

APPENDIX B: EXISTING CONDITIONS



MEMORANDUM

To: Town of Barnstable
From: Nelson\Nygaard Consulting Associates Inc.
Date: March 29, 2017
Subject: Hyannis Parking Study: Existing Conditions

Working closely with the Town of Barnstable, the consultant team documented and evaluated the parking environment in downtown Hyannis. This memorandum provides data and analysis to aid Town staff, officials and other stakeholders to understand the existing transportation and parking conditions in the downtown area of Hyannis.

The intent of this effort is to establish a benchmark of current parking supply that is both broad and detailed, as well as regulations and use in the downtown Hyannis Study Area. Through close correspondence with the Town, the team defined a study area to include all critical parking assets and encompass any perceived parking issues. This documentation of existing conditions will inform the team's recommendations and provided a benchmark for community discussion and policy decisions on parking, the transportation system, and land use.

This document is the first of three technical memoranda that detail the analysis supporting the Downtown Parking Study:

- Technical Memorandum #1: Existing Conditions
- Technical Memorandum #2: User Perspective
- Technical Memorandum #3: Land Use Analysis

This Existing Conditions Technical Memorandum is intended to document the supply, use, and management of parking in Downtown Hyannis. This memorandum will outline the current state of parking covering on-street, off-street, public, and private assets. Additionally, this memorandum shows parking within a larger operational and transportation context. To convey this detailed, complex information, this memorandum uses maps, tables, and summaries organized under the headings below:

- **Background** – A summarization of the extensive work that has been conducted over the past several years related to parking, as well as the insight of key stakeholders involved
- **Parking Inventory** – A review of all parking spaces by location and regulation
- **Parking Utilization** – Observed use of existing parking through the course of a typical weekday and weekend day, which includes utilization profiles of "core" areas, general and restricted access ramps and lots, and publicly- and privately -owned ramps and lots

The data summarized in this report was primarily collected in May and August 2016 by Nelson\Nygaard Consulting Associates and the Town of Barnstable.

1 BACKGROUND AND DOCUMENT REVIEW

Several valuable past planning efforts help set the stage for this current study. A review of relevant reports which serve as important context for the parking strategy was conducted in the spring of 2016, and a summary of these studies and their treatment of issues and goals related to parking and transportation is described below:

- **The Future of Parking in Downtown Hyannis (2013)** provides an overview of the Town's planning initiatives related to parking and downtown revitalization. The document also suggests approaches for strengthening the Town's identity, a summary evaluation of parking and circulation problems and potential solutions to explore. The report also identifies possible local, state, private/institutional, and federal sources of funding. Several short- and long-term recommendations are as follows:
 - *Short-term recommendations* include restoring Main Street and South Street to two-way circulation, enforcing parking regulations, creating pedestrian connections from North Street lots to Main Street, and developing comprehensive wayfinding signage improvements.
 - *Long-term recommendations* include the addition of structured parking, centrally-located and intended to benefit all the business interests, both waterfront and downtown, both seasonal and year-round.
- **The Cape Cod Regional Transportation Plan (2016)** is the federally mandated long range transportation plan for Cape Cod. The plan states expected transportation needs up until the year 2040, potential funding sources and preferences gathered from public feedback. Projects identified near Downtown Hyannis included circulation changes to Yarmouth Road and the Airport/Route 28 Rotary.
- **The Hyannis Kennedy Legacy Trail (2012)** explored the feasibility of a walking trail connection historic Hyannis sites related the Kennedy family. The project includes adding placards and wayfinding signage to existing sidewalks, add improving lighting and sidewalk conditions along Pearl Street.
- **The Hyannis Village Comprehensive Plan (2005)** stated goals and policies related to (1) Land use, (2) Natural Resources, (3) Economic Development, (4) Capital facilities and Infrastructure, (5) Community Housing and (6) Heritage Preservation for the village of Hyannis. The document attempts to align town policy with future state projects and the goals of town officials.
- **The Gateway Hyannis –Hyannis Harbor Land Use Analysis and Economic Development Strategy (2010)** recommends that prime parcels should be developed into coordinated public options for parking. This strategy calls for increased usage efficiency and coordination of the many existing parking areas, including coordinated parking management and shuttle service. The report also recommends that the Town consider a surface lot or garage in a mid-block location similar to the Lewis Bay Steamship lot.
- **The Route 132 Corridor Report (2010)** examined existing conditions along Route 132 in Barnstable related to the built environment and traffic circulation. The focus of the document is on existing conditions, describing the highway oriented design of the retail

Technical Memorandum #1- Existing Conditions
Town of Barnstable

- corridor along with current traffic conditions. It noted a number of current issues, such as an uninviting walking environment, very large building setbacks and too many single use sites. Opportunities included widening sidewalks and adding landscaping, encouraging parking masked from the street and decked parking instead of surface parking, and a diversification of building uses.
- **The Downtown Hyannis Traffic Circulation Study (2002)** took a preliminary look at the effects off two-way conversion of many of the streets in Downtown Hyannis. The study analyzed impacts based on the following categories: (1) Safety, (2) Roadway Capacity/Traffic Operations, (3) Parking Impacts, (4) Economic Impacts and (5) Cost. The study examined both converting Main Street and South Street to two way travel and retaining the current traffic pattern, but with additional traffic calming measures. Preliminary study determined increased safety impacts for all users, little to no changes in overall roadway level of service, economic benefits for business owners, and costs of \$2 to \$4 million for implementation. Traffic calming measures would result in a loss of 56 parking spaces, while two way conversation resulted in a loss of 89 spaces.

2 PARKING INVENTORY

A complete understanding of parking supply and regulations is the base component to understanding parking patterns and behaviors. This analysis includes all parking within the defined study area, both publicly accessible and privately restricted, and excluding driveways in residential areas. The inventory was compiled and used to create a complete parking database of all parking facilities in downtown Hyannis. The database was then geo-coded to spatially display the existing parking locations. This initial work created the base information used throughout the entire project.

STUDY AREA

The study area selected for the parking study covers the majority of downtown Hyannis. As shown in Figure 1, the study area is generally bounded by:

- North Street to the north
- Nantucket Street to the South
- Cape Cod Hospital parking lot to the east
- Atwood Road to the west

Within the boundaries of the study area, there are many off-street parking lots. The most well-known areas to park are North Street East Lot, the Town Hall Lot, and the Bismore Park parking lots. Private parking lots predominant the harbor front and there is an abundance of off-street parking available to the north of the study area near the Cape Cod Regional Transit Authority (RTA) and to the east serving the Cape Cod Hospital. There are also a number of off-street accessory parking for customers and employees of downtown businesses. On-street parking within the study area is primarily located along Main Street and Old Colony Road.

PARKING INVENTORY

KEY FINDINGS

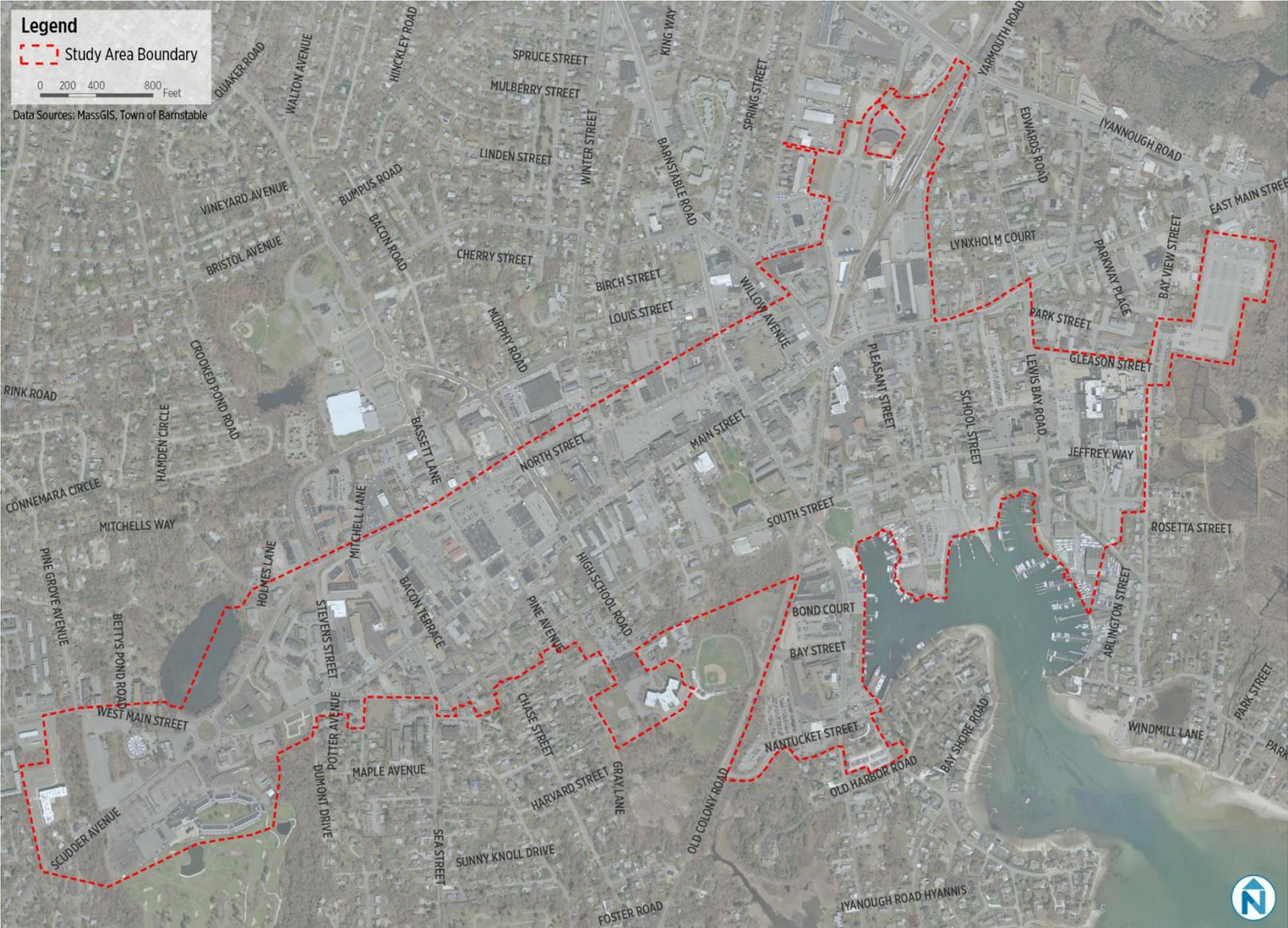
- The study counted nearly 13,600 parking spaces in the study area, including 97% off-street and 3% on-street parking
- A majority of the off-street parking is restricted-use or accessible as private parking, while less than 30% is publicly available
- Off-street parking is regulated by a handful of entities, including the Town, Hyline, Steamship, Cape Cod RTA, Cape Cod Hospital, and private land owners/ businesses

Figure 1 Parking Inventory

Parking Location	Number of Spaces	Percentage	Publicly Available	Restricted-use / Private
Off-Street	13,199	97%	3,565 (27%)	9,634 (73%)
On-Street	436	3%	436 (100%)	0
Total	13,635	100%	4,001	9,634

Technical Memorandum #1- Existing Conditions
Town of Barnstable

Figure 2 Downtown Hyannis Parking Study Area



PARKING REGULATIONS

All parking spaces are not available to all users, and the regulation, location, and operation of spaces greatly affect use and desirability. Therefore, the study team catalogued the ownership, use category, and regulation for all parking spaces within the study area.

On-Street Parking

All of the on-street parking in the Downtown Hyannis study area is available for public use. There is no on-street permit parking or other restrictions by user group (with the exception of disabled parking spaces). All on-street parking in the study area is time-restricted, but not priced. Figure 4 shows the breakdown of on-street parking regulations.

- **Time Limits Vary:** The majority of the on-street parking spaces have a two-hour time limit. Several on-street spaces have a 20-minute time limit. The remaining spaces have a 20-minute time limit during the summer and a 2-hour time limit outside of summer.
- **Time Span:** Parking meters are enforced from 8:00 am to 5:00 pm Monday through Saturday
- **Location:** On-street parking primarily exists along Main Street and within the downtown core area. Unstriped on-street parking is allowed along Old Colony Road.

Figure 4 On-Street Parking and Regulations

Time Limit	Total	%
2-hr	370*	92%
20-min	19	31%
20-min summer, 2-hr other	14	6%
Total	403	100%

*This on-street supply includes 133 potential spaces along Old Colony Road. These spaces are not striped.

Off-Street Parking

Off-street parking includes all public and private parking in surface lots in the Downtown Hyannis study area. There are approximately 230 facilities, all of which generally fall into two categories, focused on who can access available spaces. Figure 5 shows the breakdown of off-street parking by ownership and type.

Figure 5 Off-Street Parking Ownership and Access

	Lot	
	# of Facilities	Spaces
Non-Town Owned	218	12,117
Restricted Access	1	79*
Public Access	217	12,038
Town Owned	9	1,115
Restricted Access**	3	86
Public Access	7	1,029
TOTAL	227	13,232

*Hyline employee parking only

** This includes the 200 Main Street Lot and Armory Lot

Ownership

- **Municipal-Owned Lots**, owned by the Town of Barnstable, a majority of these off-street lots are available for public use. All lots are owned and managed by the Town. These lots include the Town Hall lot, North Street Lot, Red Cross Lot, North Street West lot, Ocean Street Lot, and the Bismore Park Lot. The 200 Main Street lot and Armory lots are restricted for Town employees but open to the public who are visiting Downtown Hyannis for Town Hall services.
- **Non-Town-Owned (or Privately-Owned) Lot**, privately owned. The majority of parking in this category is owned by a private entity, and either has some parking available for public use or is restricted to only certain users, such as employees. Within Downtown Hyannis, private parking is primarily owned by a handful of stakeholders, including the Steamship Authority, Cape Cod RTA, Hyline, Cape Cod Hospital, and other smaller private landowners.

Type

- **Time Limited Off-Street Parking**. Prior to July 2016, all municipal lots with the exception of the Ocean Street and Bismore Park parking lots were unregulated, allowing any user to park within any municipal off-street lot for any amount of time, with the exception of parking overnight. In July 2016, the Town instituted a 6-hour time limit on a number of off-street lots, which included the Town Hall Lot, 200 Main Street Lot, and North Street Lot.

Appendix A- Existing Conditions
Town of Barnstable

- **Metered Off-Street Parking.** Prior to July 2016, the Bismore Park and Ocean Street parking lots were the only lots in Downtown Hyannis that were priced. Parking rates changed seasonally. In July 2016, the Town added metered parking within the 200 Main Street Lot, however pricing is only applied during the weekend (5pm Friday through 6am Monday), as compared to the daily rates which apply in the Bismore and Ocean Street lots.
 - Spring/Summer Season (May 1st –October 14th)
 - \$2.00/Hour – for each of the first 2 hours
 - \$3.00 Per Hour – thereafter to a maximum of 6 hours for the day.
 - Fall/Winter Season (October 15th – April 30th)
 - \$1.00 Per Hour – to a maximum of \$12.00 for the day.

- **Employee Permit Parking.** In July 2016, the Town restructured and formalized the Town-wide employee pass program, issuing approximately 180 passes to Downtown Hyannis Town of Barnstable employees. Town hall employees are eligible for a Town parking pass, which allows them access to park in a number of Downtown Hyannis municipal lots. Available lots include the Town Hall Lot, the Armory lot, Ocean Street lot, the library lot, the JFK Museum, HyArts, and Post office parking lots. The parking pass is free for Town Hall employees.

- **Private Parking Daily Rates.** All privately owned and operated parking lots offer a daily market rate price to park. Lots owned and managed by entities such as the Steamship, Cape Cod RTA, and Hyline offer competitive daily prices that change seasonally. Private landowners who have created informal parking lots on their property charge similar rates.

3 PARKING UTILIZATION

This section documents and analyzes parking utilization counts for the entire study area, providing a snapshot of the time and location of parked cars for typical days. The project team conducted parking utilization counts on an off-peak season weekday (Wednesday 5/18/16) and a peak season weekday (Tuesday 8/2/16) and peak season weekend day (Saturday 8/6/16). The counts were conducted in May and August 2015.

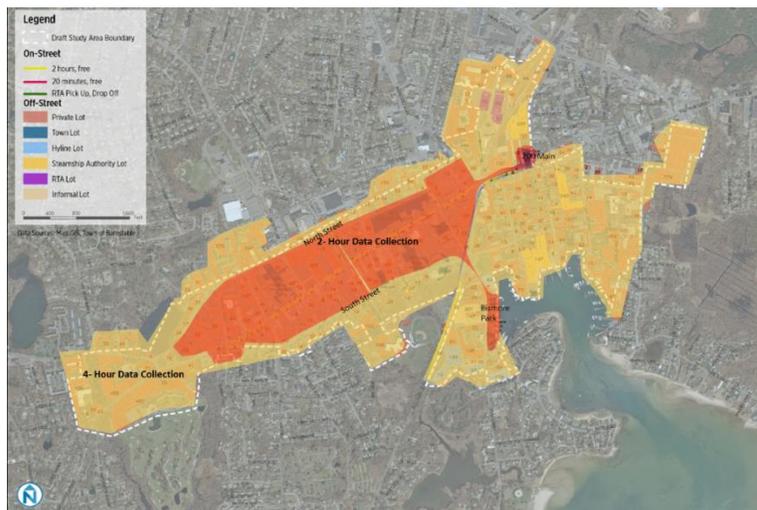
Parking can be defined as being at optimal capacity when there is at least one empty space per block face, ensuring easy customer access to businesses, but also allowing for a bustling downtown environment. This typically equates to a target of 10-15% vacancy per block face and 5%-10% vacancy off-street. If any block or parking facility has less availability than the target, it is effectively at its functional capacity.

This section analyzes weekday temporal and spatial patterns, and provides a sample of parking utilization of ramp users, followed by the same analysis for the weekend. This section provides utilization patterns for the entire study area; utilization patterns for specific sections or activity areas in downtown.

PARKING UTILIZATION COUNTS PROCESS

The entire study area was divided into two data collection zones in order to accurately capture parking demand in the active downtown core and provide a snapshot of parking demand in the more remote and long-term parking locations. It is important to note that individuals collecting data collected each on-street segment and off-street lot at exact intervals. Parking counts within the downtown core and municipal lots were counted on foot by staff, while a fleet of vehicles collected counts in the other zones. This approach proved to be the most efficient process to collect a vast amount of data within the targeted time periods. The team coordinated in advance with the Town to ensure that there were no special events that would influence parking utilization. Please note that some lots were not counted because either they were not accessible and there available or they were missed during that time period.

Figure 6 Data Collection Zones

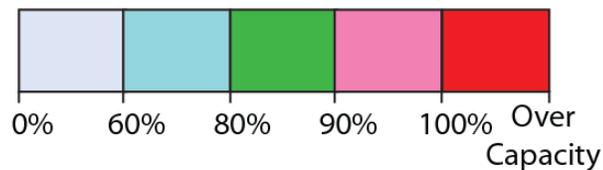


Spatial Analysis

An important part of understanding how parking is managed in any downtown is being able to see how various parking facilities and segments of on-street parking interact with each other throughout the course of a day. A chart of hourly utilization rates for one specific location is valuable, but seeing how that location behaves among others located nearby can reveal patterns and trends not evident in numbers alone. The lot which is completely full may be right around the corner from another lot that has plenty of availability at that same time.

To develop the spatial analysis, the parking utilization data collected during the parking counts was geo-coded to be displayed on a series of maps. The maps show the use of each parking facility by color-code, as explained below. The "breaks" (0-60% full; 60-80% full; 80-90% full; 90-100% full; more than 100%) are used to evaluate the fullness of a parking facility and are based on national standards that indicate when a parking area is functionally full.

- **“Cool” light blue/blue** refers to 0-60% and 60-80% utilization, points at which on-street blocks and off-street facilities are viewed as underutilized. Any resource that consistently performs at this level, especially during peak-demand periods should be viewed as having excess capacity.
- **“Ideal” green** refers to blocks and facilities with 81% to 90% utilization and represent actively-used resources. The nearer utilization levels approach the high end of this range, the more efficiently they are being utilized and nearing functional capacity.
- **“Warning” pink** refers to utilization above 91% and is considered at functional capacity. While fully maximizing efficiency, these blocks or facilities are full or near full, giving the impression of lack of parking.
- **“Critical” red** denotes parking beyond the marked capacity (more than 100%), meaning that cars are double-parked or parked illegally. Resources that consistently perform at this level indicate that demand exceeds capacity.



A summary of key findings for the off-peak weekday, peak weekday, and peak weekend are provided below along with an accompany peak period map and utilization charts. Each chart demonstrates the number of cars over the course of a day. The blue chart indicates the number of parked vehicles, the tan demonstrates the number of vacant spaces. Please note that some charts may not add up to the total inventory numbers because some lots were not accessible and able to be counted during certain time periods.

Maps of the entire time series for all days are included in the Appendix.

OFF-PEAK WEEKDAY UTILIZATION: SPATIAL PATTERNS

- Parking demand peaks around 12pm, however there is still around 50% availability throughout the entire study area
- During the peak, demand is primarily concentrated around the downtown core with the North Street, Red Cross, and Town Hall lots being the most well utilized municipal lots.
- Private lots such as the Cape Cod Hospital, Pope John High School, and Steamship lot are the most well-utilized private lots
- Demand tapers off significantly after 4pm, however there are small pockets of on-street demand going into the evening dinner time period

PEAK WEEKDAY UTILIZATION: SPATIAL PATTERNS

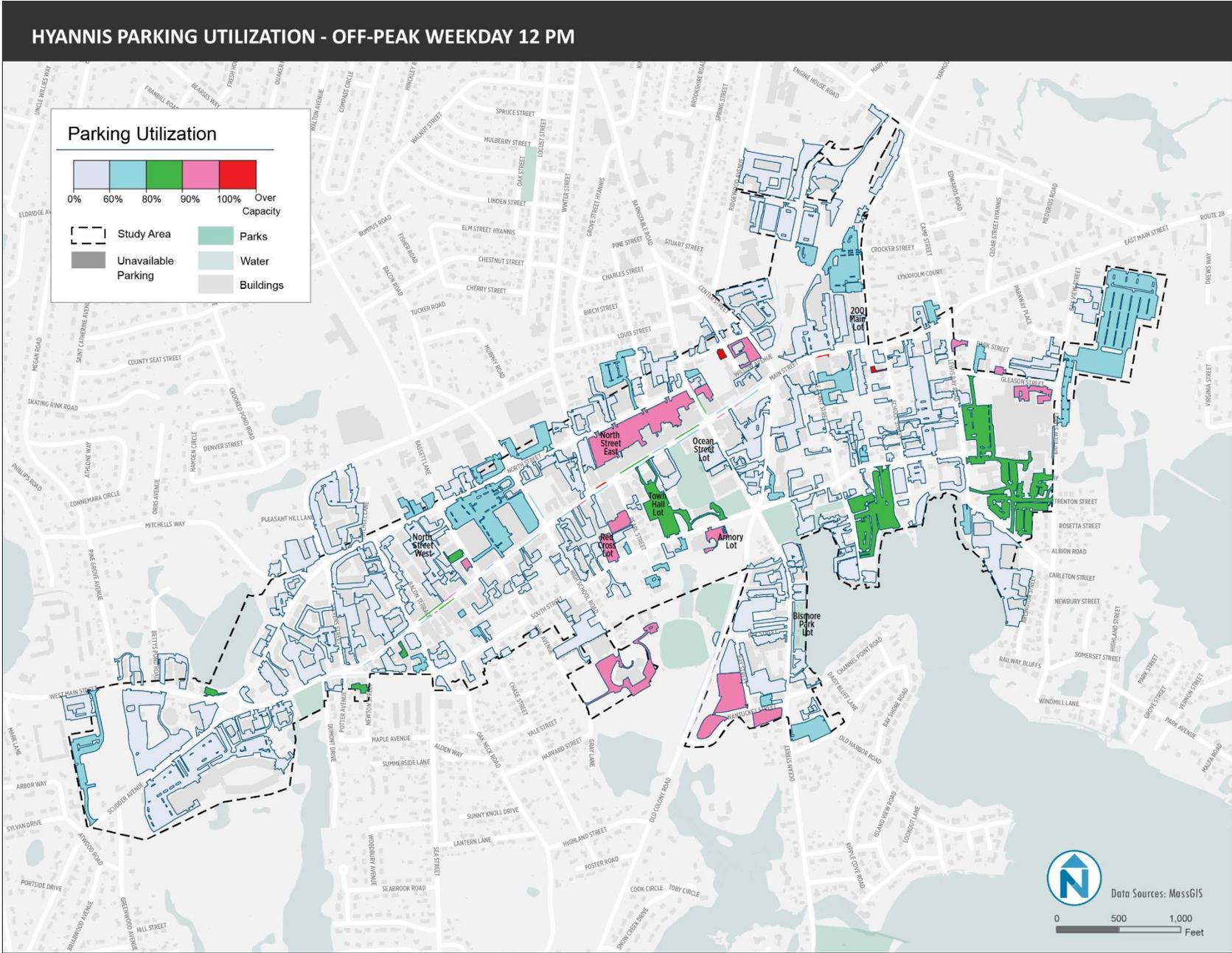
- Demand at 8am is comparable to the 12pm peak during the off-peak season
- The harbor parking demand is more prominent along Ocean Street and well-utilized throughout the course of the day
- Parking in the Cape Cod RTA lots show higher signs of utilization as well as more remote parking along the western end of Main Street
- On-street parking along Main Street has the highest utilization of all surveyed days and is consistently at or reaching capacity
- Parking on-street remains in high demand even after parking tapers in the evening
- All municipal lots are well-utilized, with the Town Hall, Bismore Park, and North Street lots reaching capacity during most time periods
- The Ocean Street lot and North Street West lot continue to be underutilization in comparison to other municipal lots
- Even at peak, there are approximately 48% of parking is available, however most of these assets are located in private parking lots

PEAK WEEKEND UTILIZATION: SPATIAL PATTERNS

- Weekend parking demand is heavily concentrated in the harbor area and consistently is the area with the highest demand
- The Bismore Park Lot, Steamship, and Hyline lots are at or reaching capacity at most hours throughout the day.
- The highest areas of parking demand remain on-street and in municipal lots such as the North Street and Armory Lot
- Demand within the downtown does not pick up until the 6pm dinner period, and demand is more evenly spread throughout the downtown
- Parking in the western edge of the study area is picking up , most likely due to an event at the melody tent, which has created a higher demand in the North Street West lot, for the first time in all surveyed days

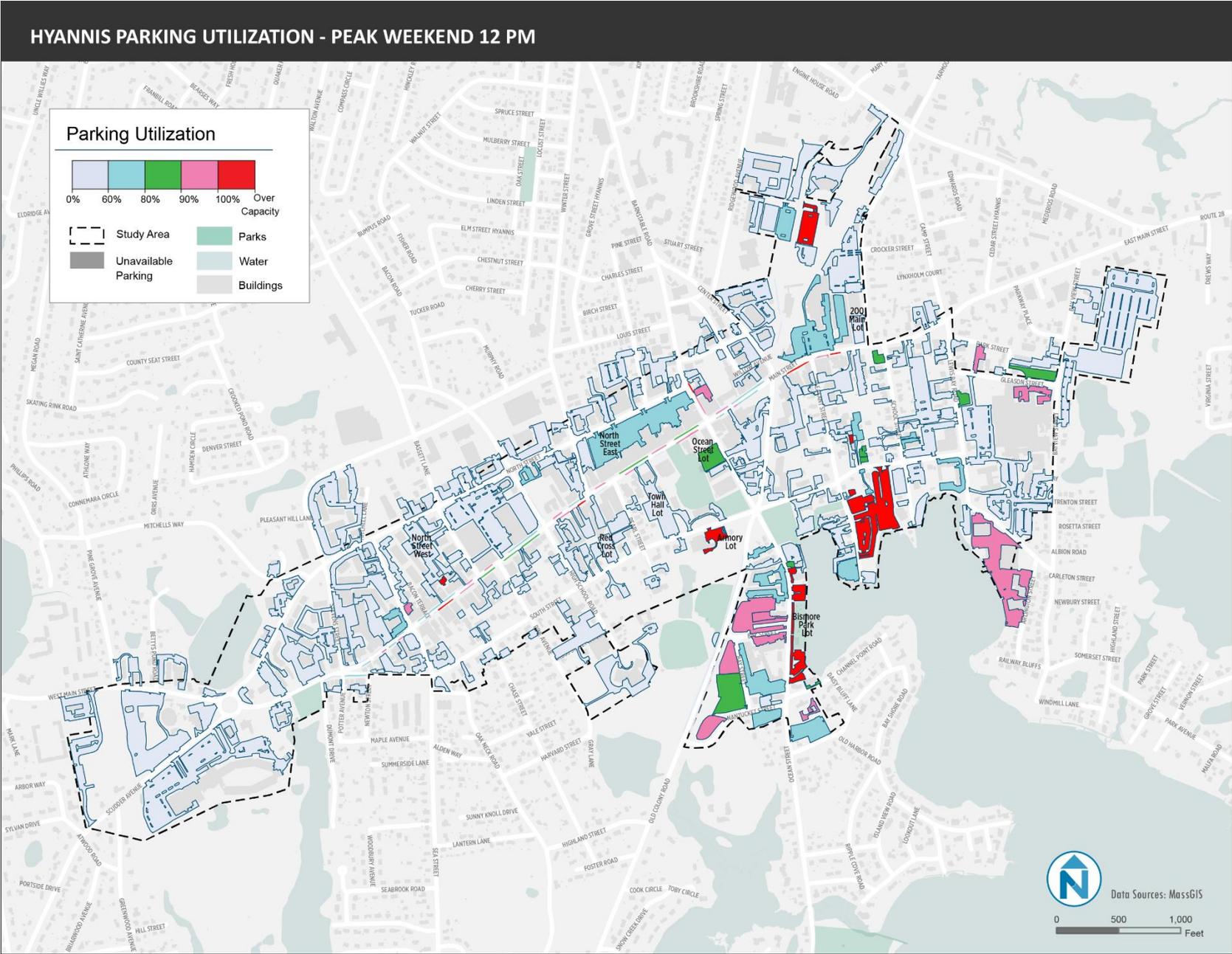
Appendix A- Existing Conditions
Town of Barnstable

Figure 7 Parking Utilization Off-Peak Weekday 12pm



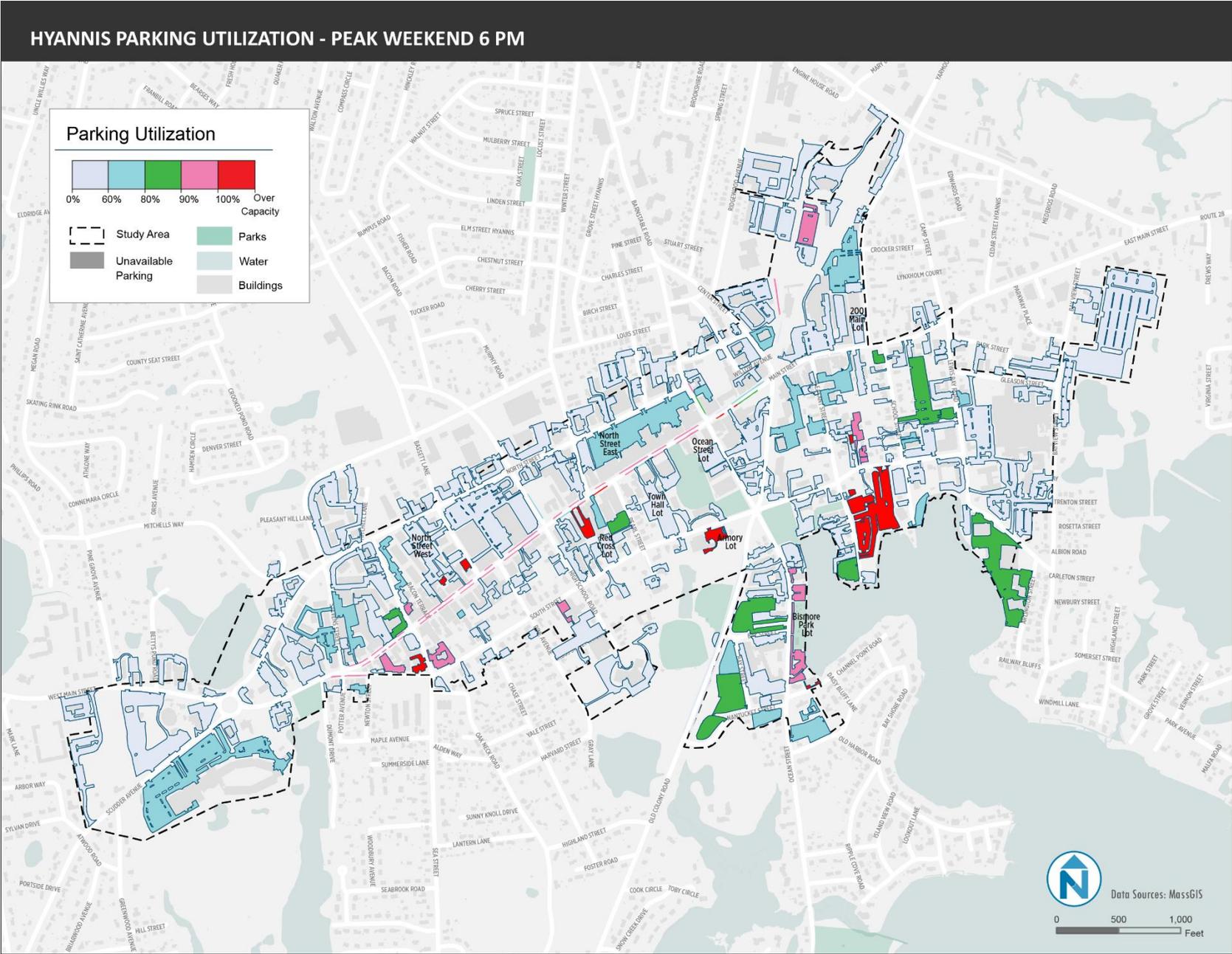
Appendix A- Existing Conditions
Town of Barnstable

Figure 8 Parking Utilization Peak Weekday 12pm



Appendix A- Existing Conditions
Town of Barnstable

Figure 9 Parking Utilization Peak Weekend 6pm

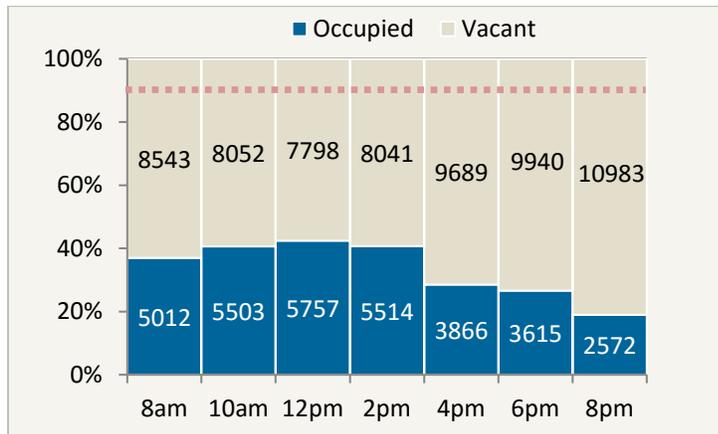


Off-Peak Weekday Parking Utilization Charts

All Parking Spaces – Off-Peak Weekday

As shown in Figure 10, of the spaces counted within the downtown Hyannis study area, the maximum overall utilization observed was 42% (5,757 spaces out of 13,555 total) and occurred around 12pm. Compared to the 90-percent optimal occupancy¹ (shown by the red dotted line), these results indicate that the study area as a whole has more than adequate parking supply to satisfy its demand – in fact, for all other intervals, the majority of the parking supply was empty.

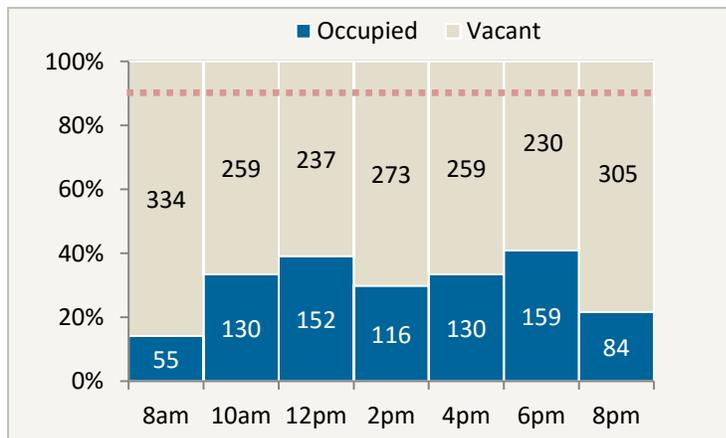
Figure 10 Off-Peak Weekday: All Spaces Demand in Downtown Hyannis



On-Street Parking Spaces – Off-peak Weekday

As shown in Figure 11, peak on-street utilization was 41% and occurred around 6pm. On-street parking is well utilized around 12pm and 6pm, and there is plenty of availability at other times.

Figure 11 Off-Peak Weekday: On-Street Demand in Downtown Hyannis

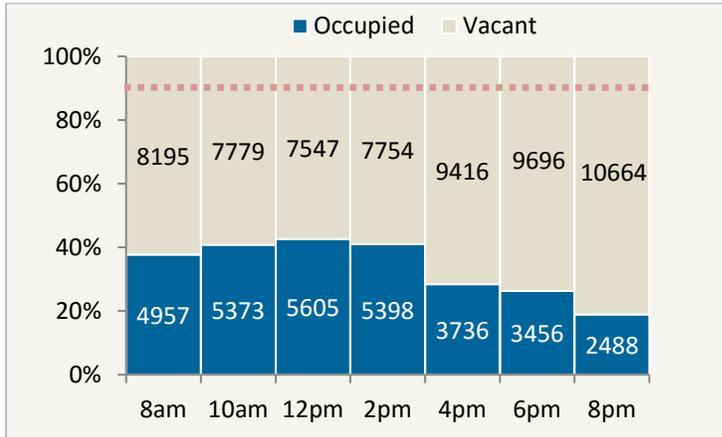


¹ Best national parking management practice suggests that parking is functionally full at 85% on-street (about one of every seven or eight spaces is available) and at 90% off-street.

Off-Street Parking Spaces – Off-peak Weekday

Figure 12 shows that the peak off-street utilization of 43% (5,605 occupied out of 13,152 total counted off-street spaces) occurred around 12pm. Off-street parking utilization remained steady throughout the course of the day.

Figure 12 Off-Peak Weekday: Off-Street Parking Demand in Downtown Hyannis

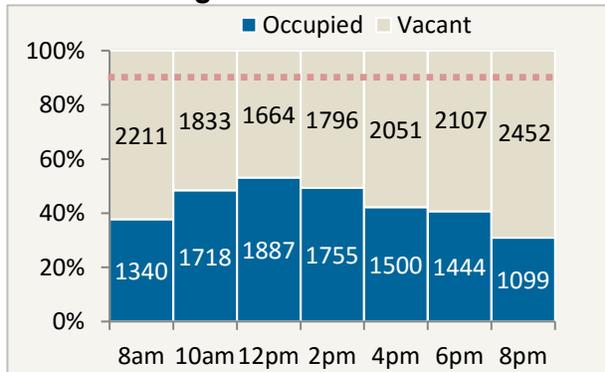


Public vs. Private Parking – Off-peak Weekday

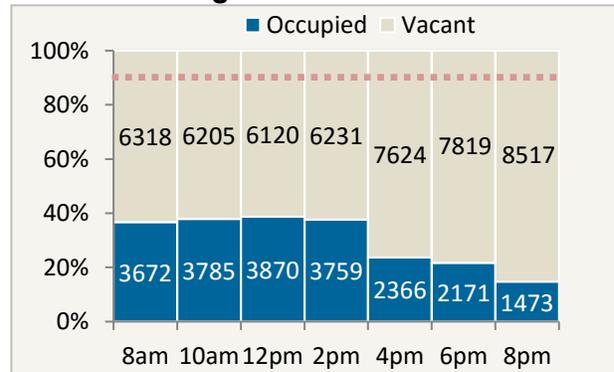
Figure 13 shows that the public parking is more consistently utilized throughout the course of the weekday. Approximately 53% of public spaces are utilized around 12pm, after which demand staggers off. Private parking utilization barely reaches 40% and tapers off significantly after 4pm.

Figure 13 Off-Peak Weekday - Public and Private Parking Demand in Downtown Hyannis

Public Parking²



Private Parking



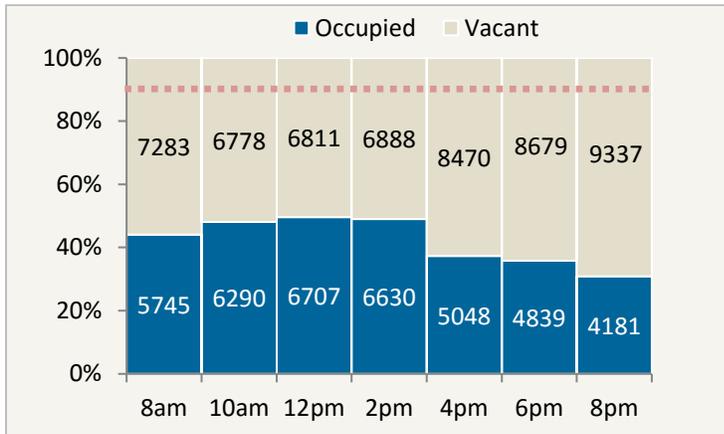
² Public parking includes publicly accessible on-street and off-street parking assets such as Hyline lots, Steamship lots, on-street and non-restricted municipal owned parking lots, and private lots that are open to the public.

Peak Weekday Parking Utilization Charts

All Parking Spaces – Peak Weekday

As shown in Figure 14, of the spaces counted within the downtown Hyannis study area, the maximum overall utilization observed was 50% (6,707 spaces out of 13,516 total) and occurred around 12pm. After 2pm demand drops off significantly.

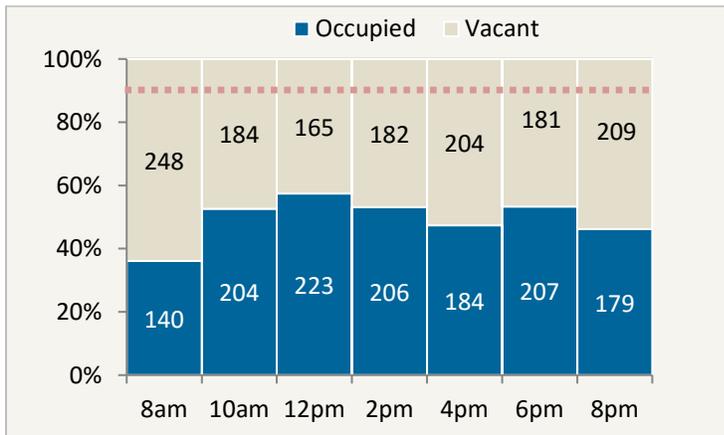
Figure 14 Peak Weekday: All Spaces Demand in Downtown Hyannis



On-Street Parking Spaces – Peak Weekday

As shown in Figure 15, peak on-street utilization was 60% and occurred around 12pm. This left around 160 vacant on-street spaces primarily along the Old Colony Road area.

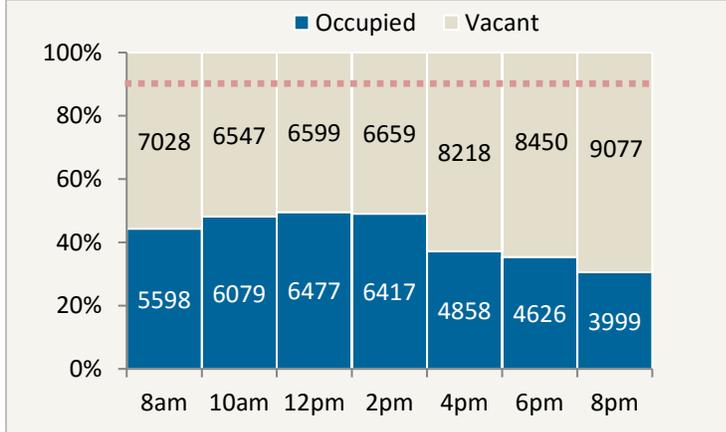
Figure 15 Peak Weekday: On-Street Demand in Downtown Hyannis



Off-Street Parking Spaces – Peak Weekday

Figure 16 shows that the peak off-street utilization of 50% (6,477 occupied out of 13,076 total counted off-street spaces) occurred around 12pm.

Figure 16 Peak Weekday: Off-Street Parking Demand in Downtown Hyannis

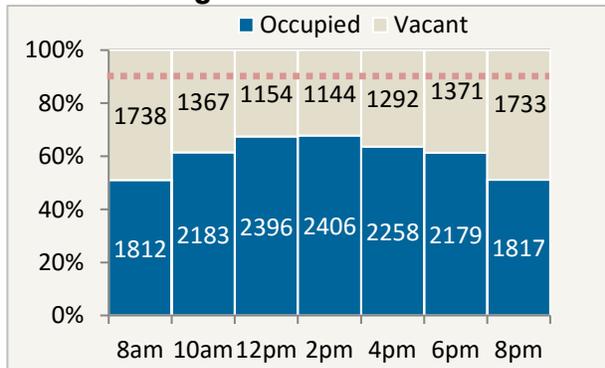


Public vs. Private Parking – Peak Weekday

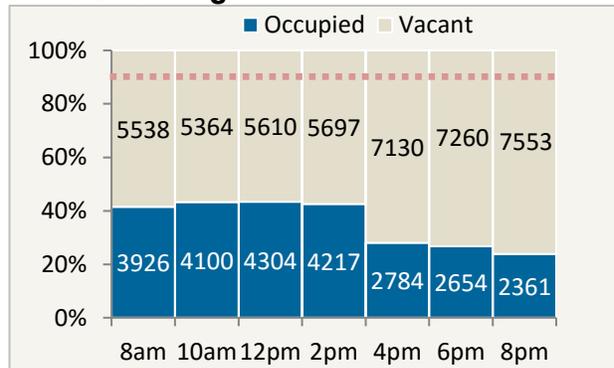
Figure 17 shows that the public parking is more consistently and well-utilized throughout the course of the weekday. Approximately 70% of public spaces are utilized during the 12pm peak. Private parking utilization barely reaches 40% and remains steady throughout the course of the day until a drop off around 4pm.

Figure 17 Peak Weekday- Public and Private Parking Demand in Downtown Hyannis

Public Parking



Private Parking

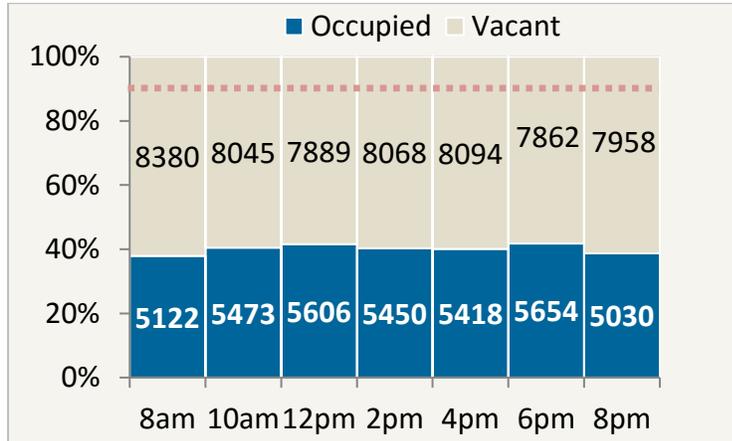


Peak Weekend Parking Utilization Charts

All Parking Spaces – Peak Weekend

As shown in Figure 18, of the spaces counted within the downtown Hyannis study area, the maximum overall utilization observed was 42% (5,654 spaces out of 13,516 total) and occurred around 6pm. Compared to the 90-percent optimal occupancy³ (shown by the red dotted line), these results indicate that the study area as a whole has more than adequate parking supply to satisfy its demand – in fact, for all other intervals, the majority of the parking supply was empty.

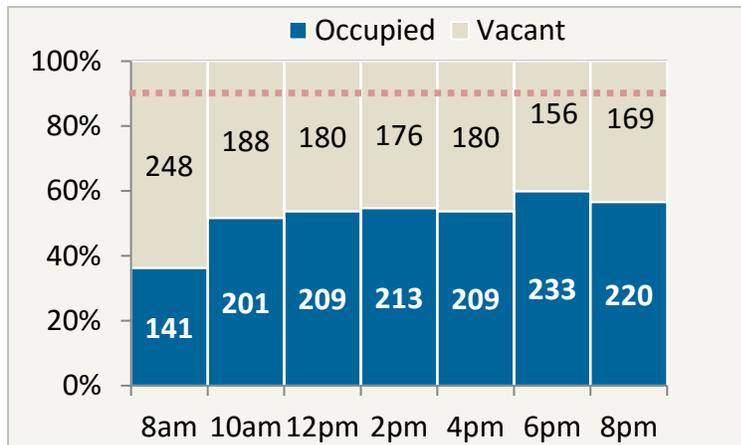
Figure 18 Peak Weekend: All Spaces Demand in Downtown Hyannis



On-Street Parking Spaces – Peak Weekend

As shown in Figure 19, peak on-street utilization was 60% and occurred around 6pm. This left around 150 vacant on-street spaces primarily along the Old Colony Road area.

Figure 19 Peak Weekend: On-Street Demand in Downtown Hyannis

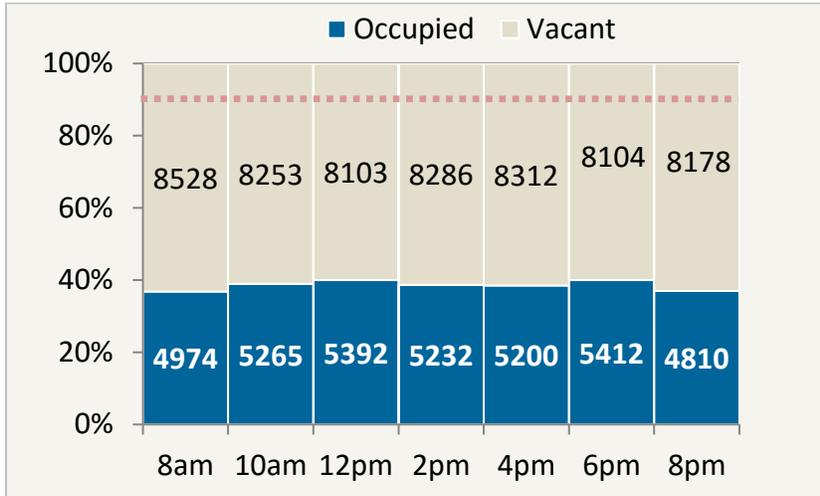


³ Best national parking management practice suggests that parking is functionally full at 85% on-street (about one of every seven or eight spaces is available) and at 90% off-street.

Off-Street Parking Spaces – Peak Weekend

Figure 20 shows that the peak off-street utilization of 40% (5,412 occupied out of 13,516 total counted off-street spaces) occurred around 6pm. Off-street parking utilization remained steady throughout the course of the day.

Figure 20 Peak Weekend: Off-Street Parking Demand in Downtown Hyannis

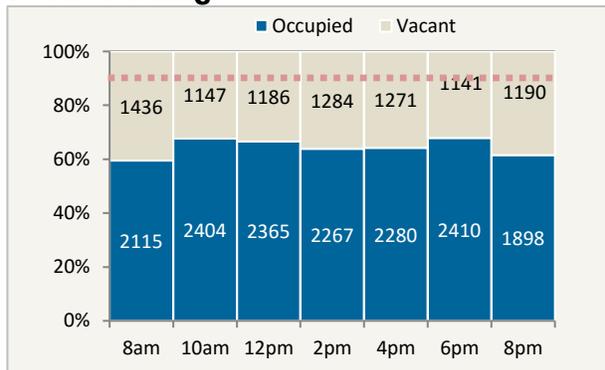


Public vs. Private Parking – Peak Weekend

Figure 21 shows that the public parking is more consistently and well-utilized throughout the course of the weekend. Approximately 60% of public spaces are utilized throughout the hours of 10am to 6pm. Private parking utilization barely reaches 30% and remains steady throughout the course of the day.

Figure 21 Peak Weekend- Public and Private Parking Demand in Downtown Hyannis

Public Parking



Private Parking

