.40 spaces/unit in the CBD-G zone, otherwise 0.50 spaces/unit.
39. Dover requires 0.50 spaces/seat plus 1 space for each employee on the maximum (largest) shift for "Gathering Places".
40. Per the code, "The Director of Planning and Community Development shall determine the category of a use, if unclear".
41. Based on requirement for one space for every 300 SF of Gross Leasable Area.
42. Based on the requirement for 0.50 space/exam room (or bed) plus 1 space for each employee on the maximum shift.
43. Based on requirement for one space for every 275 SF of Gross Leasable Area.
44. Based on requirement for one space/room plus 1 space for each employee on the maximum shift.
45. Based on requirement for one space for every 500 sf of 'common area'.
46. Based on requirement for one space every 800 SF Gross Leasable Area.
47. Taken from Burlington Comprehensive Development Ordinance, Article 8 (Parking)
48. Burlington has waived all minimum parking requirements and imposes only parking maximums. Parking maximums vary according to *three defined districts: Neighborhood* , *Shared Use* , and *Multimodal Mixed-Use* .
49. Maximums vary from 1.00 space/unit (Multimodal Mixed-Use) to 3.00 spaces/unit (Neighborhood). Single-family and duplexes vary from 2.00 to 3.00 spaces/unit. 'Special' residential is generally 1.00 space/unit.
50. Performing Arts Studios have a maximum of 1.00 space/KSF. Same with Cinema.
51. Maximum varies from Multimodal Mixed-Use District (lowest) to Neighborhood (highest).
52. Lumberyard, based on X spaces/KSF of retail area. Building Material Sales are 3.00-4.00 spaces/KSF GFA and Garden Supply Stores are 2.00-4.00 spaces/KSF of retail area.
53. Maximum range for Animal Hospitals/Veternarians. Dry Cleaning varies 1.00-3.00 spaces/KSF . Laundromats are universally 1.00 space/machine.
54. General Merchandise/Retail. Similar ranges for Grocery Stores, Convenience Stores, and Pharmacies.
55. Applies to Restaurants, Take-Out places, and Bars/Taverns. Cafes are evaluated as 1.00 space for every 4 seats. Bakeries are at 3.00 spaces/KSF regardless of district.
56. All Lodging is limited to 1.00 space/KSF GFA.
57. Standard warehouse is 0.00-1.00 spaces/KSF GFA. Retail Warehouse is 3.00-4.00 spaces/KSF GFA. Wholesale Sales buildings are 1.00-2.00 spaces/KSF GFA.
58. 1.00-2.00 spaces base plus 2.00-4.00 spaces/ GFA for patron areas.
59. Taken from City of Ithaca (NY) Code, Part II, Article IV, Section 325-20 (Off Street Parking)D (3). Maximum number of parking spaces required.
60. 1 space for every 3 bedrooms, plus 1 space for every 2 additional bedrooms, plus 1 space for every bedroom above 5.
61. 1 space for every 5 seats for auditoriums or theaters.
62. 1 space for every 5 persons allowed under maximum occupancy
63. 1 space for every 250 sf of 'net assignable floor area' for office or bank space
64. 1 space for every 250 sf of 'net assignable floor area' for medical or dental office
65. 1 space for every 500 sf of 'net assignable floor area'
66. 1 space for every 50 sf of 'net floor area of the assembly space'
67. 1 spaces for every 2 employees on the maximum work shift
68. As taken from Urban Land Institute's Shared Parking:3rd Edition
69. Ratio varies from studio (0.85 spaces/unit) to 1BR (0.90 spaces/unit) to 2BR (1.65 spaces/unit) to 3BR (2.50 spaces/unit).
70. Ratio varies from weekday (0.10 spaces/unit) to weekend (0.15 spaces/unit).
71. Ratio varies from weekday cinema to weekend live theater.
72. Ratios range from weekend (low) to weekday (high)
73. Ratios are all weekday, set on a sliding range according to total square footage. Weekend ratios are roughly 10% of weekday ratios.
74. Ratios are for Home Improvement/Garden Stores on weekdays and weekends.
75. Ratios vary according to total square footage, type of retail, and day of week.
76. Ratios vary according to type of restaurant and day of week.
77. Ratios vary according to day of week.
78. Ratios vary according to type space (Meeting/Banquet vs Convention), ratio of SF to total keys, and day of week.

This practice begs the earlier questions regarding what purpose the parking requirement is meant to serve and what constituency is best served by this methodology. The Portsmouth Zoning Ordinances, like most municipal zoning code, does not cite a source or basis for the individual requirements, so the reader cannot easily discern if this break from conventional approach provides greater accuracy in forecasting true demand for parking or if these requirements are constructed to serve another secondary purpose.

Based on DESMAN's experience working with real estate developers, the approach is likely to cause hesitation on the part of prospective designers and investors, as the number of residential units and the square footage per unit are generally not clearly defined until late in the design process. Most developers know early in the design and approvals process how many units they want to include based on market studies and may even has a clear idea of the composition of these units (e.g., studios, one-bedrooms, etc.) based on these market studies. However, definition of the exact amount of square footage allocated to each unit is often not fixed until production of construction documents, a process which typically starts some time after initial approvals are granted in most communities. If the secondary purpose of the zoning code is to promote development, this current construction may run counter to that objective.

Relative to the other communities reviewed and ULI standards, DESMAN found Portsmouth's actual requirements for residential use to be in line with the comparable set and ULI standards.

Performance Facility – DESMAN found Portsmouth's parking requirement for this land use, which could include live theater and cinemas among other land uses, to be in line with comparable communities and ULI standards. DESMAN also appreciated that the Portsmouth code included an alternate requirement for Places of Assembly which based requirements of building capacity for those venues without fixed seating.

Health Club – Portsmouth bases minimum parking on a ratio of one parking space for every 250 square feet of gross floor area, which results in a ratio of 4.0 spaces/KSF. This is actually lower than the ULI standard, but consistent with upper end of the maximum parking allowances set by Burlington, VT. Salem, MA has no specific "Health Club" parking requirement, but rather a requirement of 1 parking spaces for every 36 square feet of floor space for "Places of Commercial Recreation" which results in a ratio well in excess of both ULI standards and the rest of the comparable set. Ithaca, NY does not have a parking minimum, but imposes a parking maximum of one space for every 5 occupants based on the building's maximum occupancy. At this time, DESMAN does not advocate for adjusting this requirement, but does recommend the city undertake a study of existing health clubs to validate the current requirement against actual practices.

General Office – The Urban Land Institute and the Institute of Transportation Engineers have compiled hundreds of studies of existing office buildings conducted over the prior five decades for the purpose of delivering a recommended ratio of parking spaces to gross floor area which is based on empirical data. As part of that process, both groups have noted that parking demand fluctuates according to the total amount of square footage devoted to office space contained with a project, with the ratio of spaces needed for every 1,000 square feet generally declining as the total square footage increases. Depending on the size of the office component, the ULI has indicated 2.80 spaces/KSF and 3.93 spaces/KSF.

Portsmouth's minimum parking requirements fall within this range, albeit at the lower end. The minimum parking requirements for office in Portland, ME are slightly lower than Portsmouth, while the parking maximums imposed by Dover, NH, Burlington, VT, and Ithaca, NY are generally aligned with both Portsmouth and the ULI. Salem, MA actually based their parking requirement off the number of employees in each building, providing no clear basis for comparison.

At this time, DESMAN does not advocate for adjusting this requirement. However, changes in workplace and commuting patterns caused by greater adoption of remote-work and hybrid-work arrangements would suggest that true peak hour parking demand generated by office buildings may be significantly less than industry standards would indicate, as the data used to inform these ratios is not reflective of current conditions. DESMAN would recommend the City of Portsmouth design and execute a study of existing office buildings in the downtown as well as outlying suburban areas to discern if the current requirements are truly reflective or if they warrant adjustment.

Medical Office – The Urban Land Institute (ULI) currently promotes a parking demand ratio of 4.60 parking spaces per every 1,000 square feet of Gross Floor Area (GFA) for Medical/Dental Office space in Shared Parking: 3rd Edition (2020). This ratio is adopted from the Institute of Transportation Engineer's (ITE) Parking Generation manual, which analyzed the results of 117 studies of stand-alone, existing Medical and Dental Office buildings[4] conducted during the 1980s, 1990s, 2000s, and 2010s conducted across sixteen U.S. states[5] as well as British Columbia. The accuracy of this ratio has been challenged due to the age of some of its underlying data. A 2007 article in the ITE Journal[6] showed that an independent study of 50 medical office buildings conducted nation-wide in the early and mid-2000's resulted in a recommended parking demand ratio of just 4.21 spaces/KSF.

Portsmouth's parking requirement for 1 parking space for every 250 SF GFA (4.00 spaces/KSF) appears appropriate given the preceding. It is certainly aligned with the parking maximums in place in Burlington, VT and Ithaca, NY but near twice the parking minimum for medical office imposed by Portland, ME. The parking minimum for Salem, MA is based on ratios of parking spaces needed by practicing professional in each building and Dover, NH set their maximum against the number of exam rooms, so there is no way to correlate these values against Portsmouth's minimum requirement.

The intensity of parking demand for medical offices can vary widely depending on the practices contained therein. A psychology practice and a pediatrics office can occupy the same gross floor area, but the psychology practice may only generate demand for 3-4 parking spaces at peak, while the pediatrics practice could require parking for 2-3 times that amount to accommodate practitioners, support staff, patients being seen, as well as patients and visitors waiting to be seen. DESMAN does not recommend eliminating the current minimum in place, but would suggest the city consider adding language to the ordinance indicating that a developer submitting a parking demand analysis specific to this land use, based on anticipated tenancy and studies of comparable existing practices, may qualify for a reduction in parking required should the study support that finding.

Consumer/Trade Services – This land use appears to be unique to the Portsmouth code, although DESMAN was able to find parking maximums in Burlington, VT specific to Lumberyards, Building Materials Sales, and Garden Supply Store and parking demand ratios recommended by ULI for Home Improvement/Garden Stores which appeared to general align with the description included in the Portsmouth zoning code. None of the other communities had any land use in their code comparable to this category. Portsmouth's parking minimums for this land use fell in the middle of the range of parking

[4] Defined as "a facility that provides diagnosis and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility."

[5] CA, CT, FL, GA, IL, IN, MD, MA, MN, NJ, NY, OH, PA, TN, TX, and WA.

[6] Dorsett, John W. and Lukasick, Mark J. "*Parking Requirements for Medical Office Buildings*" **ITE Journal**. Volume 77, Issue 8, Institute of Transportation Engineers. August 2007, pp. 40-43

maximums set forth by Burlington, VT, but below the parking demand ratios recommended by ULI. Given that the parking requirements are minimums and the developer can elect to build more parking than the recommended ratio, we do not recommend any revision at this time.

Veterinary Care/Laundry Services – This land use appears to be unique to the Portsmouth code, although DESMAN was able to find parking maximums in Burlington, VT specific to Animal Hospitals/Veterinarian offices as a stand-alone use and Dry Clean facilities as a stand-alone the use. The lower end of the parking maximums mandated by Burlington aligned with the parking minimums required by Portsmouth. None of the other communities nor the ULI had any land use in their code comparable to this category.

Retail Store – The Urban Land Institute and the Institute of Transportation Engineers have compiled hundreds of studies of existing retail establishments conducted over the prior five decades for the purpose of delivering a recommended ratio of parking spaces to gross floor area based on empirical data. As part of that process, both groups have noted that parking demand fluctuates according to the type of retail store as well as the total amount of square footage devoted to retail space contained with a project, with the ratio of spaces needed for every 1,000 square feet generally declining as the total square footage increases. Depending on the type of retail store and/or size of the retail component, the ULI has indicated 2.80 spaces/KSF and 4.90 spaces/KSF. Portsmouth's minimum parking requirement falls squarely within this range at 1 parking space for every 300 sf GFA (3.33 spaces/KSF).

The minimum parking requirements for Portland, ME are progressive, mandating 1 parking space for every 200 sf of GFA up to the first 2,000 sf, and then 1 space for every 700 sf GFA thereafter, resulting in a range of 1.43-5.00 spaces/KSF depending on the size of the retail. Salem, MA sets the minimum requirement for parking for retail shops at 1 space for every 150 sf GFA (6.67 spaces/KSF), but excludes areas of the store used for storage from the calculation, limiting the application of the requirement to just the sales floor and front-of-house areas. Dover, Burlington, and Ithaca all promote parking maximums between 2.00 and 4.00 spaces/KSF.

At this time, DESMAN does not advocate for adjusting this requirement. However, changes in shopping patterns and behaviors caused by greater adoption of e-commerce suggest that peak hour parking demand generated by bricks-and-mortar retail may be significantly less than industry standards would indicate, as the data used to inform these ratios is not reflective of current conditions. DESMAN would recommend the City of Portsmouth design and execute a study of existing retail establishments in the downtown as well as outlying suburban areas to discern if the current requirements are truly reflective or if they warrant adjustment.

Restaurants/Bars – Portsmouth requires each eating and drinking place provide at least 1 parking space for every 100 sf GFA which translates to 10.00 spaces/KSF. This is substantially more than the parking maximums levied in Burlington (3.00-5.00 spaces/KSF depending on zone) but aligned with the parking maximum used by Ithaca. Dover has no parking maximum specific to restaurants or bars within their code and Salem calculates minimum requirements using a base requirement of 15 spaces for each restaurant plus one parking space for every two employees. The ULI recognizes three different types of restaurants independent of bars and taverns; depending on the day and type of establishment, parking demand ratios range from 14.40 spaces/KSF to 18.75 spaces/KSF, albeit without mitigation from diners or staff using modes of transportation other than a private vehicle and/or the capture of patrons already parked at one land use (such as a residence or place of business) in the area walking to the business to take a meal. As Portsmouth is subject to both these mitigating factors, DESMAN believes the current requirement is appropriate and does not require modification or additional study.

Hotel and Related Uses – Portsmouth has parking minimums specific to hotel guests and staff which are based on a ratio of spaces per room as well as parking minimums specific to hotel lounges or restaurants and hotel meeting/event spaces, which are both based on a ratio of spaces to square footage. In Portsmouth, these parking requirements translate to ratios of 1.25 parking space per guest room, 10.00 parking spaces per KSF of lounge/restaurant space, and 40.00 parking spaces per KSF of meeting/event space. The ULI promotes parking demand ratios similar but lesser than these requirements of 1.15 spaces/guest room, 7.87-9.00 spaces/KSF for lounge/restaurant, and 6.00-32.00 spaces/KSF for meeting/event space[7].

Among the comparable communities, only the Dover code addressed parking related to hotel space exclusive of guest rooms and then only by a parking maximum of 1 space for every 500 sf of 'common space' within the hotel. Portland's parking minimum for hotel rooms was one space for every four guestrooms (0.25 spaces/room) and Salem's parking minimum was one space per room plus one space for every two employees. Dover's parking maximum for hotels was 1 space per room plus 1 space for every employee on duty during the busiest shift while Ithaca imposed a parking maximum of 1 space per room without any accommodation for employees. Burlington based their parking maximum on a ratio of one space for every 1,000 sf GFA in the hotel.

DESMAN would recommend the City of Portsmouth design and execute a program of study of existing hotels with the purpose of evaluating the appropriateness of existing parking minimums specific to hotels and their included components. This analysis suggests that current requirements may be overly conservative, resulting in an oversupply of parking in some instances.

Wholesale/Warehouse – Portsmouth's minimum parking requirement for this land use is one parking space for every 2,000 sf GFA. Portland does not carry a minimum parking requirement germane to these uses within its zoning code and Salem's minimum parking requirement is based on 1 space for each company vehicle plus 1 space for every 2 employees plus 1 space for every 1,000 sf GFA, excluding storage areas. Dover has no parking requirement specific to these uses, Burlington caps parking at somewhere between 1.00 and 4.00 spaces/KSF depending on the type of wholesale or warehouse, and Ithaca bases it parking maximum on the number of employees working the largest shift. ULI does not have any comparable parking demand ratios for these land uses. At this time, DESMAN does not recommend modification of this requirement or further study to confirm its accuracy.

Industrial – Portsmouth's minimum parking requirement for this land use is 1.00-2.00 spaces/KSF depending on whether the building is dedicated to light industry, labs, or R&D (1 space/500 sf GFA) or general manufacturing (1 space/1,000 sf GFA). Portland requires one space for every 1,000 sf GFA beyond the first 3,000 sf, not including retail areas. Salem does not have any comparable requirement. The maximum set by Dover is based on a ratio of 1 space for every 800 sf of Gross Leasable Area and the maximums imposed by Burlington vary from 1.00-2.00 spaces/KSF depending on district, plus 2.00-4.00 spaces/KSF GFA for patron areas. The ULI does not have a recommended demand ratio for this use. At this time, DESMAN does not recommend modification of this requirement.

[7] ULI parking demand ratios for hotel restaurant and event space occur on a sliding scale, based on a ratio of land use square footage divided by the number of keys in the hotel. The lower the ratio of square footage to each key, the lower the demand ratio and vice versa.

Features

Within zoning code, the parking minimums or maximums set a floor or ceiling on the number of parking spaces to be provided by land use. In most cases, total parking required or allowed is based on calculating the impact of each land use and summing the result to achieve a target number of minimum or maximum allowed spaces for the project. The *features* within the zoning code are those mechanisms which allow the applicant mechanisms to reduce their parking requirement or exceed the parking maximum allowance. These features can include the following:

- ***Conditional Use Waivers*** which allow the applicant to provide less parking than required or exceed maximum allowances through a defined hearing process.
- ***Ratio Modification*** which allows applicant to apply for changes in the prescribed parking requirements specific to one or more land uses if they demonstrate their project has unique needs which current requirements do not recognize.
- ***Reserve Mitigation*** which allows applicants to hold of on building a portion of the required parking for the project until a later date if or when those spaces are needed.
- ***Parking Maximums*** set a limit on the amount of parking an applicant can include with their project. Parking maximums are sometimes used in tandem with parking minimums, but can also take the place of parking minimums allowing the applicant to build as little parking as they feel is appropriate but not more than the municipality has determined is appropriate for their project.
- ***Intrafacility Shared Use*** allows an applicant to demonstrate that the combination of land uses within their project exerts less demand than the sum of its requirements and provides a mechanism to seek a waiver against those requirements.
- ***Interfacility Shared Use*** allows the applicant to meet some or all of their parking requirement by demonstrating they have an agreement in place to use excess capacity available in a private parking facility owned by another party and/or attached to a separate building. Applicants seeking this relief must demonstrate that the agreement to 'share' parking with another party will not displace existing users parking in the facility, provides enough capacity to accommodate the new development when needed, and is supported by some form of legally binding agreement between both parties.
- ***Remote Parking*** arrangements allow an applicant to meet some or all of their parking requirements by use of off-site facilities some distance from the project site. In addition to meeting many of the conditions imposed on an applicant seeking relief through an interfacility shared use agreement, remote parking arrangements are often subject to limitations on the maximum allowable distance between the project site and parking facility and/or requirements for providing connecting shuttle services between the project and the parking facility.
- ***District Waivers*** are commonly established by the municipality to ease or eliminate parking requirements or restrictions on one or more land uses within a particular area of the municipality. These waivers are usually granted automatically to any developer advancing a project in these areas and/or inclusive of targeted land uses.
- ***Bicycle Requirements*** reference the inclusion of bicycle parking requirements included within the code. These requirements may mandate the number of bicycle spaces needed for different land uses, but may also include design and construction standards for bicycle parking facilities as well.

- ***Transit Mitigation*** features allow applicants to reduce their parking requirement by demonstrating that, by either merit of location and/or implementation of programs or initiatives, parking need in their project will be reduced below requirements by a percentage of tenants using mass transit instead of personal vehicles.
- ***Car Share Mitigation*** features allow applicants to reduce their parking requirement by including an on-site car share service for use by residents, thereby reducing parking demand for personal vehicles. Most commonly these are presented as an exchange (e.g., one car-share vehicle is worth X of parking spaces).
- ***Other Mode Mitigation*** features allow applicants to reduce their parking requirement by including elements within the project that support the use of alternative modes of transportation outside bicycles, transit, and car-share services. Often these elements include programs to support the use of other modes of transportation such 'free ride home' programs, ride matching services, preferred parking for carpools or vanpools, etc.
- ***Public Supply Credits*** allow applicants to meet some or all of their parking requirement through the use of publicly owned off-street parking facilities near their project with the demonstrated capacity to accommodate the applicant's project.
- ***On-Street Credit*** allows applicants to count the curbside spaces surrounding their project site against their total parking requirement.
- ***In Lieu Payment Options*** allow applicants to purchase waivers against their parking requirement. The funds from these purchases are deposited into a municipal fund used to make parking and/or transportation improvements that mitigate any overflow from the project.

A comparison of the features present in Portsmouth's code as well as the five comparable communities is included on the following page as ***Table 3***.

The quality of these features is measured not just in whether they are included within the zoning code, but also how accessible and assured they are. This is an important distinction to a prospective applicant weighing a potential investment in one community versus another. The applicant not only wants to know that relief is allowed under one or more of these features, but is also looking for a clear process for applying for the relief and reasonable assurances that, if they follow the process correctly and their project meets criteria, they will receive a predictable degree of relief.

This comes back again to the question of whom the code is written to benefit. A prospective developer views the site and/or design approval process required by a community as a period of sunk costs which may never be recovered. During the process of site and/or design approval, the developer is only losing money with no guarantee that the project will advance. Anything a municipality can do to expedite this process makes it more attractive to prospective developers. Clearly written code that details what the feature is and the process required to access the feature, as well as templates or other standardized tools to facilitate quick and correct filing, will attract developers. Code features which include clear and reliable exchange rates will also be more attractive to developers. Simply put, developers want to invest their time and focus on permitting efforts that they believe will advance quickly, with a minimum of complications, and deliver predictable results.

Table 3: Zoning Code Features

Feature	Portsmouth, NH	Portland, ME	Salem, MA	Dover, NH [34]	Burlington, VT [42,43]	Ithaca, NY
Conditional Use Waiver [1]	Yes [2,3]	No [12]	No [22]	No [27]	No [35]	No
Ratio Modification	Yes [4]	No	No	No	No	No
Reserve Mitigation	Yes [5]	No	No	No	No	No
Parking Maximum	Yes [6]	No	No	Yes [27]	Yes	Yes
Intrafacility Shared Use	Yes [7]	Yes [13]	No	No	No	Yes [44]
Interfacility Shared Use	Yes [8]	Yes [14]	Yes [23]	Yes [28]	No [36]	No
Remote Parking	Yes [9]	Yes [15]	No	Yes [29]	No [36]	Yes [45]
District Waivers	Yes [10]	Yes [16]	Yes [24]	No	No	Yes [46]
Bicycle Requirements	Yes [11]	Yes [17]	No [25]	Yes [30]	Yes [37]	Yes [47]
Transit Mitigation	No	Yes [18]	No	No [31]	No	No
Car Share Mitigation	No	Yes [19]	No	No	Yes [38]	No
Other Mode Mitigation	No	Yes [20]	No	No	Yes [39]	No
Public Supply Credit	No	No	Yes [26]	Yes [32]	No [40]	No
On-Street Credit	No	No	No	No [33]	No	No
In Lieu Payment Option	No	Yes [21]	No	No	No [41]	No

Notes:

1. Allows developer to provide < minimum requirement or > maximum requirement with Planning Board Approval
2. Applicant must present a parking demand analysis reviewable by C-TAC and the PB demonstrating adequacy
3. Applicant must demonstrate demand reduction through alternative modes and/or shared use
4. Applicant can request reduction to a specific ratio based on parking demand analysis demonstrating lesser need
5. Board can approve a reduction for requirement > 20 spaces if applicant can demonstrate adequate open space to create full requirement if needed
6. No maximum imposed on projects requiring < 21 spaces, not more than 120% of minimum for projects requiring > 20 spaces
7. Applicant is provided with a methodology for calculating reductions relative to parking minimum requirements
8. Applicant is provided with instructions, but not forms, for executing a shared use agreement, which must still be approved via conditional use
9. All required parking must be on-site unless a) parking is provided in a public and/or private/public structure built specifically for the project or b) required supply is provided in a lot owned by the applicant within 300' of the project site.
10. All non-residential requirements waived in Downtown Overlay District except for hotel (reduced to 0.75 spaces/room). Residential requirements remain intact. Projects with requirements are subject to a 4 space 'discount'. Projects which require 4 or fewer parking spaces may have the entire requirement waived
11. Ordinance dictates bike parking requirements and waivers
12. Planning Board may reduce parking requirement for workforce/low-income housing to less than 1.00 space/unit and limit parking around historic structures to the supply in place as of 3/15/1999. Accessory dwelling units are exempt from parking requirements.
13. Referred to a "Joint Use" in the ordiances, it is allowed, but no methodology or mechanism is provided.
14. Allowable procedures are included under "Off-Site Parking" (19.1.6), but no forms/templates.
15. Off-site parking in residential zones may not be > 300' from project site, not > 1,500' in non-residential zones
16. Portland Land Use Code provides "Zone-Based Vehicular Exceptions" for fourteen different zones, often varying by residential and non-residential land uses.
17. Code requires 2 bike spaces per unit for residential uses, 2 bike spaces for every 10 parking spaces up to the first 20 parking spaces, then 1 bike space/20 parking spaces thereafter for non-residential uses.
18. No off-street parking is required for developments within 0.25 miles of fixed route transit service, but must provide a Transportation Demand Management plan.
19. For multi-family residential buildings, each car share vehicle shall be equal to an 8-space reduction in off-street parking required.
20. The Planning Board may establish a reduced parking requirement for mutli-family housing if the Applicant can demonstrate that parking need is less than minimum requirements due to unique conditions such as housing for persons who cannot drive, resident participation in a Transportation Demand Management program, or a project which mandates permanent restrictions on automobile usage by residents. Applicant must agree that tenants are exempt from utilizing resident on-street parking stickers.

Notes:

21. Applicants can buy out of parking requirements at a minimum of $5,000/space. In lieu fees are deposited in the city's Sustainable Transportation Fund.
22. Salem offers blanket waivers of parking requirements for places of worship and institutions of higher education, with the of Salem State University.
23. Shared parking agreements as subject to a Board of Appeals review to assure land uses are complimentary, and are allowed under a special permit only.
24. Non-residential uses in the Central Development (B5) District are not subject to a parking requirement; residential units must provide 1.00-1.50 spaces/unit .
25. Salem does not include bike parking requirements in its zoning code, but does offer "Bike Parking Guidelines" to developers encouraging the practice.
26. Within the Central Development (B5) District, developers may use 'municipal or other parking facilities' to satisfy some or all of the parking requirement if a) the development is within 1,000 linear feat of the project and b) the developer purchases annual parking passes in the facility equal to the mitigation being sought.
27. Parking requirements presented in Dover's Parking Regulations Table are both minimums and maximums. Applicants wishing to provide more than the required number of spaces must apply for a Conditional Use Permit and demonstrate why the additional spaces are needed in a public hearing.
28. "Parking spaces in the CBD-G and CWD Zoning Districts may be located off-site…or leased from a private landowner."
29. In residential districts, parking must be on or adjacent to the project site; in non-residential districts, parking must be within 500' of the project site.
30. Dover requires applicants provide bicycle parking equal to 5% of total standard parking spaces required.
31. Within the CBD-G, where mass transit service is present, applicants can dedicate the whole of parking requirements for non-residential uses to employees. However, no actual reduction in requirements is allowed specifically for proximity to transit services or stops.
32. Applicants can meet some or all of their requirements by executing a lease for parking in a municipal parking facility.
33. Code states that, 'where appropriate.' utilization of and construction of on-street parking is encouraged, but does not provide a mechanism for creditting on-street parking against the requirements.
34. The code includes extensive regulations (153-14D(3)) regarding mandatory provision of Electric Vehicle Supply Equipment (EVSE), introduced 7/27/2021.
35. As Burlington has no parking minimums, waivers are submitted only to exceed the prescribed maximums .
36. Burlington allows for shared parking in off-site faciiliies to meet project needs, but prohibits creation of an off-site facility to serve as parking.
37. Burlington has an extensive secction (Part 2 of Article 8) on Bicycle Parking minimum requirements.
38. Spaces set aside to service carpools, vanpools, and/or car-share services do not count against the parking maximums.
39. Burlington requires creation and filing of a TDM plan (Section 8.1.16) for any project containing 10 or more residential units and/ or a bulding footrpint of 8,000 sf or more and/or total nonresidential GFA of 15,000 sf or more. Portions of 8.1.16 also apply to affordable housing projects and/or residential projects with 5-9 units.
40. Spaces open to use by the general public on at least nights and weekends are not counted against the parking maximums.
41. Burlington does allow for a Payment In Lieu option (Sec8.2.7) for bicycle parking minimums.
42. Burlington will allow use of stacked and/or tandem parking under certain restrictiions (8.1.14).
43. Institutions are subject to separate regulations (Part 3) and approval process before the Design Review Board (DRB) when filing an application.
44. Land uses with complimentary use cycles can be approved for 'joint use' with the approval of the Director of Planning and Development and/or the Planning Board.
45. Parking must be within 125 linear feet of the project for residential uses, 250 linear feet for mercantile uses, or 500 linear feet for all other uses.
46. There are no parking requirements for the B-1b, B-2c, CBD, WEDZ-1a, We/WF, CSD, ND, MD, MU,
47. Bicycle parking requirements are acutally listed on Chapter 276 (Site Plan Review).

The preceding guidelines are fine for the municipality seeking to use its zoning code as a tool for encouraging growth and investment as the highest priority. However, for those communities which see zoning code as a tool for maintaining control over new development first and foremost, features which:

- Mandate final approval may only be granted by an overseeing body;
- Note that relief may be granted, but not in any predictable amount;

- Require the applicant to provide a study or other documentation to support their application, but do not define how the study must be conducted or what the documentation must address; and/or
- Fail to include metrics describing a valid or favorable application all serve as mechanisms to slow the permitting process down.

Ambiguity and unpredictability both serve the municipality in as much as they allow the permitting agency to control the process and determine the grounds for approval for those applicants with adequate incentive to stay through the process.

For this analysis, DESMAN looked at each of these features relative the code for Portsmouth and the other five municipalities and sought to identify areas where Portsmouth's code could be improved through modification of the existing language or adoption of language from one of the comparable communities. In each case, where recommendations were made, DESMAN identified the basis for the recommendation and/or the anticipated value to Portsmouth for accepting the recommendation.

Condition Use Waiver

Portsmouth was the only municipality with a defined process for applying for a reduction in parking requirements via Conditional Use Waiver. Portland, ME and Salem, MA offer automatic and/or elective waivers for certain land uses against parking minimum requirements, but not a process for applicants seeking relief specific to their project. Dover, NH, Burlington, VT, and Ithaca, NY all have parking maximums instead of minimums and their condition use waiver processes are focused on seeking allowances to increase the number of spaces allowed, rather than decreasing the number of spaces needed.

Sections 10.1112.14 through 10.1112.144 authorize the Planning Board to grant conditional use waivers and describe the process the applicant must follow in seeking approval for the waivers. After review, DESMAN has the following comments:

a. Section 10.1112.141 states the applicant must submit a parking demand analysis for review by the City's Technical Advisory Committee, but does not define what the analysis must include, preferred methodology or approaches for executing the analysis, or metrics for judging the analysis adequate to satisfy the Technical Advisory Committee.

b. Section 10.1112.142 states the application must "identify permanent evidence-based measures to reduce parking demand" and goes on to list mechanisms for reducing parking demand, but never defines what constitutes "evidence-based measures" or provides any metric for the applicant to judge whether their submittal complies with this language.

c. Due to the lack of defined processes and metrics, there is no subjective criteria for predicting whether the Planning Board will find the number of proposed parking spaces are "adequate and appropriate" under Section 10.1112.143 nor any way to predict if Board will accept, reject, or modify the applicant's parking analysis.

d. The phrase "At its discretion" should be stricken from 10.1112.144 and replaced with clear statement of conditions under which an application may be accepted or rejected.

Ratio Modification

Only Portsmouth's code includes a provision allowing for modification of parking demand ratios specific to a particular land use (Section 10.1112.323). As with 10.1112.141, DESMAN would request a clearer definition of the necessary components, features, or methodology that should be included within the

referenced parking study to assure acceptance of the study by the Planning Board during the review process.

Reserve Parking Area
Only Portsmouth allows applicant to mitigate parking requirements through 10.1112.40. DESMAN found the language in this section to be clear and easy to understand and recommends no change.

Parking Maximums
Of the three communities imposing parking minimums, only Portsmouth also included parking maximums on their code. DESMAN has no issue with the language, but would suggest the City of Portsmouth consider adding a restriction which states under what conditions that parking provided beyond the minimum, but allowable under the maximum, can be used as commercial (i.e., fee-for-use) parking.

Intrafacility Shared Use
Intrafacility Shared Use, also referred to as 'joint use,' is authorized in Portsmouth, Portland, and Ithaca, but only the Portsmouth code (10.1112.62) provides details on how an applicant can seek relief under this feature. This feature could be improved upon by providing greater specifics regarding how a shared parking agreement should be structured[8] as well as template[9] for creating approved shared parking agreements between parties. The links attached to the footnotes at the bottom of this page will take the reader to regulations and forms used by the City of San Diego to establish shared use between properties.

Interfacility Shared Use
The zoning code for Portsmouth, Portland, and Salem all authorize the use of a shared parking approach within a project to demonstrate grounds for a reduction in parking requirements when appropriate. However, only Portsmouth includes a clear methodology (10.1112.61) for seeking relief under this feature. DESMAN finds this section of the code to be exemplary and commends Portsmouth on its inclusion.

Remote Parking
Portsmouth, Portland, Dover, Burlington, and Ithaca all included language in their code defining the allowable distance between a project and the parking facility serving the project. DESMAN did not find issue with the language contained in this section (10.1113.10) nor did we find the language included in the other communities superior to Portsmouth code.

District Waivers
Portsmouth, Portland, and Salem all offered some form of waiver against parking minimums for specific land uses within one or more defined districts. Ithaca actually offers blanket waiver of both parking minimums and maximums in nine different districts. DESMAN did not find issue with the language contained within 10.1115 and cannot recommend any revisions or additions to the feature at this time.

Bicycle Parking
Only Salem, MA does not include bicycle parking requirements within their code; the city has adopted "Bike Parking Guidelines" which developers are encouraged to incorporate into their projects, but has no mechanism mandating the provision of bike parking or bike parking facilities. Section of 10.1116 of the

[8] https://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art02Division05.pdf - See Section 142.0545 (Shared Parking Requirements).

[9] https://www.sandiego.gov/sites/default/files/legacy/development-services/pdf/industry/forms/ds267.pdf

Portsmouth code clearly defines parking requirements by land use and Article 5 of the Portsmouth Site Plan Review Regulations does a serviceable job of describing how bicycle parking facilities should be located and designed. However, the City of Burlington's Bicycle Parking Requirements[10], which have adopted the Association of Pedestrian and Bicycle Professionals "Essentials of Bike Parking"[11], represents outstanding and exemplary presentation of comprehensive parking requirements and design standards for bicycle parking and should be considered a model for Portsmouth in expanding and improving on its current code.

Transit Mitigation

Only Portland includes language in its Land Use Code[12] allowing for a waiver of parking requirements for projects in proximity to transit service. Portsmouth's code does not currently include such a feature.

Car Share Mitigation

Only Portland includes language in its Land Use Code[13] allowing for a waiver of parking requirements for multi-family residential projects which include a car share service as part of their design. Portland allows applicant to waive up to eight required parking spaces for each shared-use vehicle located on the project site. Portsmouth's code does not currently include such a feature, but the city should consider adopting such a code in the near future.

Other Mode Mitigation

Only Portland includes language in its Land Use Code[14] allowing for a waiver of parking requirements for multi-family residential projects which can demonstrate parking demand less than parking requirements due to "unique conditions." Portsmouth's code does not currently include such a feature, but the city should consider adopting such a code in the near future.

Public Supply Credit

Only Salem, MA allows applicants to satisfy minimum parking requirements through the execution of long-term leases for parking in municipal lots or garages[15] and only in their Central Development District for new residential development under strict terms. DESMAN does not recommend adoption of this language into the Portsmouth code at this time.

On-Street Credit

None of the municipal codes reviewed allows the public on-street parking spaces adjacent to new projects to be credited against minimum parking requirements. This initiative appears to be more prevalent in municipalities in the Mid-Atlantic states.

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[10] https://www.burlingtonvt.gov/sites/default/files/20201021%20ART08-Parking_0.pdf – Section 8.2.4

[11] https://www.apbp.org/assets/docs/EssentialsofBikeParking_FINA.pdf

[12] https://content.civicplus.com/api/assets/a5dcd1dc-4117-40b3-b3da-74a56919e14b?cache=1800 – Table 19-B: Categorical Exceptions to Off-Street Parking Minimums. Transit Proximate Development and Uses

[13] https://content.civicplus.com/api/assets/a5dcd1dc-4117-40b3-b3da-74a56919e14b?cache=1800 – 19.1.4: Share Use Vehicles

[14] https://content.civicplus.com/api/assets/a5dcd1dc-4117-40b3-b3da-74a56919e14b?cache=1800 - Table 19-B: Categorical Exceptions to Off-Street Parking Minimums. Multi-Family Housing

[15] https://library.municode.com/ma/salem/codes/zoning_ordinance?nodeId=S5.0GERE_5.1OREPA – 5.1.9.2.d-e

In Lieu Payment Option

At one time, Portsmouth code included this feature, but it was removed due to lack of interest. Portland continues to offer it in its Land Use Code[16] allowing applicants to 'purchase' waivers against their minimum parking requirements through contribution to a dedicated fund set up to pay for parking and transportation improvements.

In DESMAN's experience, the use of payment in lieu options is influenced by the density of the particular area, the cost of land, the elasticity of demand for new development, as well as minimum parking requirements. In dense urban cores where land is very rare and expensive and the market for new development is strong such as San Francisco, CA or New York, NY, a prospective developer may be driven to adopt a payment in lieu option simply so they can maximize development of higher and better land uses on their parcel and shift the cost of acquiring land to build parking onto the municipality. In these instances, the cost of the in-lieu fees can approach the construction cost of structured parking on a per space basis and still remain attractive for applicants.

In less dense areas, in lieu payment options only attract developers if the fee per space is lesser than what they might pay to put parking on their project site, and then only if the market is strong enough that not including on-site parking at part of the development is not seen as a liability by lenders, investors, and/or potential tenants. In the case of Portsmouth, it is DESMAN's theory that lenders and prospective tenants both reacted unfavorably to development proposals that did not include enough on-site and/or dedicated parking to meet market standards for residential and hotel projects, thereby reducing interest among applicants in the Downtown Overlay District subject to minimum parking requirements. Outside this district, where all land uses are subject to parking minimums, the cost of land and the density of development has not yet reached a critical mass were displacing the provision of parking onto a public agency appears to be good decision from a cost/benefit perspective.

Other Features

The City of Dover, NH has recently adopted language[17] mandating the provision of Electrical Vehicle Supply Equipment (EVSE) and dedicated charging spaces as part of their Site Design and Development Criteria. Portsmouth should consider adopting similar language to its zoning code in the near future. Other models for consideration would include the Great Plains Institute's "Summary of Best Practices in Electric Vehicle Ordinances"[18] and the Southern Maine Planning & Development Commission's "Model Ordinance for Electric Vehicle Infrastructure"[19].

The City of Burlington, VT substantially revised their zoning code as it applies to parking in early 2023 when City Council voted to eliminate all parking minimums and adopt parking maximums instead. Two sections in the updated code[20], 8.1.16 (Transportation Demand Management) and Part 3 (Institutional Parking Plans), should be reviewed by city leaders and considered during the next update of zoning code. Both sections include clear, smart, easy-to-understand language on how to develop, review, approve,

[16] https://content.civicplus.com/api/assets/a5dcd1dc-4117-40b3-b3da-74a56919e14b?cache=1800 – 19.1.17 and 19.3.1-19.3.3

[17] https://ecode360.com/33400413 - 154-14.D(3)

[18] https://www.betterenergy.org/wp-content/uploads/2019/06/GPI_EV_Ordinance_Summary_web.pdf

[19] https://smpdc.org/vertical/Sites/%7B14E8B741-214C-42E2-BE74-5AA9EE0A3EFD%7D/uploads/model_EV_infrastructure_ordinance_FINAL.pdf

[20] https://www.burlingtonvt.gov/sites/default/files/20230215%20ART08-Parking_1.pdf

adopt, and administer parking management programs which promote more sustainable modes of transport.

APPENDIX C

DATE: *Tuesday, January 14, 2025*

TO: *Benjamin Fletcher; Peter Rice; Peter Britz; Jillian Harris; Eric Elby: Mike Casad; Sean Clancy (City of Portsmouth)*

CC: *Parking Utilization Advisory Group; Holly Parker (SLR); Jerry Salzman (DESMAN)*

FROM: *Andrew S. Hill and Reese King-Hill, DESMAN Design Management*

PROJECT: *City of Portsmouth* **PROJECT #:** *20-23121.00-3*

RE: *Task 3 Report – Future Needs*

Introduction

The consulting team worked with the City of Portsmouth to identify emerging developments likely to impact parking supply and demand dynamics within the defined study area over the coming decade and developed impact analysis using industry standard methodologies to project future parking supply and demand conditions. The following section summarizes this work.

Methodology

Land use is a planning term applied to describe how a particular plot or building is being used. Types of land uses include retail stores, restaurants, office buildings, residential complexes, etc. Within each major type of land use there can be sub-types; for example, the general heading of a 'retail store' can apply to everything from a neighborhood convenience store to a big-box retailer. Land use is what generates parking demand; after all, one does not need parking for vacant lot.

Different land uses have different intensities of demand. For example, a single residential unit may occupy 1,000 square feet of area, but only need 1-2 parking spaces to support it, whereas the same 1,000 square feet used for an office might need 3-4 parking spaces. These different land uses also have different demand dynamics; the residential unit will require its 1-2 parking spaces on evenings, overnight, and weekends while the office space will require its 3-4 parking spaces on weekdays during business hours for the most part.

In order to project how much parking might be needed in the future, the consulting team had to develop an analysis of parking needs based on emerging developments; that is, projects which were likely to alter existing parking supply and/or demand relative to current conditions. The consulting team worked with the City of Portsmouth's Planning and Sustainability Department, Department of Parking and Transportation, and the Economic and Community Development Department to develop an understanding of emerging developments which might:

- Displace existing land uses (thereby reducing parking demand) over the next decade;
- Introduce new land uses (thereby increasing parking demand) over the next decade;

- Covert existing buildings into new land uses which increase and/or reduce parking demand relative to existing conditions ;
- Displace existing parking spaces (e.g., reduce supply) and/or introduce new parking facility (i.e., increase parking supply); and/or –
- Change modal patterns (i.e., the mode of transportation used to travel) over the next ten years.

Information regarding emerging developments was developed from project plans currently under construction, plans already filed with the City, projects being negotiated with city or regional planning staff members, prior planning and transportation studies news articles, and other information as provided by the city. The consulting team organized this information into three 'planning horizons' consisting of *near-term* projects (i.e., those likely to be complete in the next 4 years), *mid-term* projects (e.g., those likely to be complete in the next 5-7 years), and *long-term* projects (i.e., those not likely to be complete for 8-10 years).

All future demand projections and conclusions regarding adequacy of parking supply to meet these needs were predicated on the following core assumptions:

1. Zoning requirements specific to parking were unchanged from current conditions.
2. Current municipal parking policies and practices remain intact going forward.
3. Absorption of private parking supply by future parkers was only assumed where specific buildings or projects had existing and/or planned parking facilities specifically allocated for their use.
4. Parking demand was assigned to the block upon which land uses were located. In many cases, this resulted in projections of substantial parking supply shortfalls or excesses which were not reflective of actual usage patterns or observed parker behavior. This is common in urban settings.
5. Future demand projections on the prior iteration analyzed. For example, the incremental increase in demand created by absorption of existing land uses that were vacant at the time when occupancy counts were performed is presented as peak hour current conditions plus the impact of vacant space absorption. Projections for near-term emerging developments incorporate land uses under existing conditions plus those assumed to be absorbed when projecting peak hour demand.
6. In all cases, future parking conditions are presented as representative of the busiest hour of a busy weekday and weekend day (e.g., the peak hour) for the study area as a whole entity. Projections of conditions on a block-by-block basis reflect demand specific to that block at the peak hour for the entire study area, rather than the busiest hour for that particular block or the land uses contained therein.
7. The adequacy of parking was based on the application of the effective parking supply, rather than the raw inventory.

Effective parking supply is another urban planning approach commonly employed in projecting future parking need. When evaluating the level of utilization and/or number of spaces available during the course of conducting field occupancy surveys, both utilization (e.g., the percentage of parking in use) and adequacy (i.e., the number of parking spaces not in use) are measured against the raw parking supply within a facility and/or area (e.g., the actual number of cars parked relative to actual number of spaces physically present).

Effective parking supply arose from field observations conducted by parking professionals, transportation engineers, and urban planners. What these individuals noted was that the number of marked spaces within a particular parking area or facility was frequently higher than the number of vehicles that can be safely or practically parked there. For example, once the on-street parking along a block face is filled to roughly 85% of the marked capacity, for all purposes the block face is effectively full as approaching drivers cannot safely polite their vehicle in traffic while searching for that last open parking space. Alternately, these individuals noted that if one parker places their vehicle in such a manner as to take up the space they have chosen to park within and some of the adjacent space, this can also cause a nine-space block face to be full, even when there are only eight vehicles parked along it, as there not adequate room to fit the nineth vehicle.

For surface lots, urban planners, transportation engineers, and parking professionals have noted that the facility may lose up to 10% of its striped capacity to snow storage during the winter months and/or misparked or oversized vehicles during the rest of the year. For parking structures, the loss factor is commonly closer to 5%, as only the top floor may be impacted by snow storage and most oversized vehicles cannot access these facilities, but misparking and inefficiencies can still make the facility effectively full when the actual number of cars only equals 95% of the posted capacity.

Researchers also noted that inefficiencies are far less likely to occur in facilities where parking is assigned to a specific user or user type or when use of the facility is limited to a restricted number of repeat parkers. For example, there is rarely an adjustment factor applied to handicapped spaces, facilities used exclusively for valet parking, and garages restricted to serving the same residents, tenants, employees, or other users on a regular basis.

For the purposes of this analysis, the consulting team applied the following adjustments to the raw parking supply to create an effective parking supply:

- On-street parking spaces subject to metering, time limits, and permit requirements as well as those spaces not subject to any form of regulation or assignment were subject to a 15% reduction from the raw inventory to render an effective parking supply.
- With the exception of handicapped spaces, the capacity within each publicly-owned and -accessible parking lot was subject to a 10% reduction.
- With the exception of handicapped spaces or those set aside for electric vehicle charging, the capacity within each publicly-owned and -accessible parking structure was subject to a 5% reduction.
- With the exception of handicapped spaces, the capacity within each privately-owned parking lot was subject to a 10% reduction.
- The raw inventory for private parking structures was not subject to any adjustment as these facilities were reserved for use by an exclusive user base and often included reserved assignments.

These adjustments converted the existing parking supply inventory of 6,842 spaces into an **effective parking supply of 6,278 spaces**. This was the figure used to evaluate peak hour existing conditions as well as conditions assuming absorption of all existing vacant space. For near-, mid-, and long-term scenarios, the effective parking supply was adjusted to reflect those existing parking spaces lost to new development as well as those incorporated into each project applying the same methodology.

In order to model out seasonal fluctuations in parking demand, DESMAN prepared a Shared Parking model specific to the defined study area. *Shared Parking* is a methodology for calculating the parking demands of a project or area developed by the Urban Land Institute (ULI) in collaboration with the Institute of Transportation Engineers (ITE) and the International Council of Shopping Centers (ICSC). This methodology is a departure from the standard zoning ordinance method of calculating required parking which is to apply a parking demand ratio (or parking requirement per local code or ordinance) to each component within a project, sum the total of all demands and build against this figure. This traditional methodology treats parking demand as a fixed, unwavering phenomenon and, as result, often results in the provision of parking supply greater than the true need of the development or district. Shared Parking methodology allows the planner to accurately determine the need for the development or district as an organic whole, rather than an assembly of disparate parts. The result is provision of a parking supply to support the project or area which is adequate to meet the project's needs without building excess parking spaces.

Shared Parking models are comprised of industry standard base parking demand ratios, adjusted to reflect for variations in demand specific to each project's composition and locality, as well as fluctuations in demand according to time of day and year. The Urban Land Institute (ULI), the Institute of Transportation Engineers (ITE), the International Council of Shopping Center (ICSC), the International Parking Institute (IPI), the National Parking Association (NPA), the American Planning Association (APA) and other agencies gather and consolidate these individual studies into peer-reviewed, statistically reliable resources for application in planning studies, such as this one. DESMAN applied the base demand ratios to the proposed program shown in ***Table 1***.

Table 1: Base Demand Ratios

Land Use	User Group	Weekday	Weekend	Unit	Source
Retail	Shoppers	2.90	3.20	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	0.70	0.80	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Grocery	Shoppers	4.00	4.00	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	0.75	0.75	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
Fine Casual Dining	Diners	13.25	15.25	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	2.25	2.50	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Fast Casual Dining	Diners	15.25	15.00	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	2.15	2.10	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
Take-Out/Café	Diners	12.40	12.70	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	2.00	2.00	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Theater	Patron	0.30	0.33	seats	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	0.07	0.07	seats	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
Fitness	Members	6.60	5.50	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Employees	0.40	0.25	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Library	Visitors	2.00	1.90	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Staff	0.25	0.20	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
Hotel	Guests	1.00	1.00	rooms	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Diners	6.67	7.67	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Attendees	20.00	10.00	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Hotel Staff	0.15	0.15	rooms	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Restaurant Staff	1.20	1.33	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Event Staff	1.50	1.50	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Residential	Studio	0.85	0.85	units	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	1BR	0.90	0.90	units	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	2BR	1.65	1.65	units	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	3BR+	2.50	2.50	units	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Guests	0.10	0.15	units	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
General Office	Visitors	0.25	0.03	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Staff	3.15	0.32	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Medical Office	Patients	3.00	0.00	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Staff	1.60	0.00	ksf	**Shared Parking: 3rd Edition.** Washington DC: ULI-The Urban Land Institute, 2020, p.16
Bank	Customers	3.50	3.00	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Staff	2.50	1.75	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
Church	Parishioners	1.05	10.47	ksf	DESMAN Design Management, based on total seating capacity of churches, assuming 3.0 PPV
	Employees	0.03	0.31	ksf	DESMAN Design Management, based on total staffing of churches
Museum	Visitors	4.00	4.50	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
	Staff	0.40	0.50	ksf	**Shared Parking: 3rd Edition**. Washington DC: ULI-The Urban Land Institute, 2020, p.16
School	Visitors	1.47	0.00	ksf	**Parking Generation: 5th Edition.** Washington DC: ITE - Institute of Transportation Engineers, 2019, p.361
	Staff	0.40	0.00	ksf	**Parking Generation: 5th Edition.** Washington DC: ITE - Institute of Transportation Engineers, 2019, p.361

Base parking demand ratios are developed through the long-term study of stand-alone land uses (i.e. office buildings, retail stores, hotel, etc.) with their own dedicated parking facilities. Researchers perform occupancy counts at different times of day, different days of the week, and different times of the year, to isolate the busiest hour of the busiest weekday and/or weekend day annually. Once the peak hour is isolated, researchers divide the number of vehicles parked by the key driving element in each land use, such as the number of hotel rooms or total gross leasable square footage of the building. This division renders a parking demand ratio; the mathematic expression of the number of cars parked at the busiest hour of the busiest day related to the land use's key driver.

Adjustments to base demand ratios can be applied to reflect the actual conditions in the project site. These applied factors included adjustments to reflect choice of transportation mode, internal rates of capture, and other local factors. A summary of applied adjustments to base demand ratios are shown in ***Table 2*** (weekdays) and ***Table 3*** (weekends), on the following page.

Table 2: Applied Mode, Capture, and Local Adjustments – Weekdays

WEEKDAYS

DAYTIME (6:00 AM - 4:59 PM)

Land Use	User Group	Base Ratio	Modal Adj.	Capture Adj.	Local Adj.	Project Ratio	Unit
Retail	Shoppers	2.90	1.00	1.00	0.51	1.49	ksf
	Employees	0.70	0.75	1.00	0.51	0.27	ksf
Grocery	Shoppers	4.00	1.00	1.00	0.51	2.05	ksf
	Employees	0.75	0.75	1.00	0.51	0.29	ksf
Fine Casual Dining	Diners	13.25	1.00	1.00	0.51	6.80	ksf
	Employees	2.25	0.75	1.00	0.51	0.86	ksf
Fast Casual Dining	Diners	15.25	1.00	1.00	0.51	7.82	ksf
	Employees	2.15	0.75	1.00	0.51	0.83	ksf
Take-Out/Café	Diners	12.40	1.00	1.00	0.51	6.36	ksf
	Employees	2.00	0.75	1.00	0.51	0.77	ksf
Theater	Patron	0.30	1.00	1.00	0.51	0.15	seats
	Employees	0.07	0.75	1.00	0.51	0.03	seats
Fitness	Members	6.60	1.00	1.00	0.51	3.39	ksf
	Employees	0.40	0.75	1.00	0.51	0.15	ksf
Library	Visitors	2.00	1.00	1.00	0.51	1.03	ksf
	Staff	0.25	0.75	1.00	0.51	0.10	ksf
Hotel	Guests	1.00	0.40	1.00	0.51	0.21	rooms
	Diners	6.67	0.47	1.00	0.51	1.61	ksf
	Attendees	20.00	0.45	1.00	0.51	4.62	ksf
	Hotel Staff	0.15	0.75	1.00	0.51	0.06	rooms
	Restaurant Staff	1.20	0.75	1.00	0.51	0.46	ksf
	Event Staff	1.50	0.75	1.00	0.51	0.58	ksf
Residents	Studio	0.85	0.94	1.00	0.51	0.41	units
	1BR	0.90	0.94	1.00	0.51	0.44	units
	2BR	1.65	0.94	1.00	0.51	0.80	units
	3BR+	2.50	0.94	1.00	0.51	1.21	units
	Guests	0.10	1.00	1.00	0.51	0.05	units
General Office	Visitors	0.25	1.00	1.00	0.51	0.13	ksf
	Staff	3.15	0.75	1.00	0.51	1.21	ksf
Medical Office	Patients	3.00	1.00	1.00	0.51	1.54	ksf
	Staff	1.60	0.75	1.00	0.51	0.61	ksf
Bank	Customers	3.50	1.00	1.00	0.51	1.80	ksf
	Staff	2.50	0.75	1.00	0.51	0.96	ksf
Church	Parishioners	1.05	0.50	1.00	0.51	0.27	ksf
	Employees	0.03	1.00	1.00	0.51	0.02	ksf
Museum	Visitors	4.00	1.00	1.00	0.51	2.05	ksf
	Staff	0.40	0.75	1.00	0.51	0.15	ksf
School	Visitors	1.47	1.00	1.00	0.51	0.75	ksf
	Staff	0.40	0.75	1.00	0.51	0.15	ksf

EVENING (5:00 PM - 12:00 AM)

Land Use	User Group	Base Ratio	Modal Adj.	Capture Adj.	Local Adj.	Project Ratio	Unit
Retail	Shoppers	2.90	1.00	1.00	0.83	2.41	ksf
	Employees	0.70	0.75	1.00	0.83	0.44	ksf
Grocery	Shoppers	4.00	1.00	1.00	0.83	3.32	ksf
	Employees	0.75	0.75	1.00	0.83	0.47	ksf
Fine Casual Dining	Diners	13.25	1.00	1.00	0.83	11.00	ksf
	Employees	2.25	0.75	1.00	0.83	1.40	ksf
Fast Casual Dining	Diners	15.25	1.00	1.00	0.83	12.66	ksf
	Employees	2.15	0.75	1.00	0.83	1.34	ksf
Take-Out/Café	Diners	12.40	1.00	1.00	0.83	10.30	ksf
	Employees	2.00	0.75	1.00	0.83	1.24	ksf
Theater	Patron	0.30	1.00	1.00	0.83	0.25	seats
	Employees	0.07	0.75	1.00	0.83	0.04	seats
Fitness	Members	6.60	1.00	1.00	0.83	5.48	ksf
	Employees	0.40	0.75	1.00	0.83	0.25	ksf
Library	Visitors	2.00	1.00	1.00	0.83	1.66	ksf
	Staff	0.25	0.75	1.00	0.83	0.16	ksf
Hotel	Guests	1.00	0.46	1.00	0.83	0.38	rooms
	Diners	6.67	0.40	1.00	0.83	2.22	ksf
	Attendees	20.00	0.45	1.00	0.83	7.47	ksf
	Hotel Staff	0.15	0.75	1.00	0.83	0.09	rooms
	Restaurant Staff	1.20	0.75	1.00	0.83	0.75	ksf
	Event Staff	1.50	0.75	1.00	0.83	0.93	ksf
	Studio	0.85	0.94	1.00	0.83	0.66	units
	1BR	0.90	0.94	1.00	0.83	0.70	units
	2BR	1.65	0.94	1.00	0.83	1.29	units
	3BR+	2.50	0.94	1.00	0.83	1.96	units
	Guests	0.10	1.00	1.00	0.83	0.08	units
General Office	Visitors	0.25	1.00	1.00	0.83	0.21	ksf
	Staff	3.15	0.75	1.00	0.83	1.96	ksf
Medical Office	Patients	3.00	1.00	1.00	0.83	2.49	ksf
	Staff	1.60	0.75	1.00	0.83	1.00	ksf
Bank	Customers	3.50	1.00	1.00	0.83	2.91	ksf
	Staff	2.50	0.75	1.00	0.83	1.55	ksf
Church	Parishioners	1.05	0.50	1.00	0.83	0.44	ksf
	Employees	0.03	1.00	1.00	0.83	0.02	ksf
Museum	Visitors	4.00	1.00	1.00	0.83	3.32	ksf
	Staff	0.40	0.75	1.00	0.83	0.25	ksf
School	Visitors	1.47	1.00	1.00	0.83	1.22	ksf
	Staff	0.40	0.75	1.00	0.83	0.25	ksf

Mode adjustments reflect the percentage of users expected to drive themselves to a project, versus arriving by other means. The most recent [2021] American Community Survey (ACS) covering Portsmouth, New Hampshire[1] and administered by the U.S. Census Bureau, reported that 71.8% of the local populace

[1] Census Tract S0701 in Portsmouth, New Hampshire.

drove themselves to work in a personal vehicle; the remainder either carpooled (6.2%), worked from home (14.6%), or walked (4.2%). This is the basis for DESMAN's assumptions regarding mode adjustment specific to the study area for employees.

Similarly, the 2021 ACS for Portsmouth indicated that 5.8% of surveyed households reported not owning a car, providing the basis for the applied mode adjustment specific to residents. Mode adjustments for hotel guests, diner, and event attendees was taken directly from Shared Parking: 3rd Edition. Data on mode use by shoppers, diners, tourists and other patrons in Portsmouth not available, so DESMAN made no adjustment for these users.

Capture adjustments – the percentage of persons already on the project site for one reason, but patronizing another business – is applied so that demand associated with one land use is not credited against another land use during the modeling process. For example, the office worker who goes to Starbucks on break does not generate any new or additional parking demand by getting a latte. If that employee's parking demand is already 'credited' to his office, the capture adjustment to Starbucks assures that his parking demand is NOT associated with the coffee shop, i.e. "double counting" him.

Table 3: Applied Mode, Capture, and Local Adjustments – Weekends

WEEKENDS

DAYTIME (6:00 AM - 4:59 PM)

Land Use	User Group	Base Ratio	Modal Adj.	Capture Adj.	Local Adj.	Project Ratio	Unit
Retail	Shoppers	3.20	1.00	1.00	0.68	2.19	ksf
	Employees	0.80	0.75	1.00	0.68	0.41	ksf
Grocery	Shoppers	4.00	1.00	1.00	0.68	2.73	ksf
	Employees	0.75	0.75	1.00	0.68	0.38	ksf
Fine Casual Dining	Diners	15.25	1.00	1.00	0.68	10.42	ksf
	Employees	2.50	0.75	1.00	0.68	1.28	ksf
Fast Casual Dining	Diners	15.00	1.00	1.00	0.68	10.25	ksf
	Employees	2.10	0.75	1.00	0.68	1.07	ksf
Take-Out/Café	Diners	12.70	1.00	1.00	0.68	8.68	ksf
	Employees	2.00	0.75	1.00	0.68	1.02	ksf
Theater	Patron	0.33	1.00	1.00	0.68	0.23	seats
	Employees	0.07	0.75	1.00	0.68	0.04	seats
Fitness	Members	5.50	1.00	1.00	0.68	3.76	ksf
	Employees	0.25	0.75	1.00	0.68	0.13	ksf
Library	Visitors	1.90	1.00	1.00	0.68	1.30	ksf
	Staff	0.20	0.75	1.00	0.68	0.10	ksf
Hotel	Guests	1.00	0.40	1.00	0.68	0.27	rooms
	Diners	7.67	0.47	1.00	0.68	2.46	ksf
	Attendees	10.00	0.45	1.00	0.68	3.08	ksf
	Hotel Staff	0.15	0.75	1.00	0.68	0.08	rooms
	Restaurant Staff	1.33	0.75	1.00	0.68	0.68	ksf
	Event Staff	1.50	0.75	1.00	0.68	0.77	ksf
Residents	Studio	0.85	0.94	1.00	0.68	0.55	units
	1BR	0.90	0.94	1.00	0.68	0.58	units
	2BR	1.65	0.94	1.00	0.68	1.06	units
	3BR+	2.50	0.94	1.00	0.68	1.61	units
	Guests	0.15	1.00	1.00	0.68	0.10	units
General Office	Visitors	0.03	1.00	1.00	0.68	0.02	ksf
	Staff	0.32	0.75	1.00	0.68	0.16	ksf
Medical Office	Patients	0.00	1.00	1.00	0.68	0.00	ksf
	Staff	0.00	0.75	1.00	0.68	0.00	ksf
Bank	Customers	3.00	1.00	1.00	0.68	2.05	ksf
	Staff	1.75	0.75	1.00	0.68	0.90	ksf
Church	Parishioners	10.47	1.00	1.00	0.68	7.16	ksf
	Employees	0.31	1.00	1.00	0.68	0.21	ksf
Museum	Visitors	4.50	1.00	1.00	0.68	3.08	ksf
	Staff	0.50	0.75	1.00	0.68	0.26	ksf
School	Visitors	0.00	1.00	1.00	0.68	0.00	ksf
	Staff	0.00	0.75	1.00	0.68	0.00	ksf

EVENING (5:00 PM - 12:00 AM)

Land Use	User Group	Base Ratio	Modal Adj.	Capture Adj.	Local Adj.	Project Ratio	Unit
Retail	Shoppers	3.20	1.00	1.00	0.88	2.81	ksf
	Employees	0.80	0.75	1.00	0.88	0.53	ksf
Grocery	Shoppers	4.00	1.00	1.00	0.88	3.51	ksf
	Employees	0.75	0.75	1.00	0.88	0.49	ksf
Fine Casual Dining	Diners	15.25	1.00	1.00	0.88	13.38	ksf
	Employees	2.50	0.75	1.00	0.88	1.64	ksf
Fast Casual Dining	Diners	15.00	1.00	1.00	0.88	13.16	ksf
	Employees	2.10	0.75	1.00	0.88	1.38	ksf
Take-Out/Café	Diners	12.70	1.00	1.00	0.88	11.14	ksf
	Employees	2.00	0.75	1.00	0.88	1.31	ksf
Theater	Patron	0.33	1.00	1.00	0.88	0.29	seats
	Employees	0.07	0.75	1.00	0.88	0.05	seats
Fitness	Members	5.50	1.00	1.00	0.88	4.82	ksf
	Employees	0.25	0.75	1.00	0.88	0.16	ksf
Library	Visitors	1.90	1.00	1.00	0.88	1.67	ksf
	Staff	0.20	0.75	1.00	0.88	0.13	ksf
Hotel	Guests	1.00	0.40	1.00	0.88	0.35	rooms
	Diners	7.67	0.47	1.00	0.88	3.16	ksf
	Attendees	10.00	0.45	1.00	0.88	3.95	ksf
	Hotel Staff	0.15	0.75	1.00	0.88	0.10	rooms
	Restaurant Staff	1.33	0.75	1.00	0.88	0.87	ksf
	Event Staff	1.50	0.75	1.00	0.88	0.99	ksf
	Studio	0.85	0.94	1.00	0.88	0.70	units
	1BR	0.90	0.94	1.00	0.88	0.74	units
	2BR	1.65	0.94	1.00	0.88	1.36	units
	3BR+	2.50	0.94	1.00	0.88	2.07	units
	Guests	0.15	1.00	1.00	0.88	0.13	units
General Office	Visitors	0.03	1.00	1.00	0.88	0.03	ksf
	Staff	0.32	0.75	1.00	0.88	0.21	ksf
Medical Office	Patients	0.00	1.00	1.00	0.88	0.00	ksf
	Staff	0.00	0.75	1.00	0.88	0.00	ksf
Bank	Customers	3.00	1.00	1.00	0.88	2.63	ksf
	Staff	1.75	0.75	1.00	0.88	1.15	ksf
Church	Parishioners	10.47	1.00	1.00	0.88	9.18	ksf
	Employees	0.31	1.00	1.00	0.88	0.27	ksf
Museum	Visitors	4.50	1.00	1.00	0.88	3.95	ksf
	Staff	0.50	0.75	1.00	0.88	0.33	ksf
School	Visitors	0.00	1.00	1.00	0.88	0.00	ksf
	Staff	0.00	0.75	1.00	0.88	0.00	ksf

Some of these reductions will remain fairly stable, regardless of the day of week or time of day, while others will fluctuate according to time of day or day of the week. Within the proposed project site,

DESMAN assumed that the largest 'captive population' would be hotel guests, area employees or project residents who might also patronize retail stores, restaurants, or health clubs onsite without necessarily generating any additional trips or resulting parking demand. Due to lack of 3rd party documentation, the consulting team elected not to apply any type of *capture adjustment*, leaving it at 1.0.

Local adjustments are applied based on an existing, occupied land use program and observed occupancy conditions; they calibrate results further to align them with local dynamics. This process is addressed later in the report.

The final factor comprising the model is the adjustment to reflect for variances for temporal and seasonal *presence*. *Presence* is the expression of parking demand for specific users and land uses according to time of day and time of year. Presence is expressed as a percentage of peak potential demand modified for time of day or year.

For example, the model projects that 5,000 square feet of general retail has a peak parking demand equal up to 10 spaces on a weekday and 16 parking spaces on a weekend. However, this demand is influenced by the hours of operation. At 3:00 AM, a retail store is unlikely to project any parking demand at all. Additionally, parking demand is influenced by the time of year. Traditionally, retail stores are busiest as the winter holidays approach and least busy in January and February, when fewer people shop. Therefore, parking demand associated with a retail store also decreases.

Presence becomes a significant factor in a mixed-use environment like Portsmouth because it allows different land uses to share the same parking supply. For example, if an office building is placed next to a business hotel, summing the peak projected demand of each of the land uses would result in parking supply substantially larger than necessary, as the business hotel is largely empty when the office building is occupied and vice versa. However, applying presence factors to the peak demand projections to adjust for hours of operation and use trends, the owner actually needs to provide only a fraction of the spaces needed for the combined land uses to adequately support both the hotel and the office building. The assumption is that demand for the hotel will peak in overnight, while demand for the office space will peak during standard business hours. These presence trends of parking demand for these land uses are complimentary and allow for some sharing of the same spaces, reducing total peak demand.

Variations for time of day and time of year for weekends (Saturdays) were also calculated for Portsmouth and applied to the model. The majority of presence adjustments were taken from the ULI's **Shared Parking: 3rd Edition**. Presence factors were applied to projections of gross demand and used to generate hourly parking demand projections for a typical weekday and weekend day throughout the year. DESMAN used these projections to isolate the peak hour in each month. The applied presence adjustments for time of year are shown below in ***Table 4*** on the next page, and time of day presence adjustments are included as ***Tables 5*** (weekdays) and ***6*** (weekends) on the following pages.

Table 3: Applied Monthly Presence Factors

Land Use	User Group	January	February	March	April	May	June	July	August	September	October	November	December	Holidays
Retail	Shoppers	59%	61%	69%	67%	72%	82%	90%	83%	76%	68%	76%	100%	85%
	Employees	69%	71%	79%	77%	82%	82%	80%	83%	76%	78%	86%	100%	95%
Grocery	Shoppers	93%	86%	94%	92%	97%	93%	96%	95%	92%	95%	95%	100%	95%
	Employees	100%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Fine Casual Dining	Diners	89%	88%	92%	95%	94%	96%	98%	96%	89%	93%	90%	100%	95%
	Employees	99%	98%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%
Fast Casual Dining	Diners	86%	86%	97%	95%	100%	98%	100%	100%	93%	97%	92%	96%	95%
	Employees	96%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Take-Out/Café	Diners	54%	59%	71%	88%	88%	99%	94%	86%	67%	77%	96%	97%	100%
	Employees	92%	85%	93%	92%	97%	93%	95%	95%	90%	93%	95%	100%	98%
Theater	Patron	65%	60%	80%	90%	85%	80%	75%	70%	65%	75%	80%	75%	100%
	Employees	75%	70%	90%	100%	95%	90%	85%	80%	75%	85%	90%	85%	100%
Fitness	Customer	100%	95%	85%	70%	65%	65%	65%	70%	80%	85%	85%	100%	95%
	Employee	100%	100%	95%	80%	75%	75%	75%	80%	90%	95%	95%	100%	0%
Library	Visitors	75%	75%	80%	85%	90%	90%	90%	90%	95%	95%	90%	65%	50%
	Staff	85%	85%	85%	90%	95%	95%	90%	95%	100%	100%	95%	65%	45%
Hotel	Guests	80%	90%	100%	100%	90%	90%	100%	100%	75%	75%	75%	50%	100%
	Diners	85%	86%	95%	92%	96%	95%	98%	99%	91%	96%	93%	100%	95%
	Attendees	75%	100%	90%	55%	60%	50%	45%	75%	80%	85%	100%	100%	0%
	Hotel Staff	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	90%
	Restaurant Staff	85%	86%	95%	92%	96%	95%	98%	99%	91%	96%	93%	100%	95%
	Event Staff	75%	100%	90%	55%	60%	50%	45%	75%	80%	85%	100%	100%	0%
Residents	Studio	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	100%
	1BR	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	100%
	2BR	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	100%
	3BR+	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	100%
	Guests	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	100%
General Office	Visitors	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%
	Staff	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%
Medical Office	Patients	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	10%	80%
	Staff	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%
Bank	Customers	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10%	100%
	Staff	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%
Church	Parishioners	60%	65%	70%	100%	70%	65%	60%	55%	60%	65%	70%	100%	90%
	Employees	100%	100%	100%	100%	90%	90%	90%	90%	90%	90%	100%	100%	100%
Museum	Visitors	70%	75%	80%	90%	95%	100%	100%	100%	95%	90%	80%	75%	85%
	Staff	80%	85%	90%	100%	100%	100%	100%	100%	100%	100%	90%	85%	95%
School	Visitors	100%	95%	100%	95%	100%	70%	0%	0%	100%	100%	100%	100%	0%
	Staff	100%	100%	100%	100%	100%	90%	0%	0%	100%	100%	100%	100%	0%

Table 4: Applied Daily Presence Factors for a Weekday

Land Use	User Group	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM
Retail	Shoppers	1%	5%	15%	35%	65%	85%	95%	100%	95%	90%	85%	90%	90%	90%	80%	50%	30%	10%	0%
(Typical)	Employees	10%	15%	25%	45%	75%	95%	100%	100%	100%	100%	100%	100%	100%	100%	90%	60%	40%	20%	0%
Retail	Shoppers	1%	5%	15%	30%	55%	75%	90%	100%	100%	100%	95%	85%	80%	75%	65%	50%	30%	10%	0%
(December)	Employees	10%	15%	25%	45%	75%	95%	100%	100%	100%	100%	100%	100%	100%	100%	90%	60%	40%	20%	0%
Retail	Shoppers	1%	5%	10%	20%	40%	65%	90%	100%	100%	100%	95%	85%	70%	55%	40%	25%	15%	5%	0%
(Holidays)	Employees	10%	15%	25%	45%	75%	95%	100%	100%	100%	100%	100%	100%	100%	100%	90%	60%	40%	20%	0%
Grocery	Shoppers	5%	20%	30%	50%	60%	67%	85%	90%	95%	97%	100%	100%	100%	85%	55%	35%	20%	5%	5%
	Employees	20%	30%	40%	80%	90%	100%	100%	100%	100%	100%	100%	100%	80%	50%	35%	20%	20%	20%	20%
Fine Casual Dining	Diners	0%	0%	0%	0%	15%	40%	75%	75%	65%	40%	50%	75%	95%	100%	100%	100%	95%	75%	25%
	Employees	0%	20%	50%	75%	90%	90%	90%	90%	90%	75%	75%	100%	100%	100%	100%	100%	100%	85%	35%
Fast Casual Dining	Diners	5%	10%	20%	30%	55%	85%	100%	100%	90%	60%	55%	60%	85%	80%	50%	30%	20%	10%	5%
	Employees	20%	20%	30%	40%	75%	100%	100%	100%	95%	70%	60%	70%	90%	90%	60%	40%	30%	20%	20%
Take-Out/Café	Diners	25%	50%	60%	75%	85%	90%	100%	90%	50%	45%	45%	75%	80%	80%	80%	60%	55%	50%	25%
	Employees	50%	75%	90%	90%	100%	100%	100%	100%	100%	75%	75%	95%	95%	95%	95%	80%	65%	65%	35%
Theater	Patron	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	25%	100%	100%	0%	0%	0%
	Employees	0%	10%	10%	20%	20%	20%	30%	30%	30%	30%	30%	30%	100%	100%	100%	100%	30%	10%	5%
Fitness	Customer	70%	40%	40%	70%	70%	80%	60%	70%	70%	70%	80%	90%	100%	90%	80%	70%	35%	10%	0%
	Employee	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	100%	100%	75%	50%	20%	20%	20%	0%
Library	Visitors	0%	0%	0%	100%	100%	98%	98%	78%	72%	65%	70%	79%	60%	50%	40%	0%	0%	0%	0%
	Staff	0%	10%	50%	100%	100%	100%	100%	100%	100%	100%	100%	90%	75%	50%	20%	10%	0%	0%	0%
Hotel	Guests	95%	90%	80%	70%	60%	60%	55%	55%	60%	60%	65%	70%	75%	75%	80%	85%	95%	100%	100%
	Diners	0%	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%
	Attendees	0%	0%	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	0%	0%
	Hotel Staff	10%	30%	100%	100%	100%	100%	100%	100%	100%	100%	70%	70%	40%	20%	20%	20%	20%	10%	5%
	Restaurant Staff	10%	20%	40%	50%	50%	75%	100%	100%	90%	80%	70%	80%	80%	80%	70%	60%	50%	30%	20%
	Event Staff	10%	10%	40%	70%	70%	70%	75%	75%	75%	75%	75%	100%	100%	100%	100%	100%	60%	25%	10%
Residents	Studio	90%	85%	80%	75%	70%	69%	68%	67%	66%	55%	60%	55%	50%	55%	65%	75%	85%	90%	100%
	1BR	90%	85%	80%	75%	70%	69%	68%	67%	66%	55%	60%	55%	50%	55%	65%	75%	85%	90%	100%
	2BR	90%	85%	80%	75%	70%	69%	68%	67%	66%	55%	60%	55%	50%	55%	65%	75%	85%	90%	100%
	3BR+	90%	85%	80%	75%	70%	69%	68%	67%	66%	55%	60%	55%	50%	55%	65%	75%	85%	90%	100%
	Guests	5%	10%	20%	20%	20%	20%	20%	20%	20%	20%	20%	40%	60%	100%	100%	100%	100%	80%	50%
General Office	Visitors	0%	1%	20%	60%	100%	45%	15%	45%	95%	45%	15%	10%	5%	2%	1%	0%	0%	0%	0%
	Staff	3%	15%	50%	90%	100%	100%	85%	85%	95%	95%	85%	60%	25%	15%	5%	3%	1%	0%	0%
Medical Office	Patients	0%	10%	40%	85%	100%	100%	75%	60%	95%	90%	80%	35%	25%	10%	5%	0%	0%	0%	0%
	Staff	0%	20%	60%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	40%	25%	0%	0%	0%	0%
Bank	Customers	0%	0%	50%	90%	100%	50%	50%	50%	70%	50%	80%	100%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	0%	60%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%
Church	Parishioners	10%	40%	100%	40%	20%	20%	20%	20%	30%	60%	100%	40%	10%	0%	0%	0%	0%	0%	0%
	Employees	20%	50%	100%	100%	100%	100%	100%	100%	80%	70%	60%	40%	20%	10%	0%	0%	0%	0%	0%
Museum	Visitors	0%	0%	0%	0%	60%	80%	100%	100%	100%	80%	60%	0%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	10%	20%	40%	60%	100%	100%	100%	100%	80%	60%	40%	20%	10%	0%	0%	0%	0%	0%
School	Visitors	0%	50%	100%	70%	20%	20%	50%	40%	20%	100%	40%	30%	20%	0%	0%	0%	0%	0%	0%
	Staff	10%	70%	100%	100%	100%	100%	100%	100%	100%	100%	60%	30%	20%	5%	1%	0%	0%	0%	0%

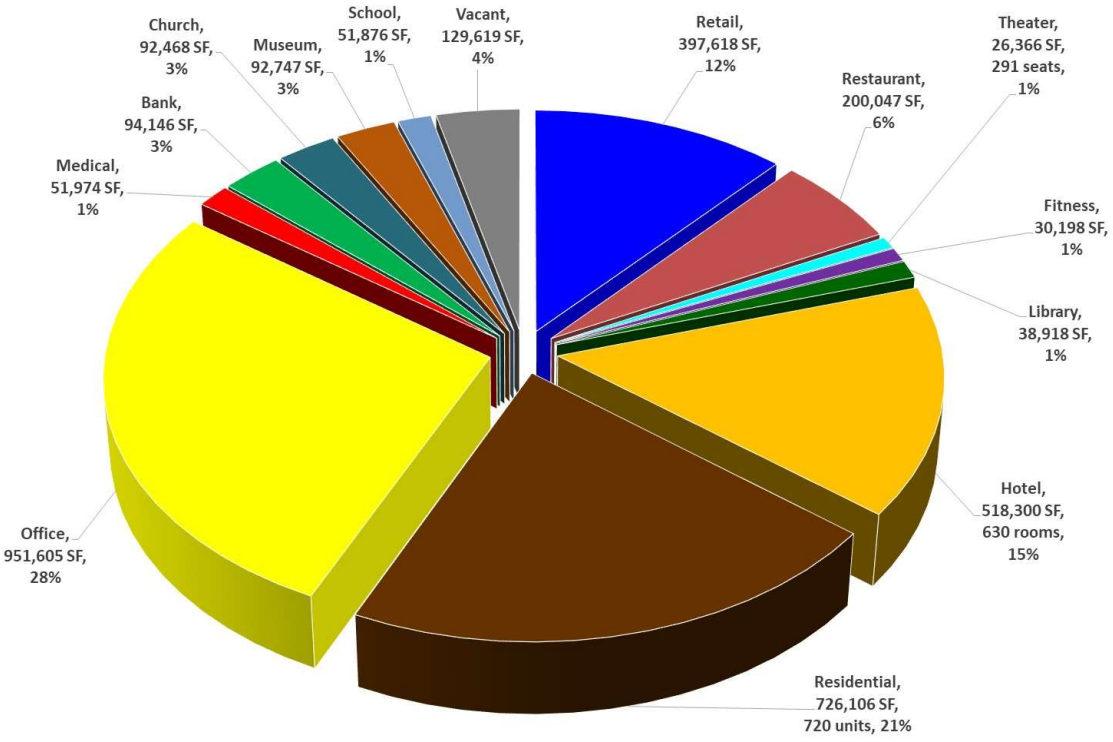
Table 5: Applied Daily Presence Factors for a Weekend

Land Use	User Group	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM
Retail	Shoppers	1%	5%	15%	35%	65%	85%	95%	100%	95%	90%	85%	90%	90%	90%	80%	50%	30%	10%	0%
(Typical)	Employees	10%	15%	25%	45%	75%	95%	100%	100%	100%	100%	100%	100%	100%	100%	90%	60%	40%	20%	0%
Retail	Shoppers	0%	0%	0%	0%	35%	63%	75%	82%	74%	68%	57%	58%	73%	89%	100%	100%	100%	88%	50%
(December)	Employees	10%	15%	40%	75%	85%	95%	100%	100%	100%	100%	100%	95%	85%	80%	75%	65%	45%	15%	0%
Retail	Shoppers	1%	5%	10%	20%	40%	60%	80%	95%	100%	100%	95%	85%	70%	60%	50%	30%	20%	10%	0%
(Holidays)	Employees	10%	15%	40%	75%	85%	95%	100%	100%	100%	100%	100%	95%	85%	80%	75%	65%	45%	15%	0%
Grocery	Shoppers	8%	25%	50%	75%	95%	100%	100%	100%	100%	100%	100%	90%	50%	33%	25%	15%	5%	4%	3%
	Employees	15%	35%	70%	85%	100%	100%	100%	100%	85%	75%	60%	55%	45%	40%	30%	20%	10%	10%	5%
Fine Casual Dining	Diners	0%	0%	0%	0%	0%	15%	50%	55%	45%	45%	45%	60%	90%	95%	100%	90%	90%	90%	50%
	Employees	0%	20%	30%	60%	75%	75%	75%	75%	75%	75%	75%	100%	100%	100%	100%	100%	100%	85%	50%
Fast Casual Dining	Diners	5%	10%	20%	30%	55%	85%	100%	100%	90%	60%	55%	60%	85%	80%	60%	30%	20%	10%	5%
	Employees	15%	20%	30%	40%	75%	100%	100%	100%	95%	70%	60%	70%	90%	90%	70%	40%	30%	20%	20%
Take-Out/Café	Diners	10%	25%	45%	70%	90%	90%	100%	85%	65%	40%	45%	60%	70%	70%	65%	30%	25%	15%	10%
	Employees	50%	75%	90%	90%	100%	100%	100%	100%	100%	75%	75%	95%	95%	95%	95%	80%	65%	65%	35%
Theater	Patron	0%	0%	0%	1%	1%	1%	1%	17%	67%	67%	1%	1%	1%	25%	100%	100%	0%	0%	0%
	Employees	0%	10%	10%	20%	20%	20%	30%	100%	100%	100%	30%	30%	100%	100%	100%	100%	30%	10%	5%
Fitness	Customer	80%	45%	35%	50%	35%	50%	50%	30%	25%	30%	55%	100%	95%	60%	30%	10%	1%	1%	0%
	Employee	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	75%	100%	100%	75%	50%	20%	20%	20%	0%
Library	Visitors	0%	0%	0%	0%	100%	90%	80%	65%	50%	35%	11%	5%	5%	0%	0%	0%	0%	0%	0%
	Staff	0%	0%	10%	50%	100%	100%	100%	100%	100%	50%	10%	10%	10%	10%	0%	0%	0%	0%	0%
Hotel	Guests	95%	95%	90%	80%	70%	70%	65%	65%	70%	70%	75%	80%	85%	85%	90%	95%	95%	100%	100%
	Diners	0%	10%	30%	10%	10%	5%	100%	100%	33%	10%	10%	30%	55%	60%	70%	67%	60%	40%	30%
	Attendees	0%	0%	30%	60%	60%	60%	65%	65%	65%	65%	65%	100%	100%	100%	100%	100%	50%	0%	0%
	Hotel Staff	10%	30%	100%	100%	100%	100%	100%	100%	100%	100%	70%	70%	40%	20%	20%	20%	20%	10%	5%
	Restaurant Staff	10%	20%	40%	40%	40%	75%	100%	100%	90%	80%	40%	80%	80%	80%	70%	60%	50%	30%	20%
	Event Staff	5%	10%	40%	70%	70%	70%	75%	75%	75%	75%	75%	100%	100%	100%	100%	100%	60%	25%	10%
Residents	Studio	100%	90%	85%	80%	75%	70%	65%	70%	70%	70%	75%	85%	90%	97%	98%	99%	100%	100%	100%
	1BR	100%	90%	85%	80%	75%	70%	65%	70%	70%	70%	75%	85%	90%	97%	98%	99%	100%	100%	100%
	2BR	100%	90%	85%	80%	75%	70%	65%	70%	70%	70%	75%	85%	90%	97%	98%	99%	100%	100%	100%
	3BR+	100%	90%	85%	80%	75%	70%	65%	70%	70%	70%	75%	85%	90%	97%	98%	99%	100%	100%	100%
	Guests	0%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	40%	60%	100%	100%	100%	100%	80%	50%
General Office	Visitors	0%	20%	60%	80%	90%	100%	90%	80%	60%	40%	20%	10%	5%	0%	0%	0%	0%	0%	0%
	Staff	0%	20%	60%	80%	90%	100%	90%	80%	60%	40%	20%	10%	5%	0%	0%	0%	0%	0%	0%
Medical Office	Patients	0%	0%	90%	90%	100%	100%	100%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	0%	60%	100%	100%	100%	100%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bank	Customers	0%	0%	25%	40%	75%	100%	90%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	0%	90%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Church	Parishioners	0%	10%	100%	100%	100%	70%	50%	30%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Employees	10%	70%	100%	100%	100%	100%	70%	40%	10%	5%	3%	1%	0%	0%	0%	0%	0%	0%	0%
Museum	Visitors	0%	0%	0%	0%	60%	80%	100%	100%	100%	100%	80%	60%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	10%	20%	40%	60%	100%	100%	100%	100%	100%	80%	60%	40%	20%	10%	0%	0%	0%	0%
School	Visitors	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Staff	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

In projects still in the planning or design stage, adjusting base ratios to reflect mode choice, capture and presence factors completes the process. In projects in development, where one or more phases have been complete, the model can be further calibrated to align with local conditions not addressed by the adjustments for mode choice, capture and presence. This is done by performing field observations, and recording those conditions, inputting the land use program in place, producing projections, comparing them to field data, and calibrating the model to align with observed occupancy. The result of this process is a more refined, accurate, and project-specific set of projections of future need which result in a more efficient parking supply.

The land use inventory conducted by the consulting team across the study area found a total over 3.4 million square feet of development in place as of May 2023. The largest concentrations of square footage by land use were office space, residential units, hotels, retail stores, and restaurants as shown in ***Figure 1***.

Figure 1: Land Use Composition as of May 2023



Roughly 4% of the existing square footage recorded was vacant as of May 2023.

An initial series of parking occupancy counts were performed across the study area on Friday, May 5th and Saturday, May 6th, 2023. The counts were planned around the Cinco de Mayo holiday in anticipation of higher than typical activity levels. Counts were executed at mid-day (9:00 AM to 2:00 PM) and in the evening (5:00 PM to 9:00 PM) on both days. Data was collected on a facility-by-facility basis during single-pass counts across the whole of the study area at each interval. Peak observed occupancy was as follows:

- 2,703 vehicles at mid-day on Friday, May 5th , 2023
- 4,273 vehicles in the evening on Friday, May 5th, 2023

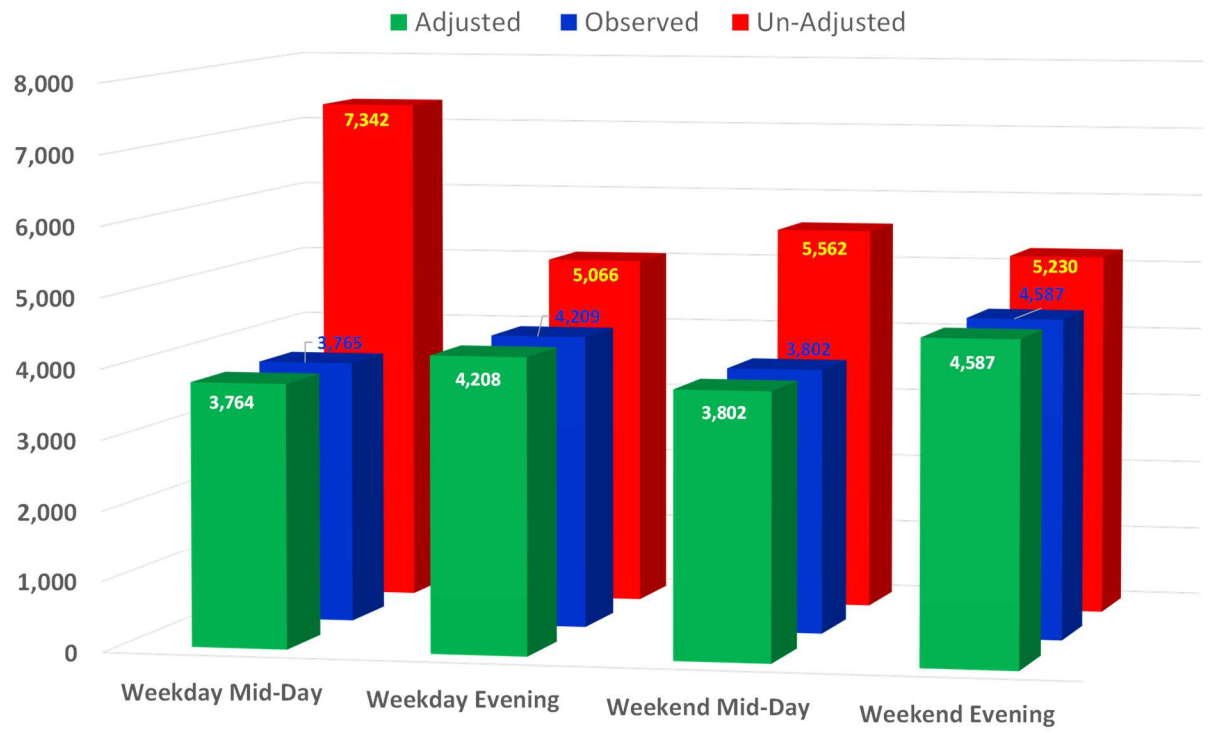
- 3,866 vehicles at mid-day on Saturday, May 6th, 2023
- 4,651 vehicles in the evening on Saturday, May 6th, 2023

When calibrating a model (i.e., applying the local adjustment) to align with actual conditions, it is very common for the model to generate demand projections which are greater than actual observed conditions as the base demand ratios are based on an 85th percentile standard; this means that, of all the land uses studied to render the demand ratio, 85% generated demand less than the recommended ratio and only 15% exhibited demand equal to or greater than the demand ratio. In simple terms, this means the base demand ratios are engineered to be inherently conservative and are intended to represent a level of demand which is exceptionally high, not average or typical.

By the same token, it is extremely rare when actual observed conditions exceed model outputs, which would suggest the project is generating a level of demand well above the 85th percentile standard. When this occurs, a consultant is tasked with investigating the nature of variance and determining whether there has been an error in methodology or if the project is simply exceptional relative to the data pool used to generate the demand ratios.

Comparison of the parking occupancy counts conducted in May to parking model outputs using the May land use program indicated that the model was generating peak hour parking demand projections on a May weekday that were 51% **higher** than observed conditions and 17% higher on a peak weekday evening than observed weekday evening in May as Illustrated in ***Figure 2***. Similarly, the weekend midday model projects were 32% higher than observed conditions but only 12% higher than a weekend evening. Overall, the model projections were an average of 28% higher than actual observed conditions.

Figure 2: Comparisons of Unadjusted and Calibrated Projections to Observed Conditions



In order to calibrate the model to align with observed conditions, the consulting team applied the previously presented local adjustment factors, illustrated in ***Figure 3.*** As shown in the figure on the preceding page, this calibration brought the model into alignment with observed conditions.

Figure 3: Applied Local Adjustment Factors

Existing Conditions

Running the most current occupied land use program from across the study area through the calibrated model indicated the peak demand on a weekday would occur on a June weekday at 5:00 PM and would equal 5,229 vehicles, which was roughly 22% more vehicles than recorded on the surveyed weekday evening (Friday, May 5th, 2023). Against an effective parking supply of 6,278 spaces, this would mean 83% of the supply across the study area was in use, leaving 1,049 spaces available.

The peak hour for weekends was projected to occur at 8:00 PM on a December Saturday with 5,072 vehicles parked. This figure is 9% higher than the observed occupancy conditions on the evening of Saturday, May 6th, 2023. Under peak hour weekend conditions, 81% of the effective parking supply would be utilized leaving 1,206 empty spaces across the study area.

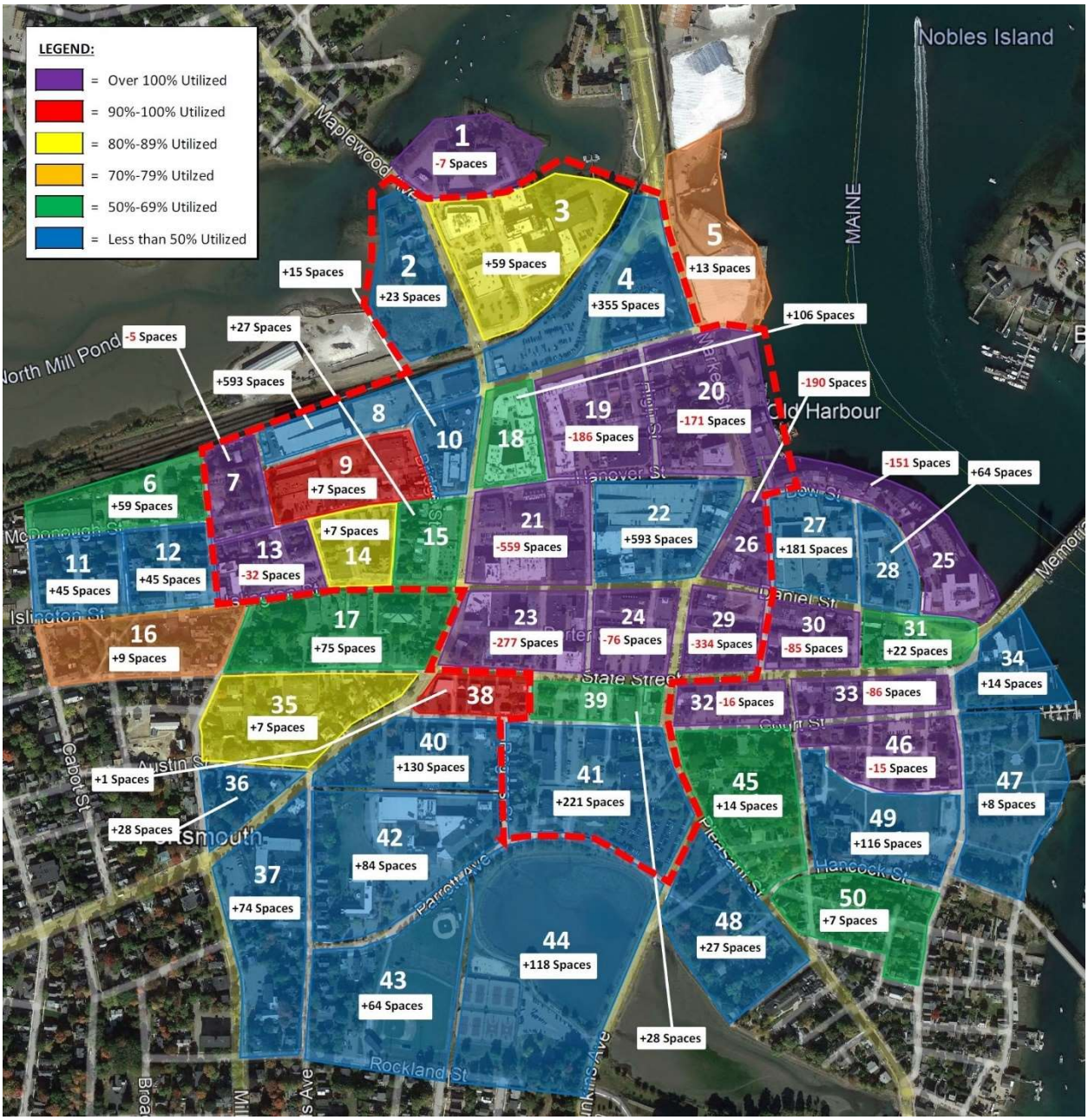
While in the aggregate there appears to be ample available parking within the study area, on a block-by-block basis, substantial shortfalls exist. As mentioned in the methodology, this is not unusual in an urban environment where multiple blocks of dense vertical development share a central parking supply. For example, at the peak hour on a weekday under Existing Conditions every block adjacent to the one containing the Hanover Garage (Block 22) posts substantial shortfalls while the block containing the garage enjoys large surpluses as shown in ***Table 6*** on the following page.

To better illustrate these conditions, the consulting team prepared a series of graphics showing total parking utilization by block across the study area. These graphics present total utilization in terms of 'low' utilization (50% or less utilization) in **blue**; 'moderate' utilization (between 50% and 69% utilization) in **green**; 'growing' utilization (between 70% and 79% utilization) in **orange**; 'high' utilization (between 80% and 89% utilization) in **yellow**; 'major' (90% to 100% of parking filled) in **red**; and lastly 'over utilized' (over 100% of the total parking capacity of the block filled) in **purple**. These are included as ***Figures 4*** and ***5*** on the following pages.

Table 6: Existing Conditions at Peak Hour on Weekdays and Weekends

Block	Effective Supply	Weekday Peak	Surplus/ (Deficit)	Effective Supply	Weekend Peak	Surplus/ (Deficit)
1	96	103	(7)	96	46	50
2	43	20	23	43	1	42
3	289	230	59	289	132	157
4	440	85	355	440	82	358
5	58	45	13	58	-	58
6	69	10	59	69	11	58
7	6	11	(5)	6	16	(10)
8	614	21	593	614	-	614
9	123	116	7	123	92	31
10	31	16	15	31	-	31
11	70	25	45	70	29	41
12	66	21	45	66	35	31
13	59	91	(32)	59	102	(43)
14	58	51	7	58	71	(13)
15	77	50	27	77	58	19
16	41	32	9	41	44	(3)
17	182	107	75	182	66	116
18	236	130	106	236	21	215
19	171	357	(186)	171	215	(44)
20	125	296	(171)	125	334	(209)
21	124	683	(559)	124	999	(875)
22	939	346	593	939	441	498
23	108	385	(277)	108	404	(296)
24	104	180	(76)	104	89	15
25	116	267	(151)	116	270	(154)
26	26	216	(190)	26	234	(208)
27	201	20	181	201	-	201
28	66	2	64	66	-	66
29	148	482	(334)	148	485	(337)
30	48	133	(85)	48	188	(140)
31	66	44	22	66	74	(8)
32	54	70	(16)	54	78	(24)
33	28	114	(86)	28	185	(157)
34	14	-	14	14	-	14
35	44	37	7	44	-	44
36	35	7	28	35	-	35
37	141	67	74	141	128	13
38	25	24	1	25	-	25
39	73	45	28	73	52	21
40	162	32	130	162	16	146
41	338	117	221	338	-	338
42	151	67	84	151	-	151
43	66	2	64	66	4	62
44	118	-	118	118	-	118
45	28	14	14	28	2	26
46	27	42	(15)	27	49	(22)
47	9	1	8	9	19	(10)
48	27	-	27	27	-	27
49	117	1	116	117	-	117
50	21	14	7	21	-	21
TOTAL	**6,278**	**5,229**	**1,049**	**6,278**	**5,072**	**1,206**

Figure 4: Existing Conditions Weekday Peak Hour Demand and Adequacy



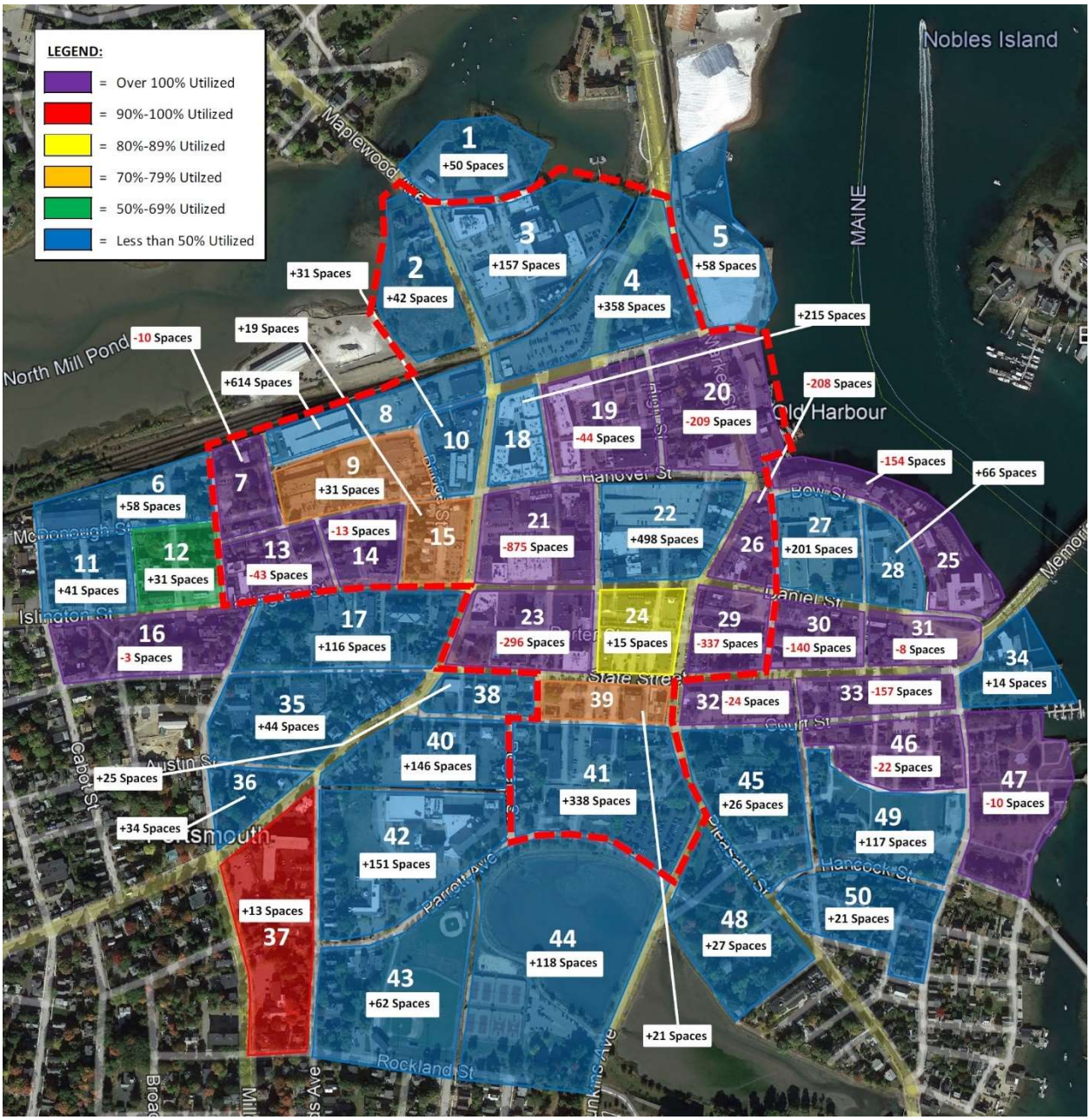
Analysis on the aggregate may ignore or overlook potential shortfalls, while analysis on block-by-block basis may significantly overstate parking issues. The compromise between these approaches is to look at projected parking demand and supply within the boundaries of acceptable walking distance. The majority of the public parking system[2] is contained within the "**Red Zone**" shown in the figure above, which also incorporates much of the Downtown Overlay District. Based on field observations of current parking behaviors, this boundaries of this "Red Zone" define the limits of acceptable walking distance within downtown Portsmouth.

[2] Including the Hanover and Foundry Place Garages; the Market-Hanover, Worth, Bridge Street, and Parrott Avenue Lots; and most of the on-street meters. The Red Zone represents 47% of the total on-street supply and 83% of the public off-street supply.

Within this "Red Zone," the **effective parking supply is 4,132 spaces.** At the peak weekday hour under Existing Conditions, the model projects demand for 3,928 spaces, leaving just 204 spaces open and utilizing 95% of the effective parking supply.

Similarly, while the aggregate approach shows up to 1,206 spaces open across the study area at the peak weekend hour under Existing Conditions, the "Red Zone" analysis projects 3,828 vehicles parked within the 4,132-space effective supply, rendering a utilization rate of 93% and just 304 spaces available.

Figure 5: Existing Conditions Weekend Peak Hour Demand and Adequacy



The review of the results of the aggregate and zonal analyses support the consulting team's initial observations derived from field work conducted in early May 2023 which indicated that the public parking

facilities closest to the downtown core were operating near or at capacity during peak hours on weekday and weekend evenings and any availability in the public parking systems was generally found in outlying surface lots and unregulated curbside parking areas located in the surrounding residential neighborhoods. Similarly, private parking garages and structures were filled to capacity on a consistent basis; where excess capacity existed in the private parking supply, it was primarily in surface lots reserved for an exclusive user group or those open to use by the general public for a fee, but on the periphery of the downtown core.

Absorption

As noted in the land use inventory, the consulting team identified 35 properties containing a total of roughly 130,000 square feet of vacant, inactive space. The spaces are shown in ***Table 7***, below.

Table 7: Vacant Existing Spaces and Absorption Projections

Block	Address	Description	*Existing s.f. GFA*	Retail (s.f. GLA)	Fine Casual (s.f. GLA)	Residential #BR	Residential SF	Office (s.f. GFA)
2	118 Maplewood Ave	Retail Condo	*1,386*	1,386				
3	145 Maplewood Ave	Office Condo	*12,802*					12,802
4	33 Deer St #3A	Retail Condo	*1,172*	1,172				
7	29 Sudbury St	Res Condo	*650*			1	650	
9	361 Hanover St #B	Office Condo	*2,838*					2,838
10	46 Maplewood Ave	Res Condo	*1,200*			2	1,200	
11	323 Islington St	Multi Use	*2,263*					2,263
14	45 Pearl St Unit B	Res Condo	*4,000*	1,200		2	900	1,900
16	180 Islington St	Retail Condo- 1st Floor	*4,000*	4,000				
18	7 Portwalk Place	Residences at Portwalk Place	*1,265*			2	1,265	
19	77 Hanover St #22	"Drip Bar Coming Soon"	*1,211*		1,211			
19	411 The Hill	Office Condo	*1,639*					1,639
20	100 Market St	Multi Use	*19,985*	5,400	5,373			9,212
20	28 Deer St	Multi Use	*5,829*	4,120				1,709
20	205 Market St #3	Res Condo	*920*			2	920	
21	63-75 Congress St	Multi Use	*9,660*	4,431				5,229
21	168 Fleet St	Res Condo	*450*			1	450	
21	25 Maplewood Ave #101	Retail Condo	*962*	962				
21	25 Maplewood Ave #102	Retail Condo	*934*	934				
22	27 Congress St	Office Condo	*8,599*					8,599
22	55 Congress St Unit 601	Res Condo	*550*			1	550	
22	24 Ladd St	Office Condo	*1,400*					1,400
23	104 Congress St	Office Condo	*1,125*					1,125
23	90 Fleet St #5-6	Res Condo	*425*			1	425	
24	40 Pleasant St	Multi Use	*9,860*	2,000	2,000			5,860
24	10 Pleasant St #300	Office Condo	*3,594*					3,594
26	45 Market St	Retail Condo	*1,378*	1,378				
26	2 Bow Street	Retail Condo	*2,228*	2,228				
27	110 Chapel St	Office Bldg.	*4,928*					4,928
29	22 Market Square #1	Restaurant	*4,835*		4,835			
29	60 Penhallow St	Office Condo	*4,561*					4,561
30	20 Chapel St	Res Condo	*1,000*			2	1,000	
33	96 State St	Multi Use	*8,000*	2,702	2,000			3,298
35	600 State St #A	Condo Office	*1,500*					1,500
41	127 Parrott Ave	Condo Office	*2,470*					2,470
GRAND TOTAL			***129,619***	**31,913**	**15,419**	**14**	**7,360**	**74,927**

Working with City officials and local real estate professionals, the consulting team allocated these vacant spaces across four different land uses, based on either the land uses that had been in place when the space was occupied or how the space was being marketed currently.

Application of this program did not change the essential dynamics of parking in downtown Portsmouth, the peak hour on weekdays remained 5:00 PM on a June weekday and the peak hour on weekends remained 8:00 PM on a December Saturday. However, the addition of this land use program to model resulted in peak hour parking demand which increased by 364 vehicles at the peak hour on a weekday and 345 vehicles at the peak hour on a weekend.

As ***Table 8*** on the following page shows, peak hour demand on a weekday is projected to be 5, 593 vehicles against the effective parking supply of 6,278 spaces, resulting in a utilization rate of 89% and a surplus of 685 vehicles across the whole of the study area. For the peak weekend hour, the aggregate demand was equal to 5,417 vehicles against the effective parking supply, rendering a utilization rate of 86% and a surplus of just 861 spaces.

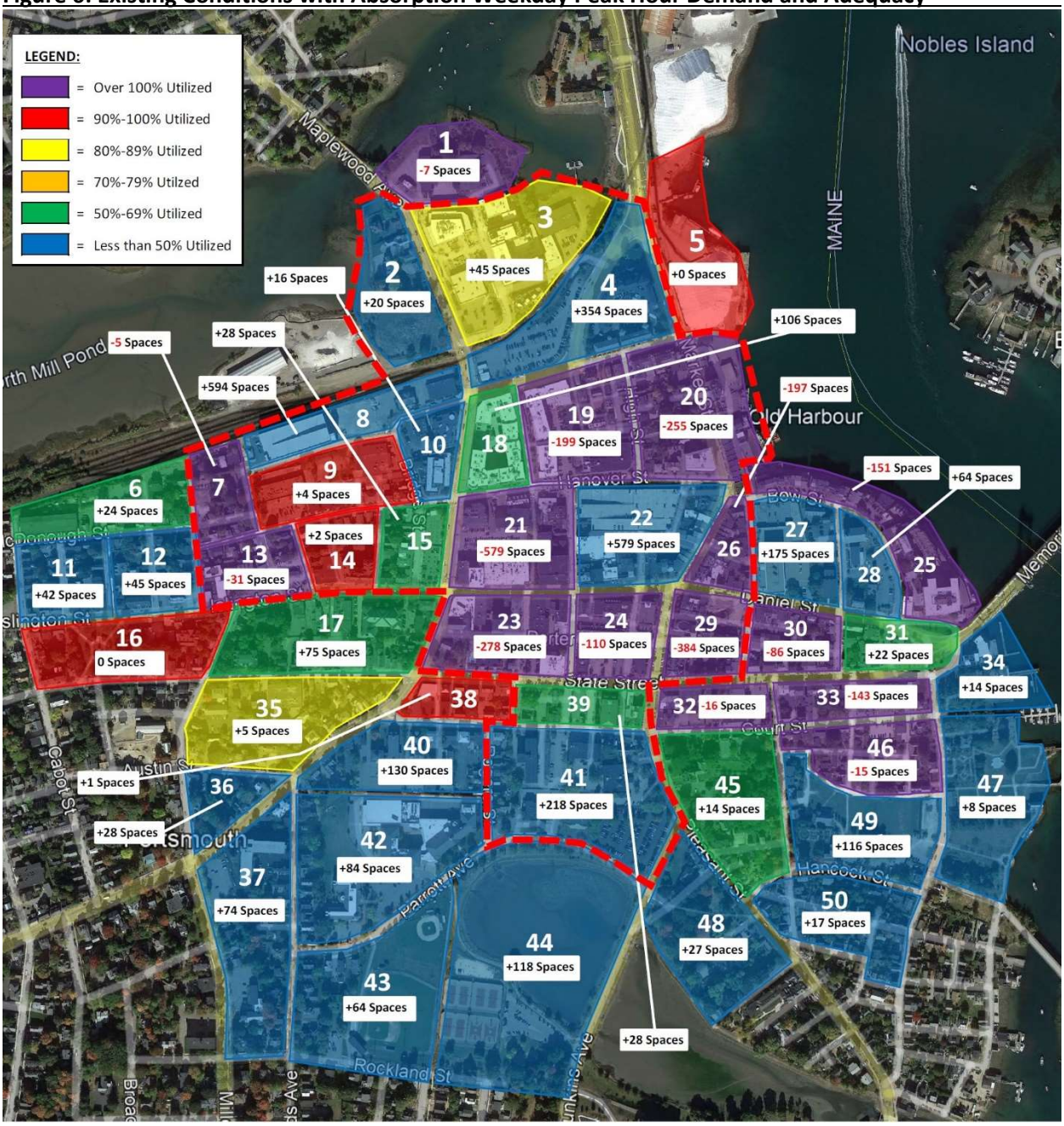
The ”Red Zone” analysis showed a total of 4,176 vehicles parked against an effective parking supply of 4,132 spaces, indicating a shortfall of 44 spaces at the peak weekday hour. Similarly, at the peak weekend hour, there were a projected 4,129 vehicles parked with the 4,132-space effective parking supply, leaving just 3 spaces open.

As with the prior iteration (Existing Conditions), the consulting team believes any surplus shown in the aggregate is likely located in the blocks at the perimeter of the downtown core, the majority of which contain residential neighborhoods, as shown in ***Figures 6*** and ***7*** on the following pages. Within the “Red Zone” it would appear the absorption of current vacant space will deplete any surpluses projected under Existing Conditions.

Table 8: Existing Conditions + Absorption at Peak Hour on Weekdays and Weekends

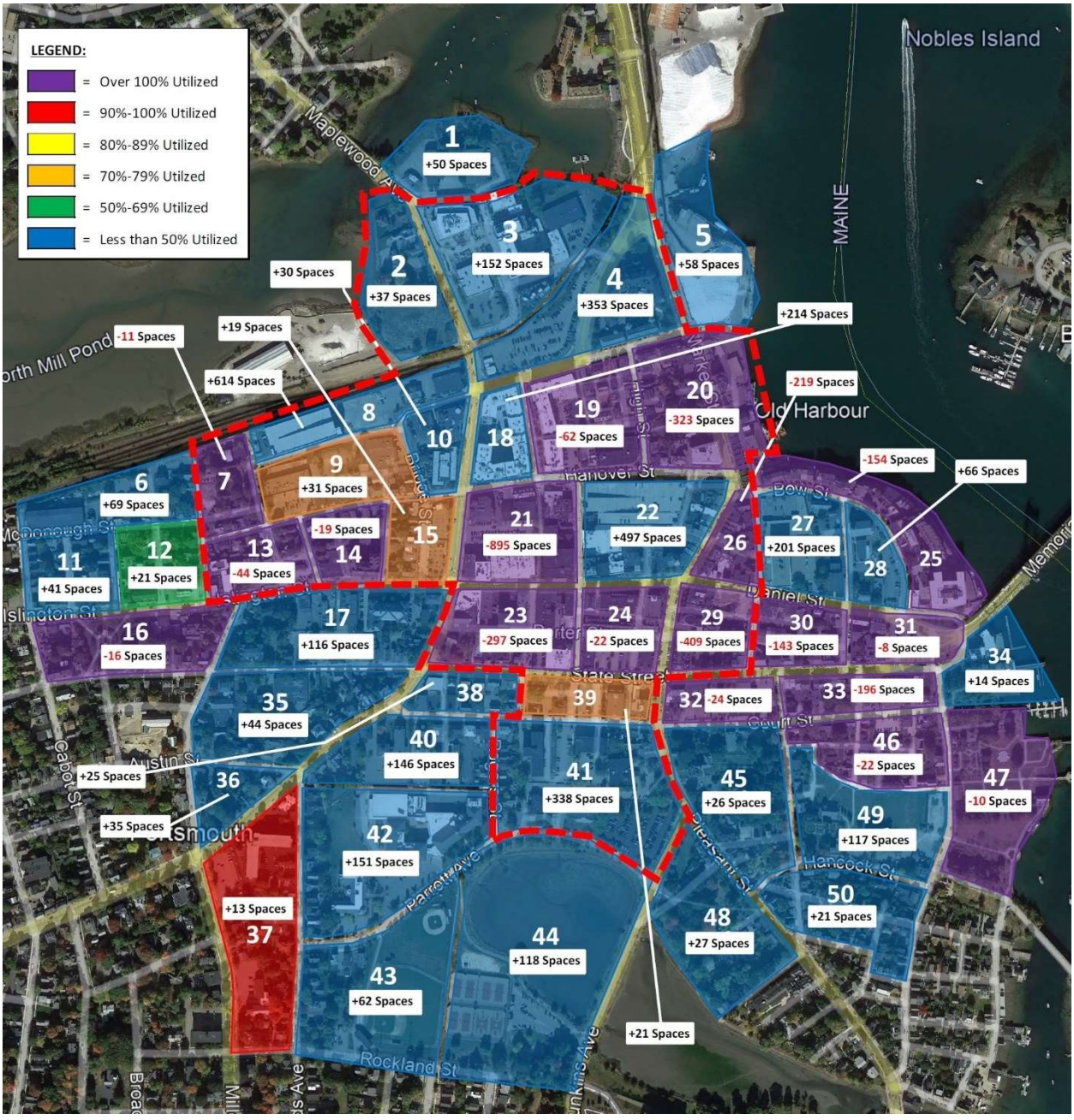
Block	Effective Supply	Weekday Peak	Surplus/ (Deficit)	Effective Supply	Weekend Peak	Surplus/ (Deficit)
1	96	103	(7)	96	46	50
2	43	23	20	43	6	37
3	289	244	45	289	137	152
4	440	86	354	440	87	353
5	58	58	-	58	-	58
6	69	45	24	69	-	69
7	6	11	(5)	6	17	(11)
8	614	20	594	614	1	613
9	123	119	4	123	92	31
10	31	15	16	31	1	30
11	70	28	42	70	29	41
12	66	21	45	66	35	31
13	59	90	(31)	59	103	(44)
14	58	56	2	58	77	(19)
15	77	49	28	77	58	19
16	41	41	-	41	57	(16)
17	182	107	75	182	66	116
18	236	130	106	236	22	214
19	171	370	(199)	171	233	(62)
20	125	380	(255)	125	448	(323)
21	124	703	(579)	124	1,019	(895)
22	939	360	579	939	442	497
23	108	386	(278)	108	405	(297)
24	104	214	(110)	104	127	(23)
25	116	267	(151)	116	270	(154)
26	26	223	(197)	26	245	(219)
27	201	26	175	201	-	201
28	66	2	64	66	-	66
29	148	532	(384)	148	557	(409)
30	48	134	(86)	48	191	(143)
31	66	44	22	66	74	(8)
32	54	70	(16)	54	78	(24)
33	28	171	(143)	28	224	(196)
34	14	-	14	14	-	14
35	44	39	5	44	-	44
36	35	7	28	35	-	35
37	141	67	74	141	128	13
38	25	24	1	25	-	25
39	73	45	28	73	52	21
40	162	32	130	162	16	146
41	338	120	218	338	-	338
42	151	67	84	151	-	151
43	66	2	64	66	4	62
44	118	-	118	118	-	118
45	28	14	14	28	2	26
46	27	42	(15)	27	49	(22)
47	9	1	8	9	19	(10)
48	27	-	27	27	-	27
49	117	1	116	117	-	117
50	21	4	17	21	-	21
TOTAL	**6,278**	**5,593**	**685**	**6,278**	**5,417**	**861**

Figure 6: Existing Conditions with Absorption Weekday Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,278	5,593	685	89%
"Red Zone"	4,132	4,176	(44)	101%

Figure 7: Existing Conditions with Absorption Weekend Peak Hour Demand and Adequacy

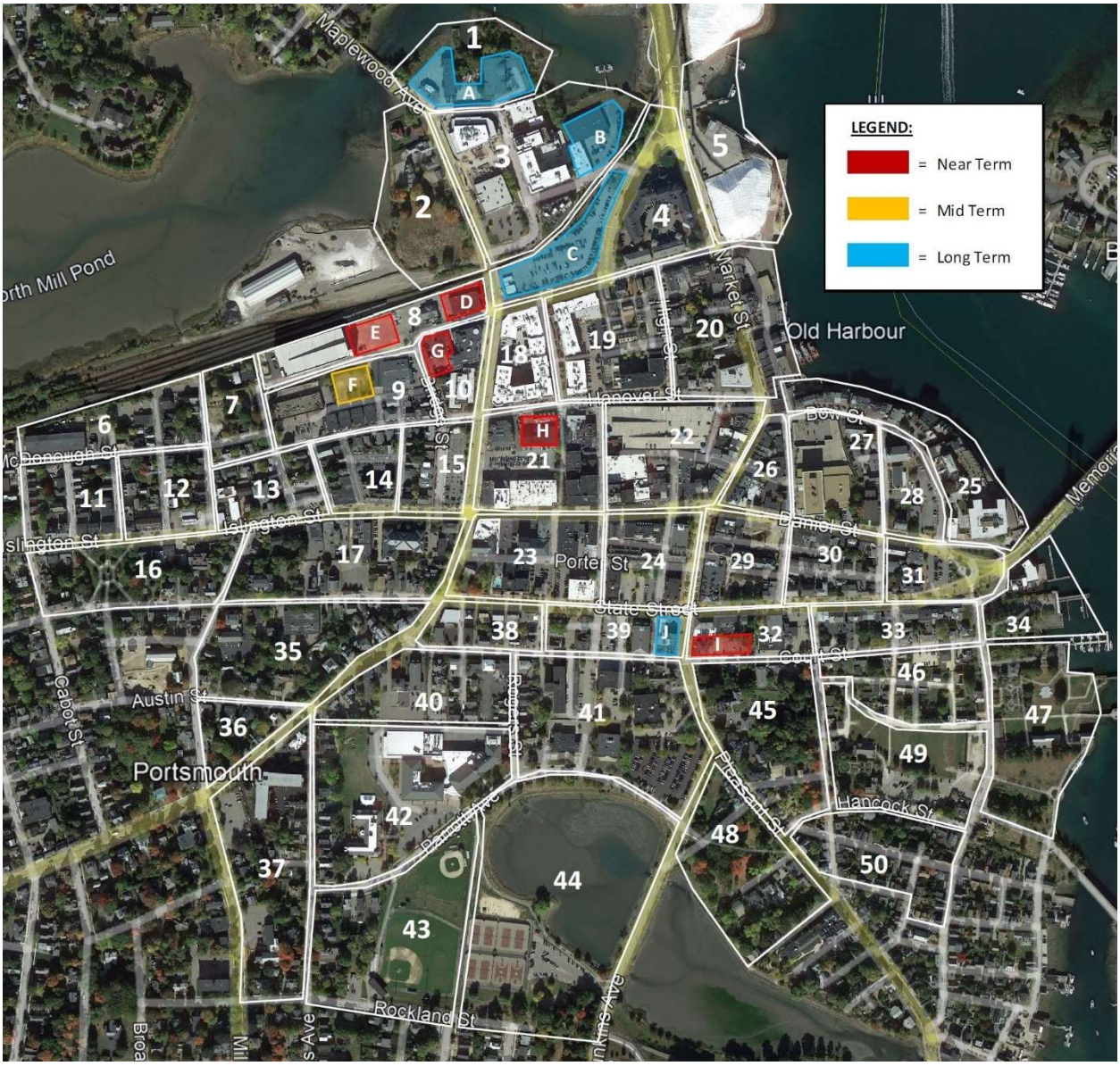


Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,278	5,417	861	86%
"Red Zone"	4,132	4,129	3	100%

Emerging Developments

Working with City officials, the consulting team identified ten emerging developments that will impact parking dynamics in the study area over the next 10 years. The location of the projects is shown in ***Figure 8***, below.

Figure 8: Emerging Developments by Location and Phase



This listing did not include several projects reported upon in local media, but not yet subject to an official filing for development, including the McIntyre Building. These projects were not included in the analysis due to the lack of defined development program to analyze. Emerging developments were organized according to the timing of anticipated completion. “Near-Term” projects were those likely to be done within the next four years; “Mid-Term” projects were still in design and projected to open in the next five to seven years; “Long-Term” projects were still in planning and permitting stages and anticipated to come online in the next eight to ten years.

The development program for each emerging development was developed from official plans and filings, news reports, and conversations with City officials. Planned parking was taken from the same plans, filings, and/or news reports, while displaced parking was estimated based on the proposed site of each development relative to existing parking facilities. None of the projects proposed reducing the current public parking inventory, but several projects were planned to use public parking facilities to meet some or all of the needs of the proposed land uses. Project specific information is included in ***Table 9***.

Table 9: Emerging Developments Program Data

ID	Property Name	Property Address	Dev't Phase	Commerical /Retail	Hotel Rooms	Hotel SF	Residential Units	Residential SF	Commerical /Office	Planned Parking	Displaced Parking	Surplus/ (Deficit)
A	1 Raynes Ave (XXS Hotels)	203 Maplewood Ave	Long Term	7,720	124	65,890	33	46,202		138	(101)	37
B	53 Green St (Cathartes)	53 Green St	Long Term	2,350			45	73,581		32	(58)	(26)
C	Sheraton Parking Lot	2 Russel St	Long Term	24,000			116	97,000	46,090	180	(208)	(28)
D	Lot 5 (Harbor Eyecare Center)	70 Maplewood Ave	Near Term	8,262			19	17,000	3,632	31	0	31
E	Lot 3 (Hyatt Place)	165 Deer St	Near Term		144	98,868				75	0	75
F	Lot 6 (Residences @ Foundry Place)	89-99 Deer St	Mid Term	1,867			51	72,920		34	(10)	24
G	Statey Bar & Grill Site	238 Deer St	Near Term				21	10,775		0	0	0
H	Novocure Headquarters	64 Vaughan St	Near Term						59,124	20	0	20
I	Treadwell-Jenness Mansion	93 Pleasant St	Near Term						44,000	20	(30)	(10)
J	Times Building	266-278 State St	Long Term	8,311			15	5,481		23	0	23
TOTALS				**52,510**	**268**	**164,758**	**300**	**322,959**	**152,846**	**553**	**(407)**	**146**

Near-Term Developments

The five Near-Term emerging developments represent a total of 241,661 square feet of new development, including a new 144-room hotel and 40 new residential units. The projects will introduce 146 new parking spaces to support hotel guests and residents, but displace 30 existing parking spaces located in private parking lots.

The change in parking supply will add 126 spaces to the existing effective parking supply, increasing the effective parking supply to 6,404 spaces across the study area. Within the "Red Zone," the effective parking supply will grow by 106 spaces to 4,238 spaces.

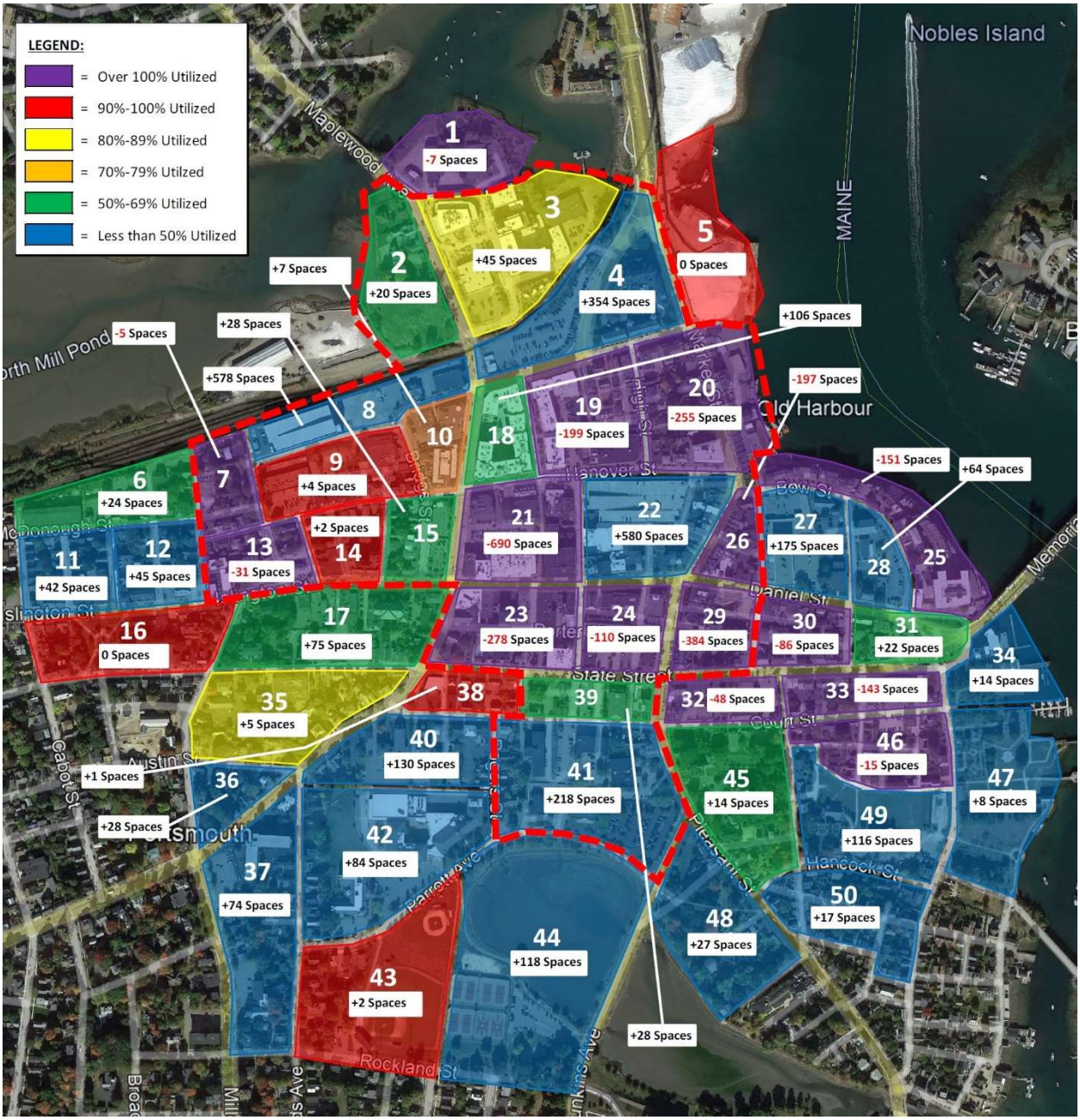
The Near-Term program will increase peak hour parking demand by 355 vehicles on a weekday and 136 spaces on a weekend over the prior iteration (Absorption). Under Near-Term conditions, the projected peak hour demand across the study area is 5,948 vehicles against 6,404 spaces, resulting in a utilization rate of 93% and a surplus of 456 spaces. On weekends, peak hour demand in the aggregate will equal 5,553 vehicles against 6,404 spaces, rendering a utilization rate of 87% and a surplus of 851 spaces.

Within the "Red Zone," peak hour demand on a weekday is projected to equal 4,417 vehicles against 4,238 spaces, creating a 179-space shortfall. On weekends, peak hour demand is projected to be 4,265 vehicles, resulting in a shortfall of 27 spaces.

Table 10: Near-Term Conditions at Peak Hour on Weekdays and Weekends

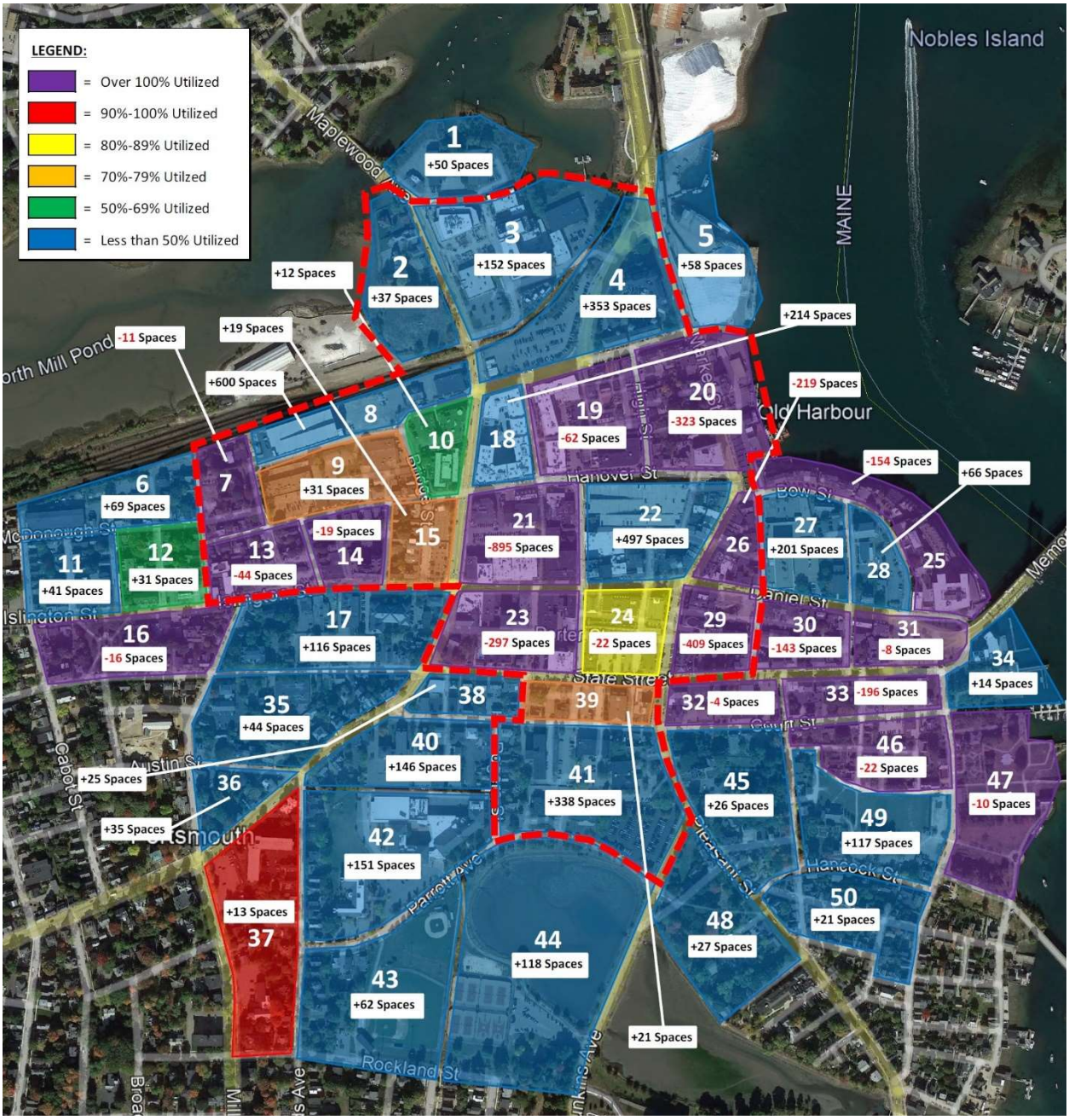
Block	Effective Supply	Weekday Peak	Surplus/ (Deficit)	Effective Supply	Weekend Peak	Surplus/ (Deficit)
1	96	103	(7)	96	46	50
2	43	23	20	43	6	37
3	289	244	45	289	137	152
4	440	86	354	440	87	353
5	58	58	-	58	-	58
6	69	45	24	69	-	69
7	6	11	(5)	6	17	(11)
8	720	142	578	720	120	600
9	123	119	4	123	92	31
10	31	24	7	31	19	12
11	70	28	42	70	29	41
12	66	21	45	66	35	31
13	59	90	(31)	59	103	(44)
14	58	56	2	58	77	(19)
15	77	49	28	77	58	19
16	41	41	-	41	57	(16)
17	182	107	75	182	66	116
18	236	130	106	236	22	214
19	171	370	(199)	171	233	(62)
20	125	380	(255)	125	448	(323)
21	124	814	(690)	124	1,019	(895)
22	939	359	580	939	442	497
23	108	386	(278)	108	405	(297)
24	104	214	(110)	104	126	(22)
25	116	267	(151)	116	270	(154)
26	26	223	(197)	26	245	(219)
27	201	26	175	201	-	201
28	66	2	64	66	-	66
29	148	532	(384)	148	557	(409)
30	48	134	(86)	48	191	(143)
31	66	44	22	66	74	(8)
32	74	122	(48)	74	78	(4)
33	28	171	(143)	28	224	(196)
34	14	-	14	14	-	14
35	44	39	5	44	-	44
36	35	7	28	35	-	35
37	141	67	74	141	128	13
38	25	24	1	25	-	25
39	73	45	28	73	52	21
40	162	32	130	162	16	146
41	338	120	218	338	-	338
42	151	67	84	151	-	151
43	66	64	2	66	4	62
44	118	-	118	118	-	118
45	28	14	14	28	2	26
46	27	42	(15)	27	49	(22)
47	9	1	8	9	19	(10)
48	27	-	27	27	-	27
49	117	1	116	117	-	117
50	21	4	17	21	-	21
TOTAL	**6,404**	**5,948**	**456**	**6,404**	**5,553**	**851**

Figure 9: Near-Term Conditions Weekday Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,404	5,948	456	93%
"Red Zone"	4,238	4,417	(179)	104%

Figure 10: Near-Term Conditions Weekend Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,404	5,553	851	87%
"Red Zone"	4,238	4,265	(27)	101%

Mid-Term Developments

The one Mid-Term emerging development represents a total of 74,787 square feet of new development, including 51 new residential units. The project will introduce 34 new parking spaces to support residents, but displace 10 existing parking spaces located in a private parking lot.

The change in parking supply will add 25 spaces to the existing effective parking supply, increasing the effective parking supply to 6,429 spaces across the study area and 4,263 spaces within the "Red Zone".

The Mid-Term program will decrease peak hour parking demand by 20 vehicles on a weekday due to elimination of some existing office space, but add 80 spaces on a weekend over the prior iteration (Near-Term).

Under Mid-Term conditions, the projected peak hour demand across the study area is 5,928 vehicles against 6,429 spaces, resulting in a utilization rate of 92% and a surplus of 501 spaces. On weekends, peak hour demand in the aggregate will equal 5,633 vehicles against 6,429 spaces, rendering a utilization rate of 88% and a surplus of 796 spaces.

Within the "Red Zone," peak hour demand on a weekday is projected to equal 4,459 vehicles against 4,263 spaces, creating a 196-space shortfall. On weekends, peak hour demand is projected to be 4,345 vehicles, resulting in a shortfall of 82 spaces.

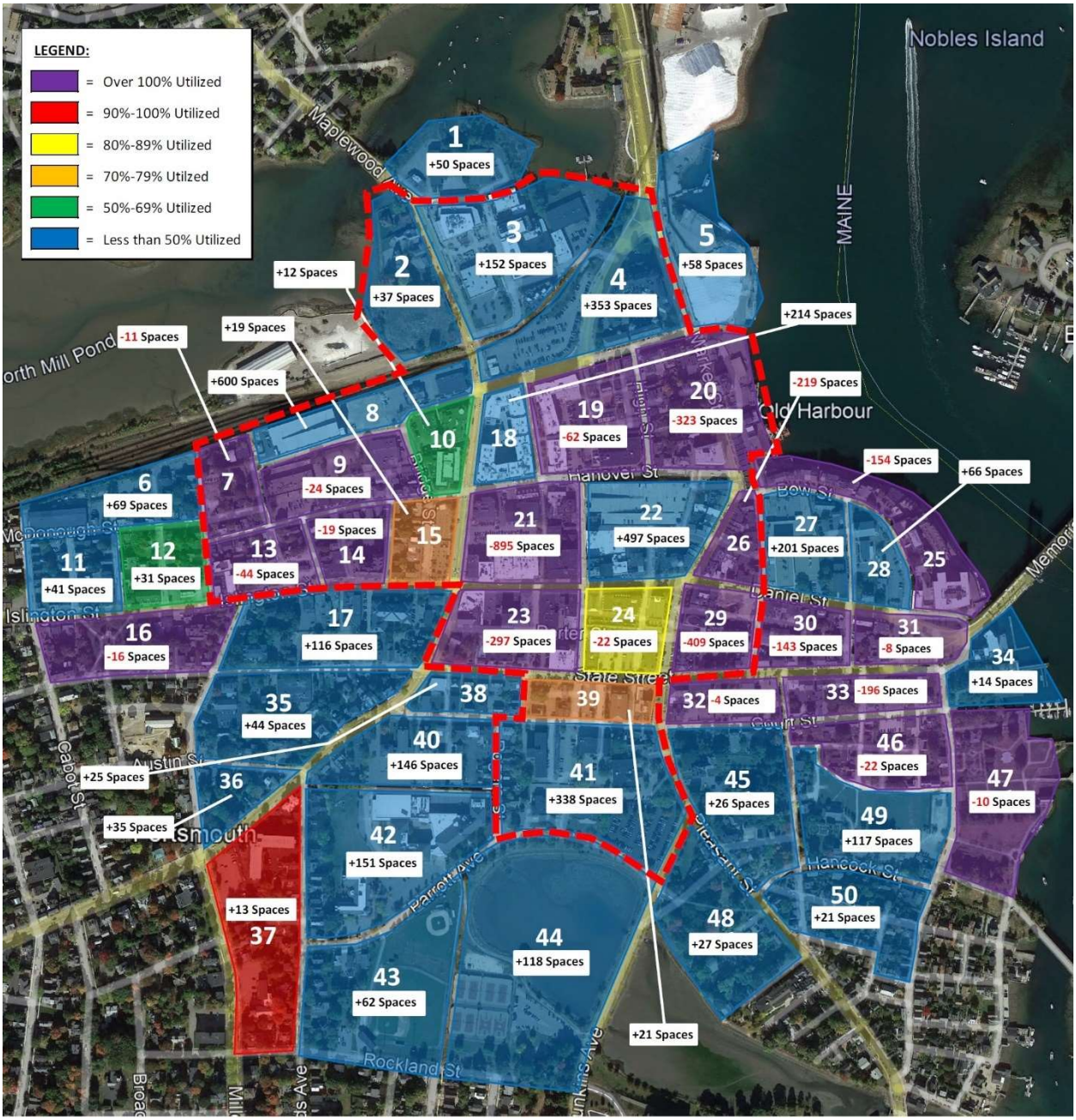
Table 11: Mid-Term Conditions at Peak Hour on Weekdays and Weekends

Block	Effective Supply	Weekday Peak	Surplus/ (Deficit)	Effective Supply	Weekend Peak	Surplus/ (Deficit)
1	96	103	(7)	96	46	50
2	43	23	20	43	6	37
3	289	244	45	289	137	152
4	440	86	354	440	87	353
5	58	58	-	58	-	58
6	69	45	24	69	-	69
7	6	11	(5)	6	17	(11)
8	720	142	578	720	120	600
9	148	161	(13)	148	172	(24)
10	31	24	7	31	19	12
11	70	28	42	70	29	41
12	66	21	45	66	35	31
13	59	90	(31)	59	103	(44)
14	58	56	2	58	77	(19)
15	77	49	28	77	58	19
16	41	41	-	41	57	(16)
17	182	107	75	182	66	116
18	236	130	106	236	22	214
19	171	370	(199)	171	233	(62)
20	125	380	(255)	125	448	(323)
21	124	814	(690)	124	1,019	(895)
22	939	359	580	939	442	497
23	108	386	(278)	108	405	(297)
24	104	214	(110)	104	126	(22)
25	116	267	(151)	116	270	(154)
26	26	223	(197)	26	245	(219)
27	201	26	175	201	-	201
28	66	2	64	66	-	66
29	148	532	(384)	148	557	(409)
30	48	134	(86)	48	191	(143)
31	66	44	22	66	74	(8)
32	74	122	(48)	74	78	(4)
33	28	171	(143)	28	224	(196)
34	14	-	14	14	-	14
35	44	39	5	44	-	44
36	35	7	28	35	-	35
37	141	67	74	141	128	13
38	25	24	1	25	-	25
39	73	45	28	73	52	21
40	162	32	130	162	16	146
41	338	120	218	338	-	338
42	151	67	84	151	-	151
43	66	2	64	66	4	62
44	118	-	118	118	-	118
45	28	14	14	28	2	26
46	27	42	(15)	27	49	(22)
47	9	1	8	9	19	(10)
48	27	-	27	27	-	27
49	117	1	116	117	-	117
50	21	4	17	21	-	21
TOTAL	**6,429**	**5,928**	**501**	**6,429**	**5,633**	**796**

Figure 11: Mid-Term Conditions Weekday Peak Hour Demand and Adequacy

Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,429	5,928	501	92%
"Red Zone"	4,263	4,459	(196)	105%

Figure 12: Mid-Term Conditions Weekend Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,429	5,633	796	88%
"Red Zone"	4,263	4,345	(82)	102%

Long-Term Developments

The four Long-Term emerging developments represent a total of 376,625 square feet of new development, including a new 124-room hotel and 209 new residential units. The projects will introduce 373 new parking spaces to support hotel guests and residents, but displace 367 existing parking spaces located in private parking lots.

The change in parking supply will add 43 spaces to the existing effective parking supply, increasing the effective parking supply to 6,472 spaces across the study area. Within the "Red Zone," the effective parking supply will decrease by 4 spaces to 4,259 spaces.

The Long-Term program will increase peak hour parking demand by 348 vehicles on a weekday and 492 spaces on a weekend over the prior iteration (Mid-Term).

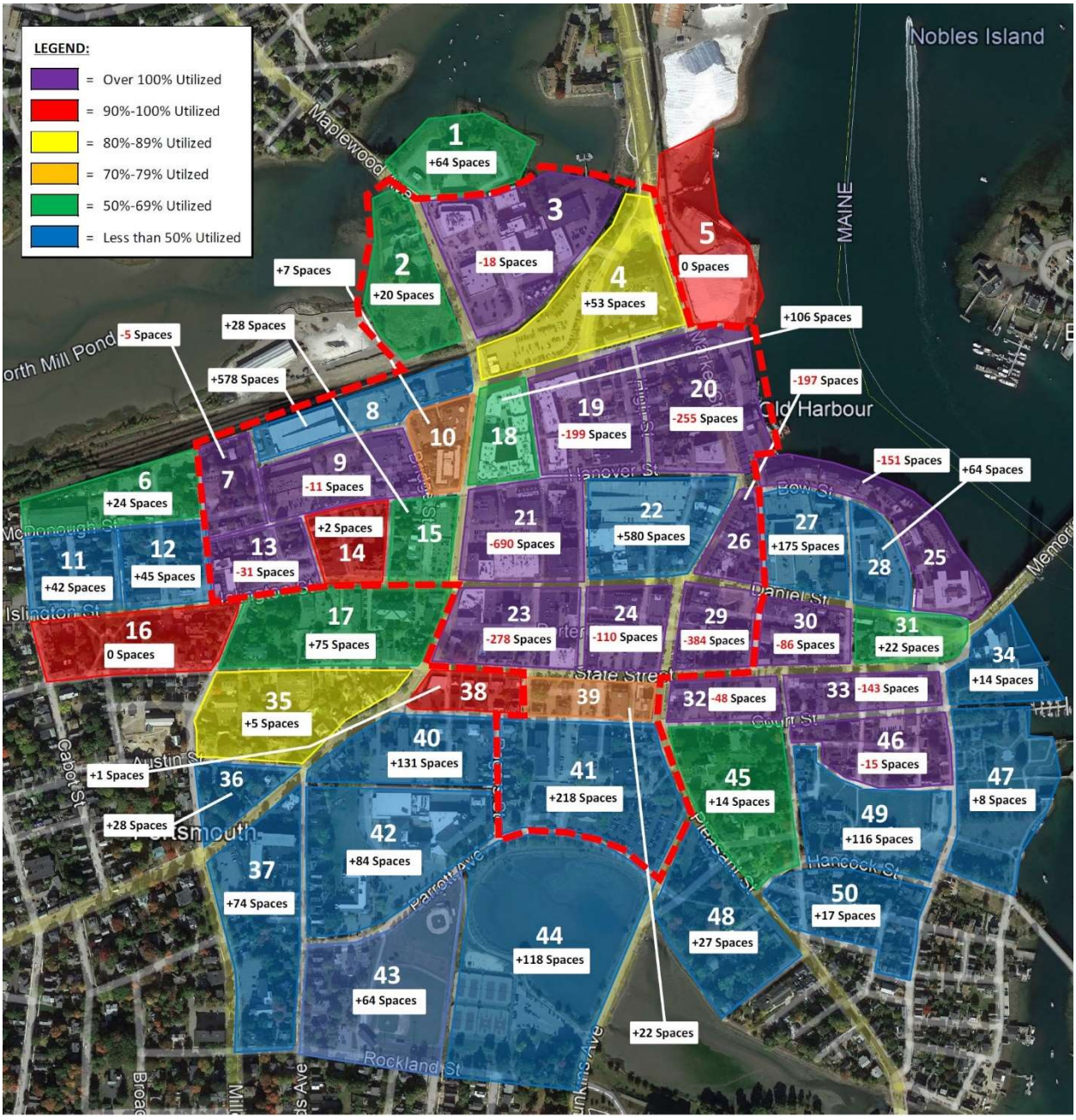
Under Long-Term conditions, the projected peak hour demand across the study area is 6,276 vehicles against 6,472 spaces, resulting in a utilization rate of 97% and a surplus of 196 spaces. On weekends, peak hour demand in the aggregate will equal 6,125 vehicles against 6,472 spaces, rendering a utilization rate of 95% and a surplus of 347 spaces.

Within the "Red Zone," peak hour demand on a weekday is projected to equal 4,832 vehicles against 4,259 spaces, creating a 573-space shortfall. On weekends, peak hour demand is projected to be 4,809 vehicles, resulting in a shortfall of 550 spaces.

Table 12: Long-Term Conditions at Peak Hour on Weekdays and Weekends

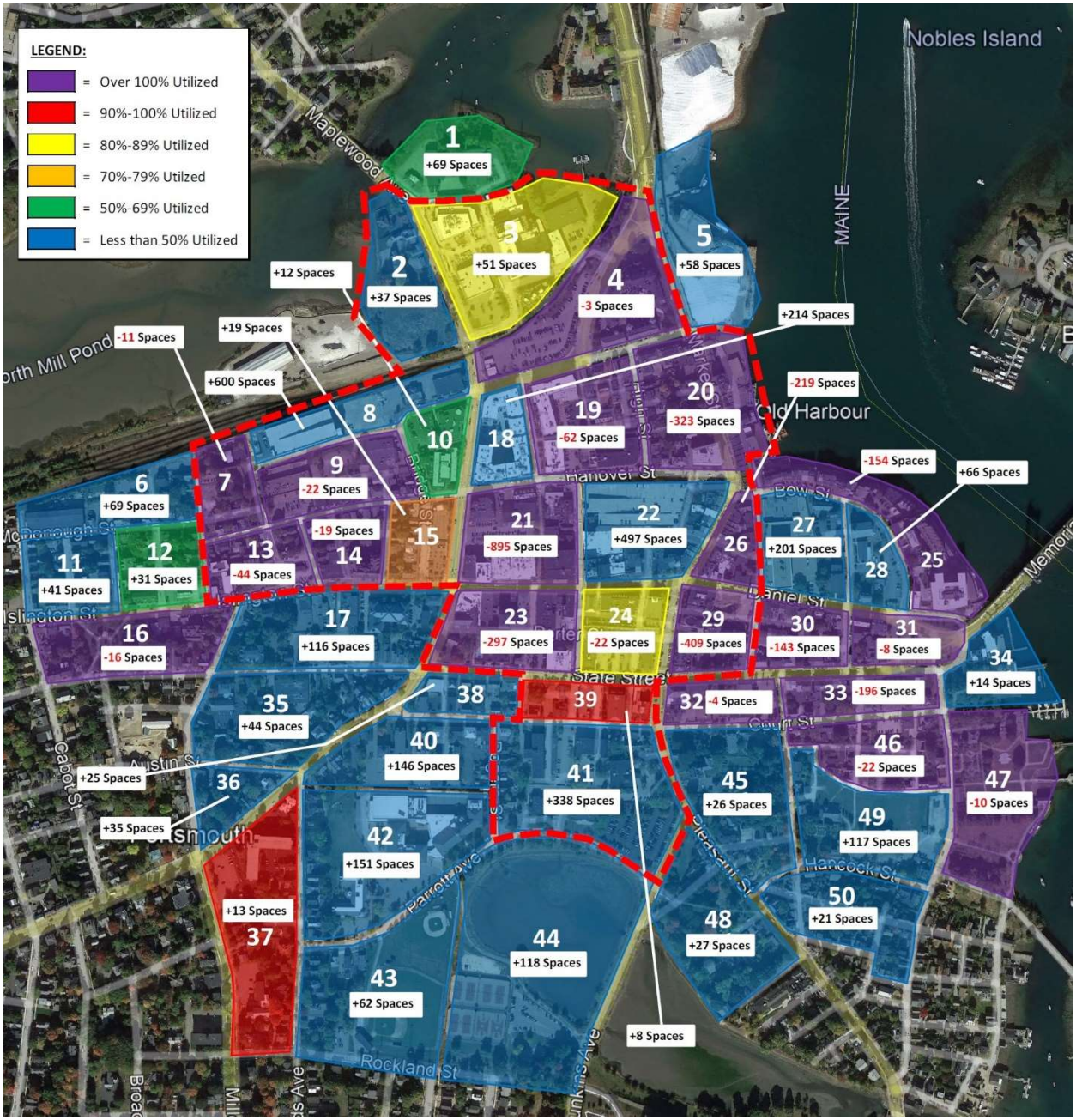
Block	Effective Supply	Weekday Peak	Surplus/ (Deficit)	Effective Supply	Weekend Peak	Surplus/ (Deficit)
1	143	79	64	143	74	69
2	43	23	20	43	6	37
3	269	287	(18)	269	218	51
4	433	380	53	433	436	(3)
5	58	58	-	58	-	58
6	69	45	24	69	-	69
7	6	11	(5)	6	17	(11)
8	720	142	578	720	120	600
9	148	159	(11)	148	170	(22)
10	31	24	7	31	19	12
11	70	28	42	70	29	41
12	66	21	45	66	35	31
13	59	90	(31)	59	103	(44)
14	58	56	2	58	77	(19)
15	77	49	28	77	58	19
16	41	41	-	41	57	(16)
17	182	107	75	182	66	116
18	236	130	106	236	22	214
19	171	370	(199)	171	233	(62)
20	125	380	(255)	125	448	(323)
21	124	814	(690)	124	1,019	(895)
22	939	359	580	939	442	497
23	108	386	(278)	108	405	(297)
24	104	214	(110)	104	126	(22)
25	116	267	(151)	116	270	(154)
26	26	223	(197)	26	245	(219)
27	201	26	175	201	-	201
28	66	2	64	66	-	66
29	148	532	(384)	148	557	(409)
30	48	134	(86)	48	191	(143)
31	66	44	22	66	74	(8)
32	74	122	(48)	74	78	(4)
33	28	171	(143)	28	224	(196)
34	14	-	14	14	-	14
35	44	39	5	44	-	44
36	35	7	28	35	-	35
37	141	67	74	141	128	13
38	25	24	1	25	-	25
39	96	83	13	96	88	8
40	162	31	131	162	16	146
41	338	120	218	338	-	338
42	151	67	84	151	-	151
43	66	2	64	66	4	62
44	118	-	118	118	-	118
45	28	14	14	28	2	26
46	27	42	(15)	27	49	(22)
47	9	1	8	9	19	(10)
48	27	-	27	27	-	27
49	117	1	116	117	-	117
50	21	4	17	21	-	21
TOTAL	**6,472**	**6,276**	**196**	**6,472**	**6,125**	**347**

Figure 13: Long-Term Conditions Weekday Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,472	6,276	196	97%
"Red Zone"	4,259	4,832	(573)	113%

Figure 14: Long-Term Conditions Weekend Peak Hour Demand and Adequacy



Scenario	Effective Parking Supply	Peak Hour Demand	Surplus/ (Deficit)	Utilization
Study Area	6,472	6,125	347	95%
"Red Zone"	4,259	4,809	(550)	113%

Summary of Findings and Recommendations

Based on the preceding analysis, it would appear the downtown core will need to add roughly 600 parking spaces in the next decade to address the projected “Red Zone” shortfalls. Those surpluses projected on an aggregate basis exist primarily in private parking lots and residential streets outside the downtown core which are not readily accessible to workers, diners, shoppers, tenants, and visitors associated with the roughly 693,000 square feet of new development in the current pipeline.

In addition, the rising competition for available parking within the “Red Zone” that will escalate as existing vacant space is absorbed by the market will create an incentive for parkers searching for open space to flee into the abutting residential neighborhoods seeking out open and ‘free’ parking along the unregulated streets. In anticipation of this, the consulting team would recommend the City begin designing programs and measures to regulate the use of on-street spaces in these areas as soon as possible.

The consulting team would also recommend the City begin identifying potential satellite parking facility locations outside the defined study area immediately and begin designing supporting shuttle systems to convey long-term and displaced parkers while the City identifies the best site on which to expand the public parking system.