

Town of Winchester

# Winchester Town Center Parking Study



Draft Final Report, November 2010

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**DRAFT – NOT ADOPTED POLICY**

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# Chapter 1. Introduction

In March 2009, the Master Plan Steering Committee of the Winchester Planning Board produced a Master Plan Phase I Report that provided guidance for future redevelopment of Winchester Town Center. The Report recommended that the Town develop a parking management plan to better serve the needs of Town Center shoppers, employees, Winchester residents, and out-of-town visitors.

Recognizing the growing pressure on the Town Center parking supply, the Town of Winchester has sought to develop a comprehensive strategy for addressing parking needs. In addition to addressing the physical requirements for parking, the Town's Master Plan for downtown calls for creation of a vibrant, urban, pedestrian-friendly environment that can only exist in an area with sufficient parking.

## Report Structure

The following report documents the existing parking conditions in Winchester and presents recommendations that will both assure an appropriate level of parking development/capacity as well as encourage Winchester's residents, visitors and commuters to use alternatives to the single-occupant-vehicle to the maximum extent possible. The recommendations also include demand management strategies to help the Town accommodate new economic development without being overwhelmed by new traffic.

The report is divided into four sections:

- **Chapter 1, Current Parking Conditions**, documents existing parking conditions, management practices, and regulatory controls.
- **Chapter 2, Initial Parking Management Plan**, documents a group of strategies that are intended to be implemented as soon as possible to address current parking problems.
- **Chapter 3, Other Parking Management Options**, includes longer-term or more capital-intensive strategies that could be pursued to further leverage the Town Center parking system as a catalyst for economic development.
- **Technical Appendix**, includes detailed analysis of parking utilization counts, survey data, and recommendations.

## Comments Welcome

The Town and Nelson\Nygaard welcome input and comment from the public – especially those who utilize the Town Center as a place to visit, work or live. The recommendations presented in this report are by no means the final set of actions the Town will take. Good planning is a community process, and continued public input helps refine a vision into reality. Comments on this report and the study that supported it can be addressed to the Elizabeth Ware, Town Planner, at [eware@winchester.us](mailto:eware@winchester.us) or to the Planning Board Office, 71 Mt. Vernon Street, Winchester, MA.



## Chapter 2. Current Parking Conditions

This chapter documents the current conditions of the Town Center's parking facilities. This includes identifying the existing parking assets, how they are used today, and how parking is perceived by those in the Town Center.

### Town Center Study Area

The study area covers most parking spaces within a ¼ mile walk along public ways from the intersection of Mt. Vernon and Main Streets, as well as parts of Washington Street and other local residential streets near the high and middle schools. It also includes parking at the Wedgemere Commuter Rail Station and a portion of the nearby Sandy Beach lot (see Figure 1).

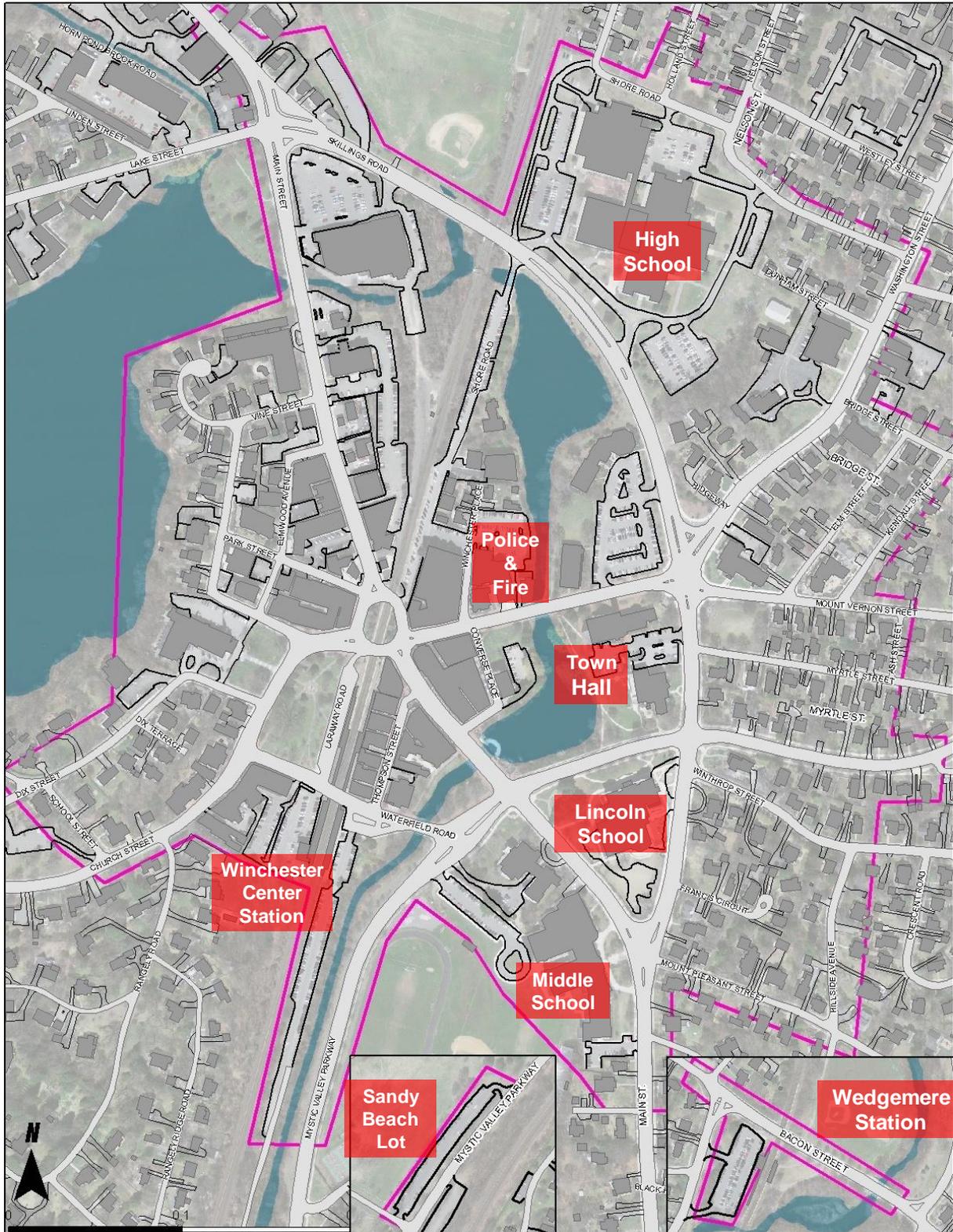
#### **Parking Supply – Key Points:**

- 3,665 spaces in the Town Center
- Nearly **2,300 public spaces**; 800 are off-street; 500 are on-street within the Center's core
- Nearly **1,400 private** off-street spaces; 1,200 are employee/customer; 125 are residential
- Public parking regulations are primarily time-limited
- 11 distinct on-street regulatory categories (i.e., 15-minutes, 2-hours, School only, etc.)
- 12 off-street regulatory categories

#### **Parking Demand – Key Points:**

- Overall, the Town Center parking supply is **underutilized**, with **over 1,700 vacant spaces** at the peak utilization periods on a weekday or weekend.
- **Peak utilization occurs at lunchtime** on a weekday with 1,958 spaces occupied, or 53-percent of the available spaces
- Only the core public on-street spaces and parking lots reach an average weekday utilization of 70-percent at peak – **well shy of ideal utilization rates** of 85 or 90-percent.
- All **public lots remain underutilized** throughout the day, with the exception of the Wedgemere Station lot, which is at capacity on weekdays. Overflow parking for that lot generally fills on-street spaces on nearby Bacon Street.
- Public and private **lots are poorly utilized on weekends**, while core on-street public spaces are well-utilized in the morning and early afternoon and may reach capacity.
- **Certain block faces and parking lots are at capacity** during different points of the day on weekdays. These include:
  - All core Town Center streets near the intersection of Mt. Vernon and Main
  - Main Street near the Lincoln and middle schools, as well as portions of intersecting residential streets
  - Shore Road
- However, a public facility with **40-percent vacancy or greater is always within a 60-second walk** of the congested street parking.
- Most core Town Center block faces become **nearly full early in the morning before many retail stores have opened**.
- **Over 600 private parking spaces are vacant** in the core of the Town Center when on-street parking is heavily utilized.

**Figure 1 Study Area for Winchester Town Center Parking Plan**



## Parking Supply & Demand Overview

The parking inventory includes all on-street spaces and any off-street spaces in lots, garages, or driveways that contained more than three spaces. Single-family residential driveways were excluded. This inventory included a total of 3,665 spaces of which nearly 2,300 are public and close to 1,400 spaces are private, as seen in Figure 2. Over 1,200 of the private spaces are for employee or customer parking with under 125 spaces dedicated for Town Center residents.

**Figure 2 Parking Inventory**

	Public	Private	Total
On-Street	1,520		1,520
Off-Street	763	1,382	2,145
Total	2,283	1,382	3,665

### Regulations

The ownership, use category, and regulation (if applicable) were recorded for all spaces. Private spaces were organized by residential or commercial use. **Eleven on-street regulations** were noted, as well as **twelve off-street regulations** – a very large number of regulations for a small downtown. The full parking inventory is depicted in Figure 4.

### Parking Utilization Patterns

Utilization counts were conducted by the consultant and Town staff on a typical weekday and weekend day in the Fall of 2009 and again in the summer of 2010 to ensure accuracy. Counts were conducted for all spaces in the parking inventory every 2-3 hours between 7AM and 7PM.

#### Weekday Utilization Profiles

Of all 3,665 spaces within a 5-minute or less walk of the Town Center and Wedgemere Station, the **maximum utilization is 53-percent** (1,956 spaces) – which occurs during the lunch. This includes all inventoried spaces – both public and private – as shown in Figure 3.

**Figure 3 Weekday Utilization Profile – All Spaces**

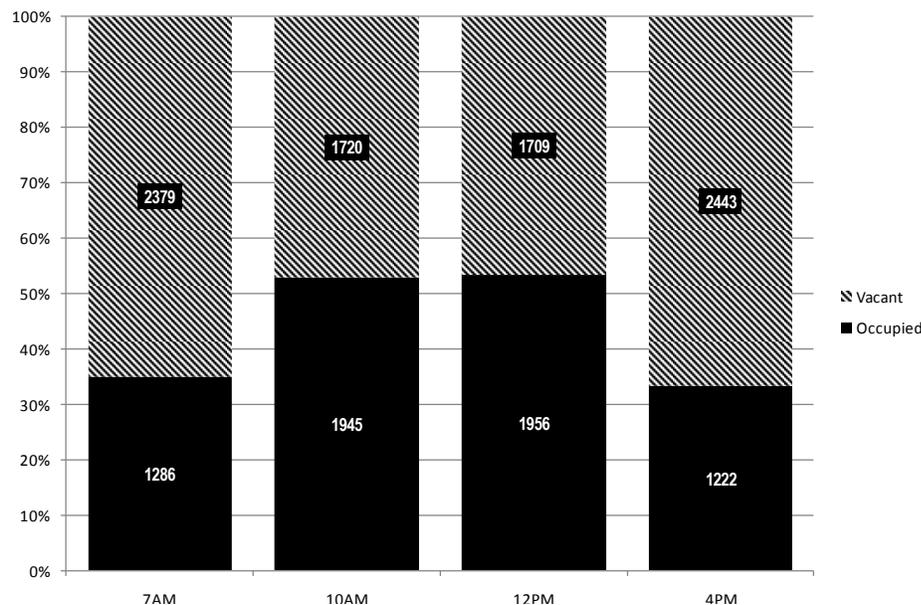
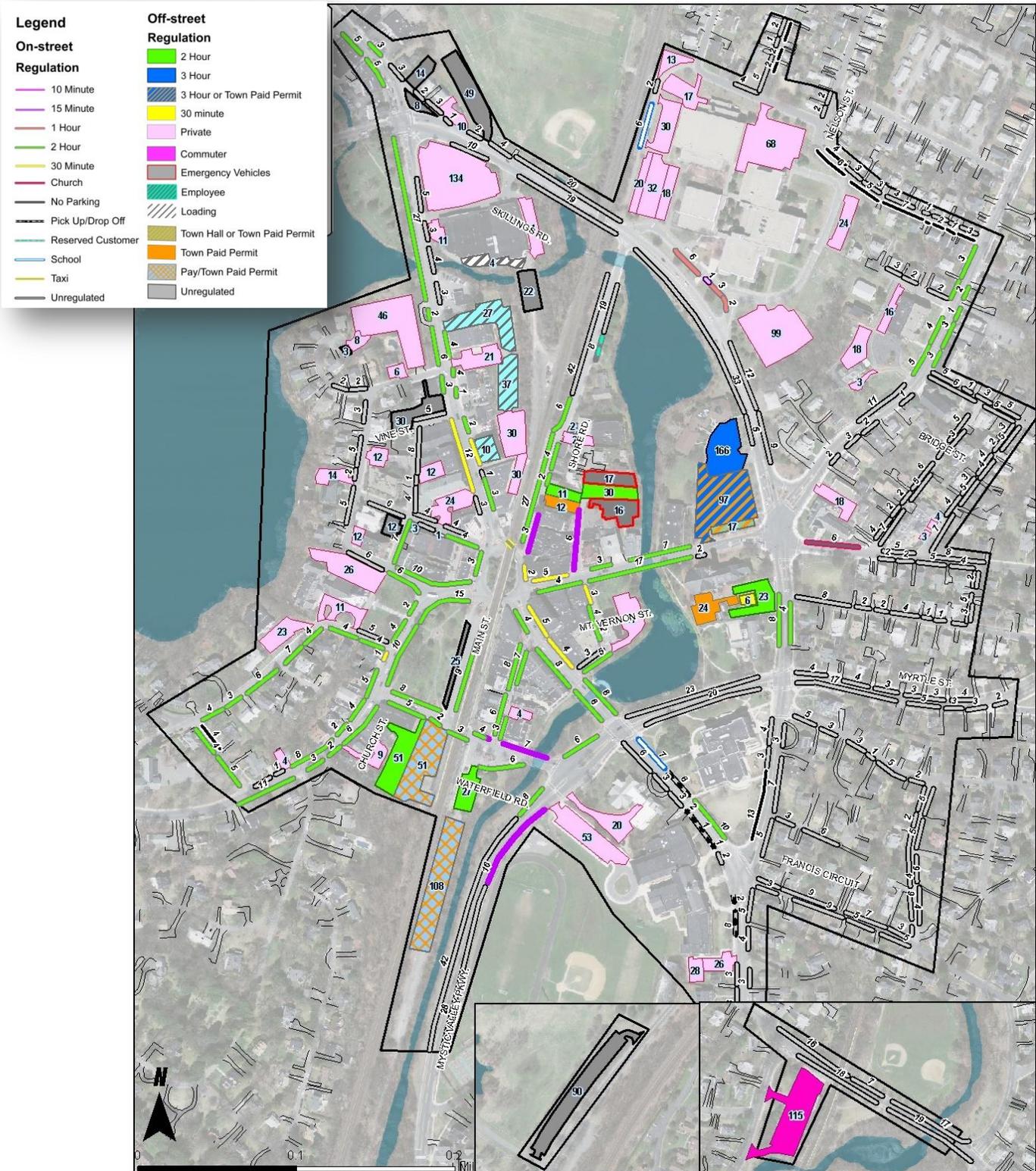


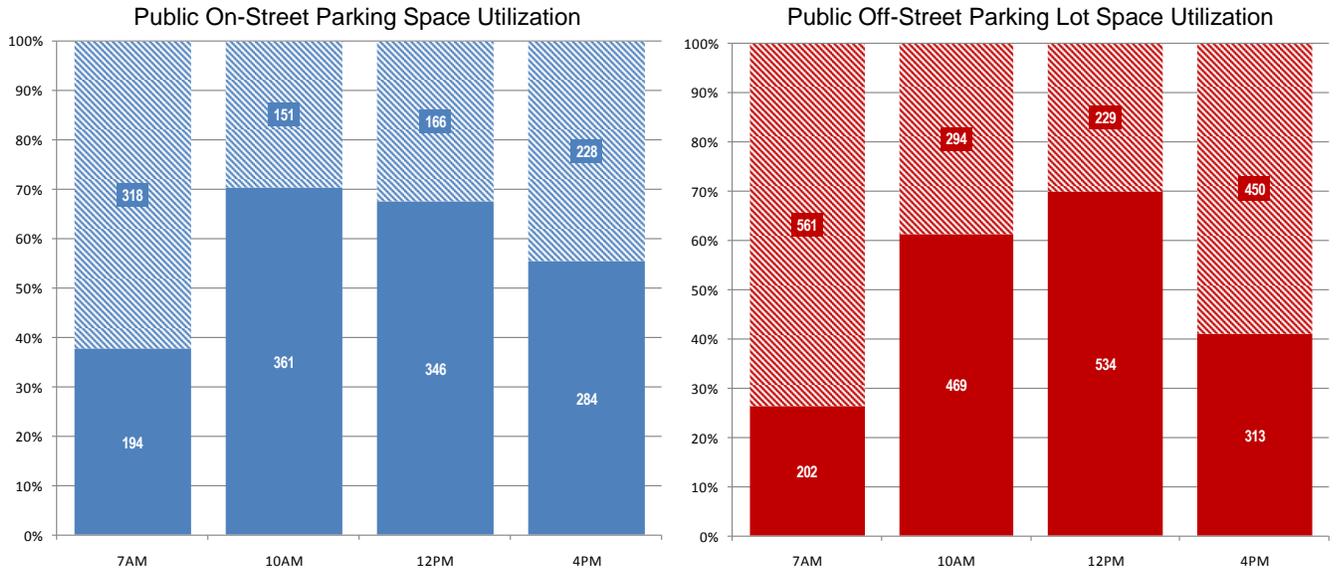
Figure 4 Parking Regulatory Map



Public Spaces – Weekday

Within the pool of 2,283 publicly available spaces are many on-street spaces in surrounding residential neighborhoods. To understand utilization in the Town Center alone, Figure 5 shows the weekday utilization profile for its 512 public on-street time-limited spaces. Their **peak utilization of 70-percent** (361 spaces) occurs around 10AM, well-below an ideal utilization rate of 85-percent. Meanwhile, 70-percent (534 spaces) of the 763 public spaces in off-street lots are utilized at the peak period of lunchtime.

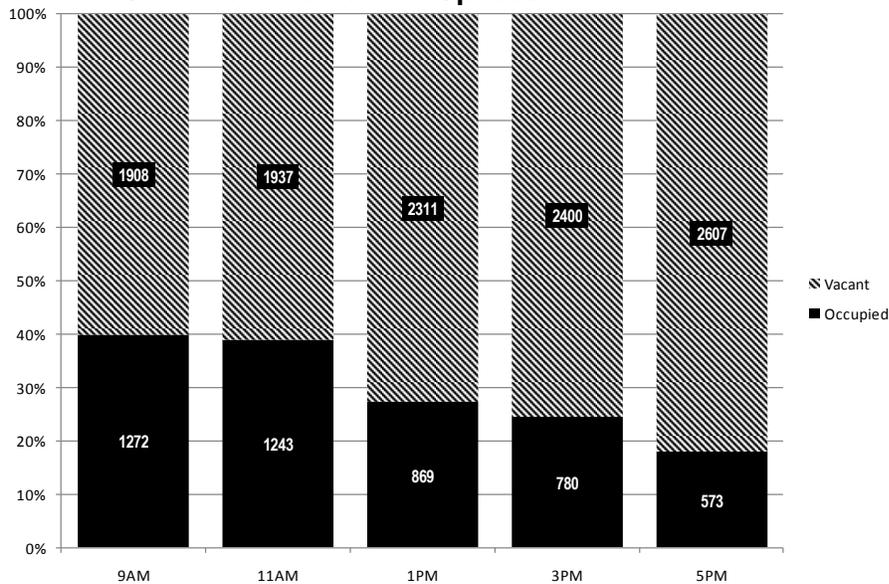
Figure 5 Weekday Utilization Profile – Town Center Public Spaces



Weekend Utilization Profiles

Utilization near the Wedgemere Station was not observed on a weekend, so the total supply observed was 3,180 spaces. As seen in Figure 6, the **peak utilization of 40-percent** (1,272 spaces) occurs around 9AM. Of the public time-limited spaces in the core of the Town Center, **on-street utilization peaks at 67-percent** around 11AM (343 of 512 spaces). Meanwhile, Town Center’s **public lots peak at only 26-percent** (158 of 609 spaces) at 11AM.

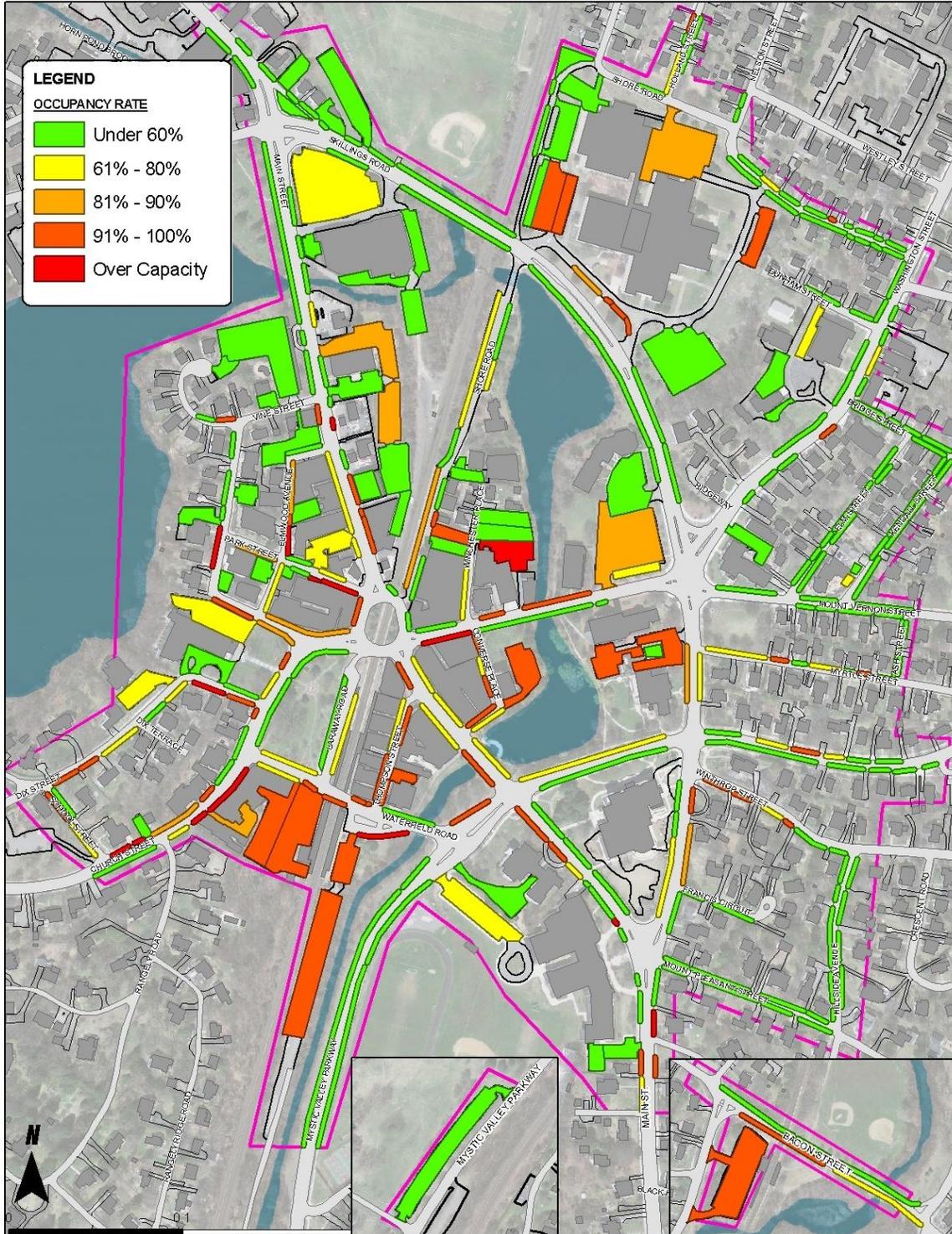
Figure 6: Weekend Utilization Profile – All Spaces



**Weekday Utilization Mapping**

The following map shows the demand for parking during lunchtime (12pm-2pm), the period of highest demand for public parking on a typical weekday. As can be seen in Figure 7, while demand for parking is high on-street in the core of Town Center, there is ample opportunity for public parking within a 60-second walk of the heavily utilized spaces.

**Figure 7 Weekday Utilization Patterns – 12PM-2PM**





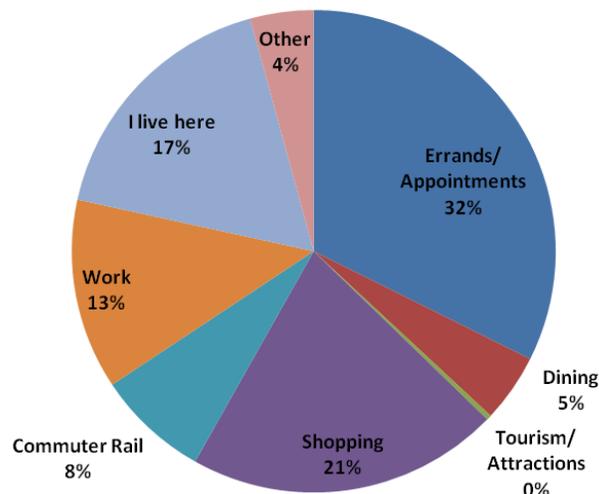
## Driver Perception and Experience

This section documents the collection of qualitative input from parkers in Winchester regarding their parking activities, experiences, perceptions, and preferences. Efforts to collect this type of data included a fifteen-question electronic survey (over 300 respondents) and targeted stakeholder phone interviews.

### Parking Surveys – Key Points:

- Length of Stay:
  - **Customers** park for an average of **32 minutes**,
  - **Employees** and **commuter rail** riders stay between **5 and 7 hours**.
- **58% are customers** who need to run an errand, shop, or dine
- **59% have failed to find parking** in the Town Center and have left
- **93% do not typically pay** to park
- **92% search to find a place to park**, rather than park in the same space
- **86% walk four-minutes or less** from the location where they parked to their destination
- On an average day, people say it takes them about **five minutes to find a spot**, but can take an average of fourteen minutes on their worst day. (This is contrary to observations of less than two-minutes reported in the field.)
- **48% cite location as the most important priority** when finding a place to park, while 35% note the ease of finding a space

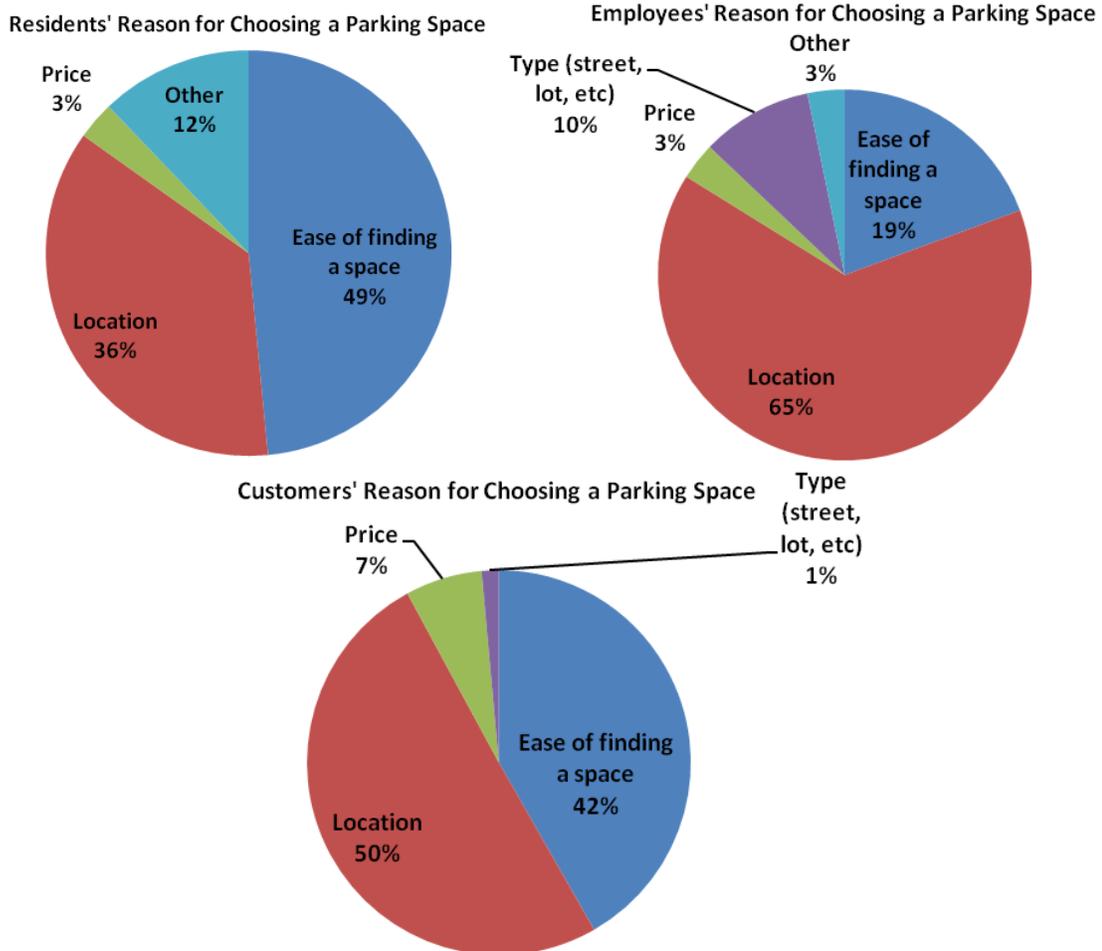
Figure 9 Survey Respondents by User Group



## Reasons for Choosing a Parking Space

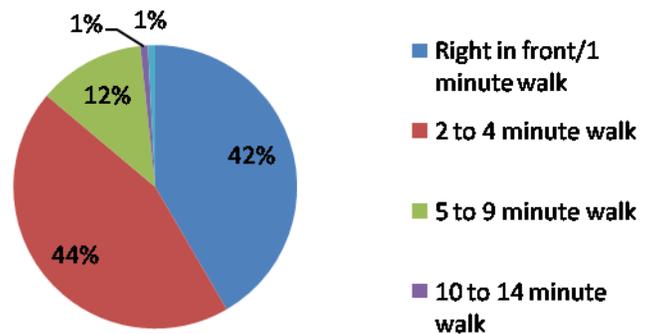
Among the 17-percent of respondents who were residents, the ease of finding a space anywhere in Town Center was their most important reason for choosing a space. For all remaining respondents, location was the most common factor – especially among employees. Ease of finding a space is the second most common reason for all parkers besides residents.

**Figure 10 Parking Choice**



**Figure 11 Proximity to Destination**

How close to your primary destination did you park?



## Proximity and Length of Stay

Nearly half of visitors are able to find parking either directly **in front** of their destination **or within a one minute walk**. Almost all parkers find “convenient” parking (within four minutes). Having a short walk to a destination is key in Winchester, as most of Winchester’s visitors stay for a short time (under 45 minutes).



# Chapter 3. Initial Parking Management Program

This section describes several strategies for improving parking availability and access that can be applied in Winchester Town Center. The strategies recommended here focus on changes that can be made on a short timeframe.

## Summary of Guiding Principles

- Provide convenient parking for **customers / clients**
- Establish clear Town and private **employee parking** areas
- Accommodate **commuter parking** appropriately
- Protect residential neighborhoods from spillover

## Summary of General Recommendations

- Establish **parking zones** defined by length of stay
- Institute market-based pricing
- **Modify** existing time-limits
- Revise **parking permit** program
- Use contemporary payment technology

The initial strategies are summarized below in Figure 12.

**Figure 12 Summary of Initial Parking Management Program**

Program	Description
<b>Establish parking zones</b>	<ul style="list-style-type: none"> <li>• Create distinct high demand, moderate demand, and low demand parking pricing zones. Each zone has a different fee structure. Treat public lots on a case-by-case basis according to the lot's use.</li> </ul>
<b>Institute market-based pricing</b>	<ul style="list-style-type: none"> <li>• Price heavily-used &amp; convenient locations highest; least-used or remote locations lowest or free.</li> <li>• Institute escalating fees in heavily-used locations to encourage long-term parking in remote areas.</li> <li>• Manage prices to maintain 15-percent vacancy rates (the ideal target).</li> <li>• Institute an ongoing utilization monitoring program to inform price adjustment.</li> </ul>
<b>Modify time-limits</b>	<ul style="list-style-type: none"> <li>• Eliminate all time limits in the Town Center and allow pricing to produce turnover &amp; availability.</li> </ul>
<b>Revise permit program</b>	<ul style="list-style-type: none"> <li>• Provide a business &amp; resident commuter permit available to Town residents and non-residents employed in the Town Center. Permit holders would be able to park in some restricted areas before 9:30 AM, some pay lots for free, and in lots dedicated to permit holders.</li> <li>• Convert the permit from annual / quarterly payment to a monthly payment.</li> </ul>
<b>Allow first period free</b>	<ul style="list-style-type: none"> <li>• Allow visitors to park free for 15 minutes in the high demand zone, 30 minutes in the moderate demand zone (including the Waterfield and Aberjona lots), and 60 minutes in the Town Hall Visitor / Library lot. Allow free parking all day in low demand remote locations.</li> </ul>
<b>Use modern payment &amp; enforcement</b>	<ul style="list-style-type: none"> <li>• Install pay stations that accept credit card payment and pay-by-cellphone in the high and moderate demand zones (including the Waterfield and Aberjona lots) and the Town Hall Visitor / Library lot.</li> <li>• Offer in-vehicle meters to town center employees that need to move frequently throughout the day.</li> <li>• Equip personnel with electronic enforcement equipment.</li> </ul>

## Evaluation of Best Practice

There are many parking strategies employed in the operation of parking systems throughout the world. This section describes several best practices and technologies that would address the Town Center’s parking needs without significant capital investment by working in unison to encourage more efficient use of the parking supply

### Demand Management

Demand management strategies focus on influencing behavior of those traveling to the destination with the intent of balancing the number of vehicles at levels the supply can handle. All are based on the principle of demand-responsive pricing, which allows parkers to self-select available prime or less-desirable spaces based on their cost rather than the chance that they may be available. Several revenue collection technologies facilitate this approach while offering attractive customer benefits and simpler enforcement and revenue collection (see Figure 13).

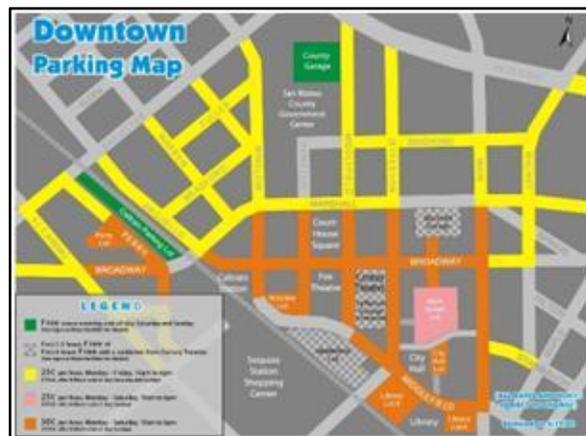
Figure 13 Demand Management Strategies

Demand Management	
<b>Demand-responsive Pricing</b>	Variable pricing in locations and/or times of day with differing demand, aiming to maintain a 85% (or other target) occupancy rate.
<b>Multispace Pay and Display</b>	One electronic meter serves multiple spaces; meter prints motorists a permit with date and end time to display on dashboard. Eliminates the need for on-street striping.
<b>Multispace Pay by Space</b>	One meter to serve multiple spaces; motorists enter parking stall number into the meter and pay for time. All spaces must have a number.
<b>Pay with cellphone</b>	Motorist parks in a space, dials the parking phone number listed on the meter or nearby sign and enters space number to pay for parking via credit card.
<b>Smart Cards</b>	Touch and go with a rechargeable card at a single space or multispace meter.
<b>First Few Minutes Free Meter</b>	Parking meters are equipped with a button that provides the driver with the first 10 to 15 minutes for free.
<b>In-car meters</b>	Motorists display paid time using their own palm-size device in their vehicle. Devices are purchased by the municipality and sold to the driver or provided by the vendor for a deposit, monthly fee, and share of revenue.

Several of these strategies are recommended for Winchester Town Center.

### Recommended Strategy 1: Demand Responsive Pricing

*Demand responsive pricing* involves altering the cost of parking according to level of demand using market principles. In other words, drivers pay what they are willing to pay; in areas with higher demand, parking has a higher price; areas with lower demand, have a lower price. For some places, the market rate for parking is free. Prices generally will not change in real time based on current occupancy, but will instead be adjusted a few times a year based on recent occupancy data. By refining the price of parking periodically, it is possible to keep parking occupancy rates relatively close to the optimal 85-percent.



Redwood City, CA Parking Pricing Map

**Several different payment technologies are recommended to address the specific needs of a variety of users. It is recommended that these technologies be utilized in concert.**

### **Recommended Strategy 2: Install Pay & Display Pay Stations**

Pay stations provide more payment options, including bills and credit/debit cards. This makes payment more convenient for parkers, as they do not need to carry around excessive amounts of coins and don't park illegally when they don't have a quarter. Pay stations eliminate the need for a post and meter head at every parking space, promoting more open, pedestrian-friendly sidewalks and possibly reducing visual blight. This is particularly true on block faces with angled parking, where single-space meters are placed closely together. Each pay station serves approximately 8 to 10 parking spaces.

This technology often results in a significant decrease in operation and enforcement costs over traditional meters, as the status of parking facilities can be monitored remotely from a central office or handheld unit. These stations also help improve accountability since all collected monies are digitally accounted for by the station. Another advantage of this parking strategy is that if one kiosk is broken, parkers can easily use an adjacent kiosk to pay for their parking, thereby eliminating the issue of free parking at broken meters. This type of meter does cost notably more to install than do traditional parking meters, but evidence from peer communities reveals that pay station installation costs can be recouped in under a year.



Multi-space meter in Park City, UT

### **Pay-and-Display**

*Pay-and-Display* pay stations allow drivers to purchase a "receipt" for paid parking time which can then be displayed on their dashboard to prove compliance. This eliminates the need to paint stalls which may increase the parking supply by as much as 20-percent. It is less convenient than pay-by-space stations because the driver must return to the car to place the receipt in the vehicle and again when the time has expired.



### **Recommended Strategy 3: Pay by Cellphone**

*Paying for parking by cellphone* is a strategy that allows parkers to pay without cash while eliminating the need to install new credit-card capable revenue collection infrastructure on the street. This strategy eliminates the need for coins, allows people to receive text messages notifying them that their time is about to expire as well as extend legal parking time by paying remotely. Additionally, upon returning to their vehicle, a person may terminate the parking session and avoid paying for time that will not be used.



### **Recommended Strategy 4: First Period Free**

A frequent argument against charging for parking in commercial areas is that requiring payment for quick trips to the store might discourage shoppers, particularly those who just need to pick up a single item. One strategy employed to help alleviate this problem is offering the *first few minutes of parking free of charge*. This technique does reduce meter revenues, but because it is necessary to place a new receipt every 15-minutes to credit the free minutes it is generally too cumbersome for parkers to return to reset the period during longer-duration visits. Generally, this strategy is employed at spaces near destinations with high levels of quick-errand activity, such as a pharmacy or coffee shop.



First Hour Free, Tampa Airport

### **Recommended Strategy 5: In-Car Meters**

*In-car meters* are small devices which are loaded with pre-paid parking time. The user displays the meter in their car, often on the dashboard or hanging from the rearview mirror, and activates the device when parked at a metered space. The digital display counts down the amount of paid parking time remaining, allowing a parking enforcement officer to see through the window that the car is legally paying for the parking time. This strategy is popular with frequent users of pay parking areas, especially those who are constantly “in and out”.



In-car meter

## **Modify Time-Limits**

### **Recommended Strategy 6: No Time-Limits**

The primary alternative that communities use to create vacancies in prime parking spaces is to set time limits and give tickets to violators. Time limits, however, bring several disadvantages: enforcement of time limits is labor-intensive and difficult, and downtown employees, who quickly become familiar with enforcement patterns, often become adept at the “two hour shuffle”, moving their cars regularly or swapping spaces with a coworker several times during the workday. Even with strictly enforced time limits, if there is no price incentive to persuade employees to seek out less convenient, bargain-priced spots, employees will probably still park in prime spaces.



Redwood City, CA

For customers, strict enforcement can bring “ticket anxiety”, the fear of getting a ticket if one lingers a minute too long (for example, in order to have dessert after lunch). As Dan Zack, Downtown Development Manager for Redwood City, CA, puts it, “Even if a visitor is quick enough to avoid a ticket, they don't want to spend the evening watching the clock and moving their car around. If a customer is having a good time in a restaurant, and they are happy to pay the market price for their parking spot, do we want them to wrap up their evening early because their time limit wasn't long enough? Do we want them to skip dessert or that last cappuccino in order to avoid a ticket?” Repeatedly, surveys of downtown shoppers have shown that the *availability* of parking, rather than price, is of prime importance.

## Improved Enforcement

There are many modern technologies that simplify or streamline the enforcement procedures in some way, either with tools that enhance the enforcement officer's efficiency or that automate monitoring procedures. This includes handheld ticket units, curbside sensors, and automated license plate readers (see Figure 15).

**Figure 14 Improved Enforcement Strategies**

Improved Enforcement	
<b>Handheld Units</b>	Parking enforcement personnel carry handheld computers or PDAs that scan windshield registration stickers, print tickets, and transmit citation information to a central computer.
<b>Curbside Sensors</b>	Sensors embedded into parking spots actively monitor status of every metered parking space 24/7 (links parking meters to sensors and radio telemetry).
<b>Automated License Plate Reading Technology</b>	Vehicles are equipped with cameras that are linked to computers to alert officers when vehicle is parked illegally (works when monitoring vehicle is moving).

One of these strategies is recommended for Winchester Town Center's initial parking management program.

### **Recommended Strategy 7: Implement Handheld Ticketing Units**

*Handheld ticketing units* are small, computerized devices that aid parking enforcement officers in issuing accurate and legible citations. Units can improve recordkeeping and reduce errors by directly communicating with central records; account for more complicated regulatory structures such as fines that escalate with each additional violation; and print the citations which improves legibility over handwritten notices.



## Application to Winchester Town Center

An assessment of the demand management and enforcement strategies recommended above in terms of how they might impact parking in the Town Center follows in Figure 15.

**Figure 15 Evaluation of Initial Parking Management Program**

Program	Purpose	Benefits	Limitations
<b>Establish parking zones</b>	<ul style="list-style-type: none"> <li>Establish pricing zones to encourage efficient use</li> <li>Use a simple fee structure</li> <li>Price most desirable locations the highest</li> <li>Price least convenient parking the lowest (free)</li> </ul>	<ul style="list-style-type: none"> <li>Efficiently separates long-term parking from short-term parking</li> <li>Establishes clear destinations for visitors, employees &amp; commuters according to their intended length of stay</li> <li>More simple fee structure compared to block by block pricing</li> </ul>	<ul style="list-style-type: none"> <li>Relies on education &amp; outreach</li> <li>Requires highly visible signage designating pricing zones</li> </ul>
<b>Institute market-rate pricing</b>	<ul style="list-style-type: none"> <li>Manage turnover</li> <li>Encourage long-term parking away from most desirable spaces</li> <li>Increase availability of parking for customers / clients</li> </ul>	<ul style="list-style-type: none"> <li>Maintain consistent availability in most desirable locations</li> <li>Visitors balance willingness to pay &amp; desire for convenience</li> <li>Visitors determine length of stay according to preference</li> <li>Market price in many zones is free</li> </ul>	<ul style="list-style-type: none"> <li>Pricing is a hot button issue</li> <li>Relies on education &amp; outreach</li> <li>Requires capital investment</li> <li>Need to periodically re-evaluate demand to adjust prices, hours, &amp; zones</li> </ul>
<b>Eliminate time limits</b>	<ul style="list-style-type: none"> <li>Visitors can park as long as needed</li> <li>Time limits are:                             <ul style="list-style-type: none"> <li>✓ Inconvenient &amp; artificial</li> <li>✓ Not efficient at turnover</li> <li>✓ Increase “parking shuffle” traffic</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Allows customers to choose their length of stay</li> <li>Reduces traffic by eliminating the “parking shuffle”</li> <li>Reduces enforcement requirements</li> <li>Eliminates ticket anxiety</li> </ul>	<ul style="list-style-type: none"> <li>Requires another mechanism to create turnover</li> <li>Relies on fee structure to encourage efficient parking patterns</li> <li>Reduced enforcement revenue</li> </ul>
<b>Revise permit program</b>	<ul style="list-style-type: none"> <li>Accommodates employees, Town resident commuters, &amp; municipal employees with dedicated parking</li> <li>Require non-resident commuters &amp; visitors to pay for parking or park remotely</li> </ul>	<ul style="list-style-type: none"> <li>Provides employees &amp; commuters incentive to park more remotely</li> <li>Protects parking for Town Center employees, municipal employees, &amp; resident commuters</li> <li>Greatly reduced rate for all day parking in specific locations</li> </ul>	<ul style="list-style-type: none"> <li>Constrains overall supply for other non-permit users</li> </ul>
<b>Allow first period free</b>	<ul style="list-style-type: none"> <li>Allow quick errands without having to pay</li> </ul>	<ul style="list-style-type: none"> <li>Improves convenience for quick trips</li> <li>Improves public support for pricing</li> <li>Encourages turnover</li> </ul>	<ul style="list-style-type: none"> <li>Reduced revenue</li> <li>Potential for abuse</li> </ul>
<b>Use contemporary payment and enforcement systems</b>	<ul style="list-style-type: none"> <li>Efficiently and conveniently collect parking fees</li> </ul>	<ul style="list-style-type: none"> <li>Provides visitors with a variety of payment options</li> <li>Efficient revenue collection &amp; monitoring</li> <li>Simplified enforcement</li> <li>Monitor occupancy rates</li> <li>Easily adjustable fee structure</li> <li>Easily adjustable hours of operations</li> </ul>	<ul style="list-style-type: none"> <li>Requires retrieving a receipt &amp; returning to place in vehicle before proceeding to destination</li> <li>Increases sidewalk obstructions</li> <li>Potential increased litter</li> <li>Requires capital investment</li> </ul>

## Initial Parking Management Program Details

The following section outlines specific details of the parking program elements recommended for initial implementation in the Town Center.

### A.) Management Strategies

Several parking management strategies are recommended as described below:

#### 1.) Priced Parking Zones

Charge for the use of Town Center parking spaces, designating four tiers of parking spaces radiating outward from the center. Charge higher prices for the spaces in the tier closest to the center and progressively lower prices for spaces in the tiers further away from the center. For convenience of use and enforcement, install parking pay stations (not meters) that accept cash, debit cards, credit cards, etc., and issue receipts that are placed on driver-side window or the dashboard.

The zones described here are illustrated in Figure 16 below.

##### Central Core Area

- The first tier would include on-street parking spaces along the portions of Main Street, Mt. Vernon Street, Thompson Street, Waterfield Road, Church Street, Shore Road, Converse Place, etc., nearest the center;
- These parking spaces would be intended to serve, customers, visitors, and employees on relatively short-duration errands;
- Parking in this first tier would be free for the first 15 minutes with the option of purchasing additional time at a relatively high rate (e.g., 50 to 75 cents per hour) which would escalate after two hours.



Central Core Area

##### Outer Core Area

- The second tier would include the remaining on-street parking spaces along Main Street, Mt. Vernon Street, Church Street, Laraway Road, Shore Road, etc., further away from the center;
- These parking spaces would be intended to serve shoppers, service and restaurant customers, visitors, and employees with moderate-duration activities (e.g., meetings, doctor's appointments, luncheon dates, etc.);
- Parking in the second tier would be free for the first 30 minutes with the option of purchasing additional time at a moderate rate (e.g., 25 to 50 cents per hour) which would escalate after four hours.



Outer Core Area

##### Town Lots

- The third tier would include the Town-owned parking lots— Town Hall/Library lot, Jenks lot, Waterfield, Aberjona, etc.
- These parking lots would be intended to serve employees, commuters, and visitors with moderate- to long-duration activities;
- It is anticipated that some portion of each lot would be free for the first 30 minutes with the option of purchasing additional time at a relatively moderate rate (e.g., 25-50 cents per hours) which escalates after four hours. The balance of parking spaces in each lot would be permit-

only parking with permits issued to Town employees or sold to qualified parkers on a monthly and quarterly basis.

**Periphery Area**

- The fourth tier would include on-street parking spaces along portions of Skillings Road, Washington Street, Main Street, Mystic Valley Parkway, the south end of the Aberjona lot, etc., within a three- to five-minute walk from the Town Center.
- The spaces would be intended to serve employees, commuters, and visitors on long-duration activities;
- Parking in the fourth tier would be free, but general restrictions such as no overnight parking and special restrictions such as handicapped parking and school drop-off-only parking would continue to apply to these spaces (as well as all parking areas within the Town Center.)

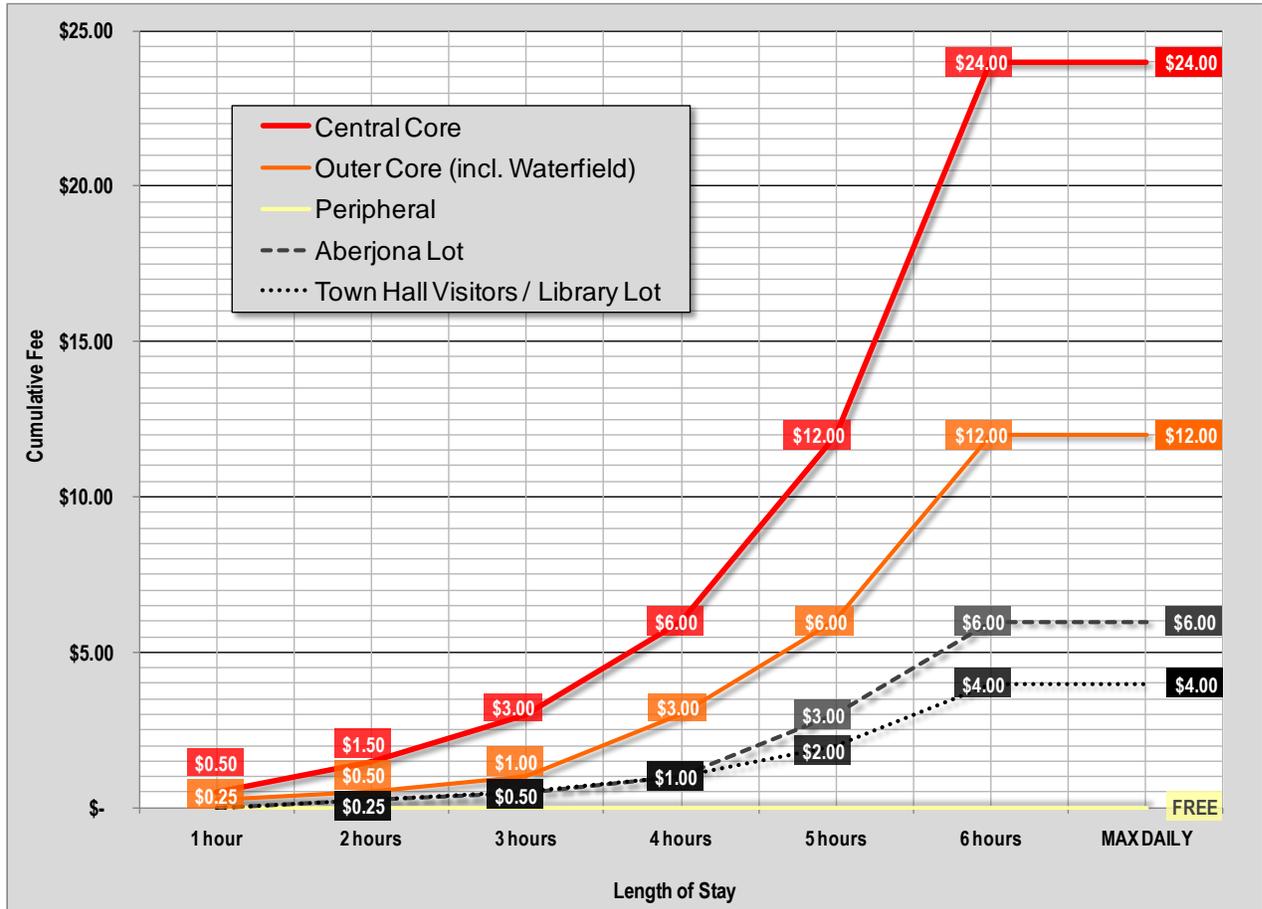
**Figure 16 Proposed Parking Zones**



## 2.) Escalating Parking Fee Structure

- Institute an escalating fee structure to manage demand and encourage efficient use of spaces. Increase the hourly fee over time to limit long-term parking in areas better served by short-term stays. As outlined above, pricing increases towards the center as does the rate of escalation, as can be seen in the sample fee structure shown in Figure 17.

Figure 17 Potential Escalating Fee Structure



## 3.) Revised Permit Program

- Re-price and offer monthly and quarterly permits (not annual permits) for commuter and employee parking at Town lots—Wedgemere, Aberjona, Waterfield, Jenks, etc.— to encourage use of the lots, balance supply and demand, and cover the cost of maintenance and policing of the lots.

## 4.) Enhance Enforcement

- Enhance enforcement, taking advantage of handheld computer and wireless communications technologies to make effective use of parking enforcement officers' time, and update the fine schedule to be consistent with the parking fee rates.

## 5.) Supply Management

- Add a limited number of parking spaces by restriping existing lots, shifting from parallel to reverse angle parking where space and safety permit, and creating open parking bays instead of individual parking stalls.

## 6.) Ease of Use

- Simplify and standardize parking signs.
- Improve parking lot lighting and sidewalks, especially between the town parking lots and the center.



## 7.) Contemporary Parking Payment Systems

- Install pay stations for fee collection within the central core, outer core, Waterfield, Aberjona, and Town Hall visitors/library lots.
  - Install at a rate of 1 station for every 7 to 10 spaces on-street
  - Install at a rate of 1 to 2 stations per lot
- Offer pay by cell phone option for any paid parking
- Offer in-car meters to drivers



## Summary of Anticipated Costs and Revenues

The total capital cost for purchasing the equipment needed to implement the parking pricing program outlined above is approximately \$620,000, as outlined in Figure 18. This assumes the full installed price for pay stations with one serving every nine parking spaces in the high and moderate demand pricing tiers.

**Figure 18 Total Estimated Capital Costs for Pricing Program**

Item	Units	Unit Cost	Total Cost
Pay Station	58	\$ 10,000	\$ 580,000
In-Car Meter	500	\$ 35	\$ 17,500
Handheld Unit	2	\$ 10,000	\$ 20,000
<b>Total</b>			<b>\$ 617,500</b>

Many communities self-finance this purchase while others accept lease-back offers from equipment vendors. In either case, a conservative annual budget is estimated in Figure 19 that assumes the full capital cost is financed by the Town and paid off in five years (a lease-back option would yield higher net annual revenue). Revenues are conservatively based on the lowest hourly rates proposed for each tier at the current utilization levels for operational hours of 8AM to 8PM in the core area and 9AM to 5PM in all other tiers.

**Figure 19 Estimated Annual Budget Assuming 5-Year Financing**

Annual Costs	Central Core	Outer Core	High-Demand Lots	Low-Demand Lots	Town Hall Lot	Periphery	Total
Pay Station Debt Service	\$ 33,413	\$ 100,849	\$ 15,487	\$ 854	\$ -	\$ -	\$ 150,603
Pay Station Maintenance	\$ 3,600	\$ 12,000	\$ 1,800	\$ -	\$ -	\$ -	\$ 17,400
Cell Phone Service							\$ 5,000
In-Car Meter Replacement							\$ 1,750
Handheld Unit Leases							\$ 1,400
Communications							\$ 5,000
Personnel							\$ 85,000
<b>Subtotal</b>							<b>\$ 266,153</b>
<b>Annual Revenues</b>							
Hourly Payment	\$ 151,632	\$ 126,720	\$ 80,352				\$ 358,704
Monthly Permits				\$ 22,378	\$ 8,845		\$ 31,223
<b>Subtotal</b>							<b>\$ 389,927</b>
<b>Net Annual Surplus (Deficit)</b>							<b>\$ 123,774</b>

## **B.) Changes to the Current Zoning Bylaw**

As part of the comprehensive parking study, a review of existing zoning bylaws revealed many inconsistencies with current parking regulatory practice that prevents attaining many of the goals established for the parking management program. Recommended changes to the zoning code are summarized below.

### **8.) Remove Parking Minimums and Implement Maximums**

Most minimum parking requirements take into account only two variables, namely land use and the size of development. As with Winchester's requirements, they are typically expressed in terms of number of spaces required per a certain square footage of a particular land use; or per residential unit; or (for restaurants and stadiums) number of seats. In reality, however, parking demand is affected by many more variables, such as the geographic context, demographic characteristics of the community, availability of transit or other alternatives to the car, traffic demand management programs, vehicle ownership rates, housing unit size, share of affordable housing units, etc. The use of minimums is arbitrary and better influenced by development needs.

### **9.) Allow Changes of Use Exemptions From Parking Minimums As of Right**

Situations arise where the minimum parking requirements interfere with the ability of the owner/occupant to change the use of their property. As discussed above, often the minimum parking requirements set out in the zoning code require more off street parking than is feasible within the constraints of the property. In mid- to high-density town centers where lots are small and available space is limited, this can become a serious obstruction to sensible redevelopment.

### **10.) Make Shared Parking As of Right in All Districts With 1,000-Foot Walk Radii**

Mixed-use developments offer the opportunity to share parking spaces between various uses, thereby reducing the total number of spaces required compared to the same uses in stand-alone developments. This is a primary benefit in mixed-use development contexts of moderate-to-high density. Shared parking operations offer many localized benefits to the surrounding community, including a more efficient use of land resources and reduced traffic congestion.

### **11.) Limit Frequency of Driveway Curb Cuts**

Driveway curb cuts are a major source of vehicle-pedestrian-bicycle conflicts as well as introducing more congestion on busy thoroughfares due to left turns in and out of the driveway. When alternatives are available and feasible, limiting or prohibiting driveway curb cuts along key vehicle, pedestrian, and bicycle routes reduces or eliminates these conflicts, providing safer, more efficient, and less congested public rights-of-way.

### **12.) Incorporate Transportation Demand Management Measures in the Town Center**

Transportation Demand Management (TDM) refers to a package of strategies to encourage residents and employees to drive less in favor of transit, carpooling, walking, bicycling, and teleworking. It encompasses financial incentives such as parking charges, parking cash-out, or subsidized transit passes; Guaranteed Ride Home programs to give employees the security to carpool or ride transit; compressed work schedules; and information and marketing efforts. TDM programs have been shown to reduce commuting by single-occupant vehicle by up to 40%, particularly when financial incentives are provided.



## Chapter 4. Other Parking Management Options

This chapter explores the future conditions for parking in Winchester Town Center. Based on the existing parking supply and demand, the Town Center is well positioned to handle increased development. This potential for development will hinge upon a strong and effective parking management program, as well as changes in the existing regulatory structure.

### Future Parking Projections

As demonstrated in Chapter 1, current parking demand does not approach the ideal 85-percent occupancy, allowing more visitors, customers, residents, and employees to park in the Town Center – even during the heaviest time periods. Using a shared parking analysis, parking demand can be projected according to a certain land use mix. This is described below and includes the following parking and transportation demand management efficiency assumptions:

- **Parking Demand Management and Operational Efficiencies.** Many parking demand reduction measures have been shown to reduce vehicle trips and parking demand in comparable downtown contexts. Nelson\Nygaard’s research has show that real parking utilization rates can be much lower than traditional baseline standards promulgated by the Institute of Transportation Engineers (ITE) through its Parking Generation Manual. However, regardless of the Town Center’s natural advantages in regards to residential density, a mix of uses, local serving retail, transit access, and good walking and biking infrastructure, a conservative reduction factor from ITE rates of only 5% for employees and 0% for residents was assumed for the future parking demand analysis below.
- **Shared Parking.** Further parking efficiency gains are possible by implementing a shared parking arrangement among different uses with staggered parking demand peaks. In recognition of the fact that parking demand for different land uses fluctuate throughout the day, each land use in the downtown has a variable parking demand rate by time of day. This varying demand is expressed as “occupancy rates” or a percentage of spaces allocated for a particular land use that are likely to be occupied at any given time. If parking is shared, then the total demand for parking is the sum of the number of parking spaces occupied for all land uses at the busiest hour. As the different land uses become more concentrated, more opportunities for shared parking emerge.

The shared parking analysis evaluated the entirety of Winchester’s Town Center (see Figure 1). Within this area, over 500,000 square feet of commercial and office floor space and over 200 multi-family residences have been identified. Single-family households are not included in recognition that it is common to have private unshared driveways (similarly, they are not part of the inventory or utilization analysis). The total number of residential units and commercial floor area by use is summarized in Figure 20, including boardings at the Town Center rail station.

**Figure 20 Winchester Town Center Land Uses**

General Land Uses		
Retail / Restaurant	288,130	square feet
Office	305,500	square feet
Residential	213	units
Transportation	746	daily boardings

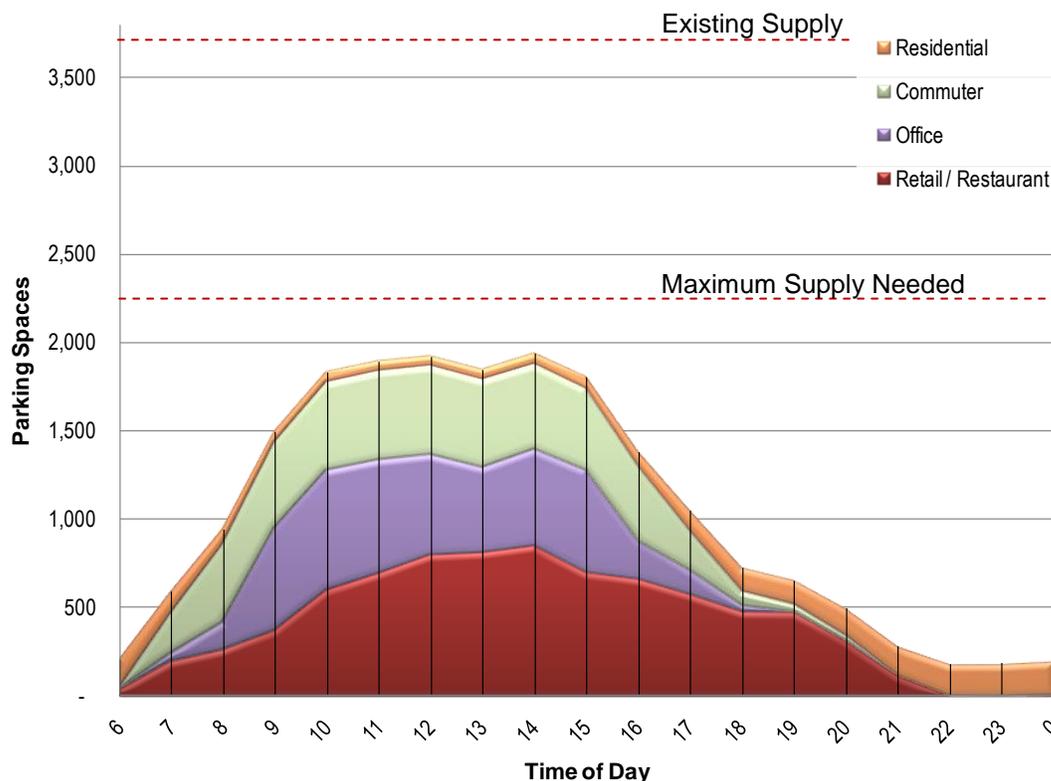
## Parking Demand Analysis

These land uses were inserted into a shared parking spreadsheet model that adjusts ITE parking demand rates according to the captive market effects and operational efficiencies noted above. Demand is projected across the hours of the day by use. As a result of the fluctuations of hourly parking demand patterns among different uses, Town Center parking efficiencies can be illustrated by showing how the Town Center does and could take advantage of a mix of different uses with different peak parking demands.

### Current Demand Projections

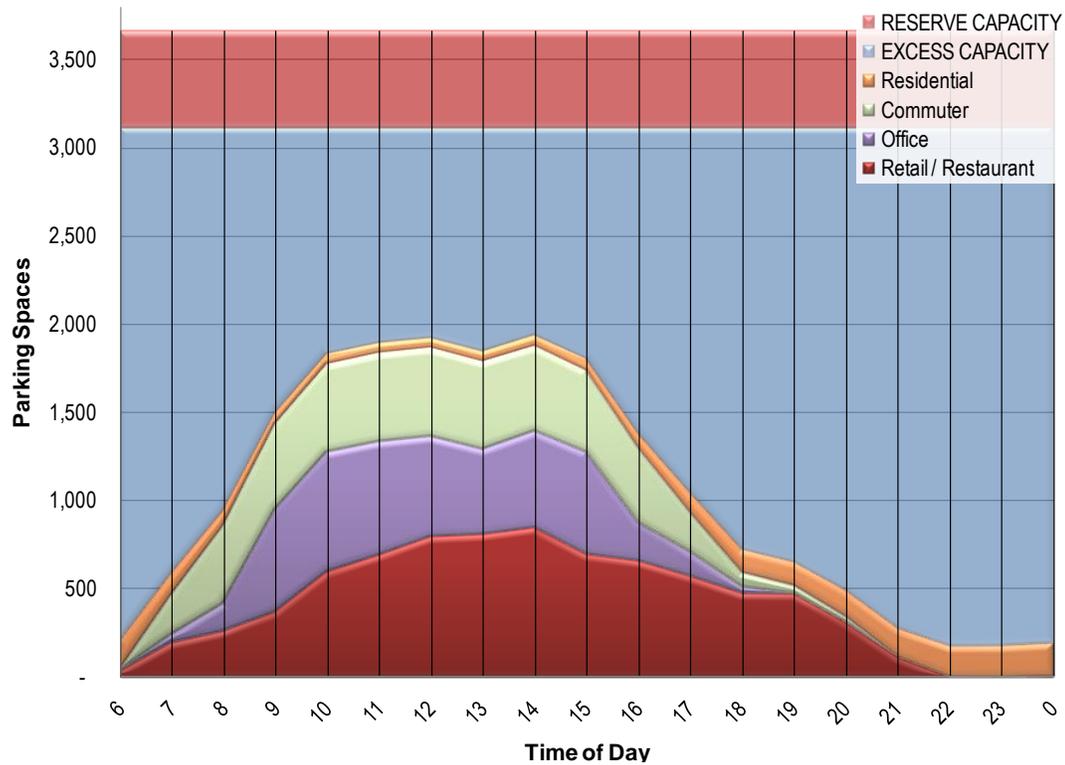
Combining the reasonable reductions for captive market effects and demand reduction measures, we estimate a peak parking demand of 1,936 spaces, as seen Figure 21. It is worth noting that the demand projection demonstrates a reliable predictive accuracy compared to the observed peak demand of 1,956.

**Figure 21 Current Demand Projection**



Allowing for a 15-percent reserve capacity for special events and ease of finding a space, the maximum supply would not need to be more than roughly 2,250 spaces – over 300 fewer spaces than recommended by ITE, and nearly 1,400 fewer spaces than exist in the Town Center. Maintaining the existing parking supply, the ideal utilization rate of 85% equates to just over 3,100 spaces (out of 3,665), which still leaves **1,200 spaces available for expansion during the peak hour and 3,000 spaces at night and in the mornings** (see Figure 22).

Figure 22 Current Modeled Parking Demand Profile



### Development Projections

With this significant excess capacity and the centrally located commuter rail station, Winchester’s Town Center can absorb much expansion, especially housing. Since residential parking peaks do not coincide with commercial or office peak hours, residential land use growth is not very limited by the 11AM – 3PM demand peak observed (and modeled) in Winchester. Existing residential peak demand occurs when there is virtually no other demand pressure on the Town Center’s parking supply.

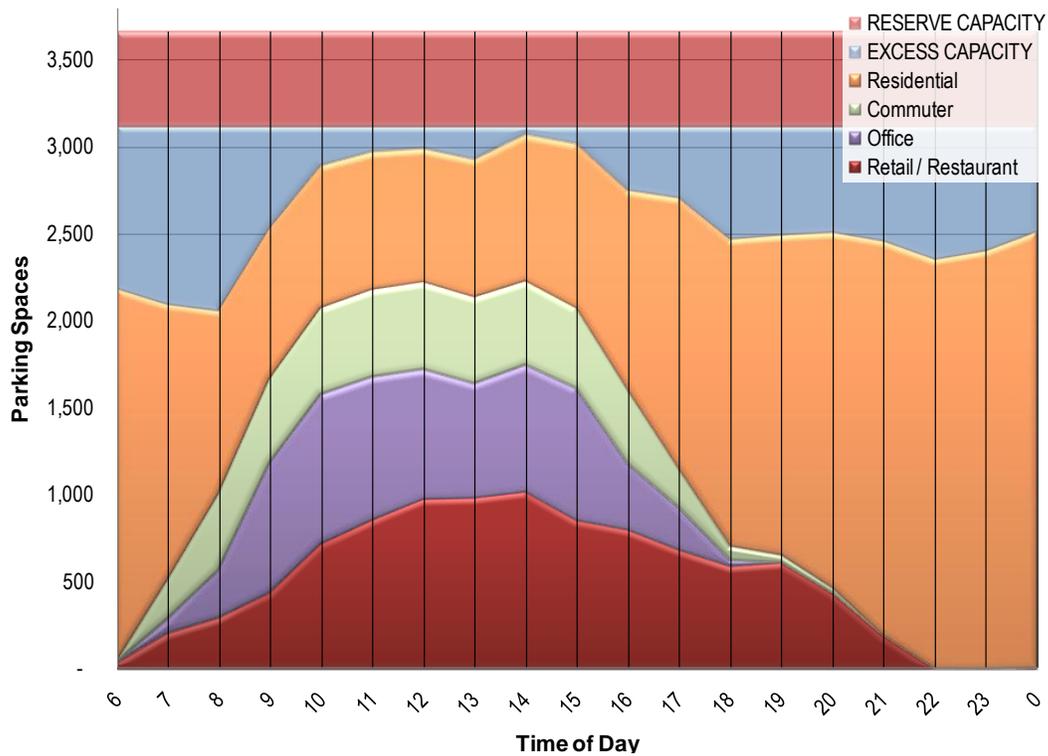
Using this *excess capacity* as the predominant constraint on development, we can estimate potential development that would increase demand across the day to create a more balanced demand curve that represents the most efficient use of parking. As seen in Figure 23, the Town Center can theoretically sustain significant growth without adding any parking capacity – absent any other factors. Most pointedly, multi-family residential units can expand significantly.

Figure 23 Maximum Theoretical Growth in the Town Center

Land Use	Existing	Growth	Resulting	Units
Retail / Restaurant	288,130	150,000	438,130	square feet
Office	305,500	100,000	405,500	square feet
Residential	213	2,500	2,713	units

The resulting demand profile this much development would produce is shown in Figure 24. This land use mix would result in an estimated peak demand of 3,066 and a demand for 2,060 spaces at the lowest point of demand overnight.

Figure 24 Maximum Theoretical Growth Projection



While the maximum level of growth is not feasible due to many practical constraints, including the existing zoning envelope, flood plain setbacks, historical impacts, etc., a more measured expansion of 50,000-100,000 square feet of retail, 25,000-50,000 square feet of office space, and 250-500 units of housing could potentially be absorbed within the existing zoning and flood plain without requiring any new parking construction – **assuming existing parking supplies were better shared and managed.**

## Other Parking Management Options

There are a series of steps that Winchester should undertake to encourage more efficient utilization of parking resources in the Town Center by future development. These include: 1) physical access improvements; and 2) additions to the existing zoning code.

### 1.) Physical Access Changes

There are several recommendations that respond to specific needs cited on a consistent basis by a variety of stakeholders. In particular, several barriers surrounding the core of the Town Center restrict the ability to use remote parking or avoid driving to town.

#### *Skilling Road & Washington Street Intersection*

The intersection of Skillings Road, Washington Street, and Mt. Vernon Street is larger than necessary for the volume of traffic it processes, and is very unfriendly to pedestrians. The time a pedestrian must wait for a walk signal within the light cycle – as well as the distance that must be traveled – serves as barrier keeping residents that live east of Skillings and Washington from walking to the Town Center and preventing long-term parkers from using parking facilities beyond Skillings Road. Improvements can be made to this intersection that will not reduce vehicular level of service, but can vastly improve pedestrian level of service. Doing so will unlock valuable parking resources east of this intersection.

Potential improvements to the intersection are outlined below and an illustration is included in Figure 25. These improvements would transform the intersection into a simplified 4-way intersection. It would also result in significant reductions in both crossing distances and as a result, the average delay for pedestrians and vehicles.

- Transform the Skillings Road approach into a secondary road with access from Washington Street
- Add curb extensions to every approach, shortening the distance a pedestrian must cross
- Create a large public space opposite the Town Hall

**Figure 25 Skillings & Washington Conceptual Redesign**



Existing Intersection



Conceptual Redesign

**Aberjona Parking Lot Access and Safety**

Improving the lighting and walking conditions along the path to the lower Aberjona parking lot would significantly increase the utilization of this close resource. There was consistent feedback that people do not feel comfortable making the walk from this lot to the commuter rail station or Town Center. Without these improvements, Winchester is losing valuable parking capacity.



View of Lower Aberjona Lot

**Mystic Valley Parkway & Waterfield Road Intersection**

The Mystic Valley Parkway at Waterfield Road is another large intersection that is unfriendly to pedestrians. It is difficult to run a quick errand into the post office or park along the bridge. An improvement to this intersection and to the management of the spaces in front of the Post Office could better meet the needs of postal customers, while at the same time accommodating vehicular traffic.

In the same location, a crossing directly from the Post Office on Waterfield Road to the Aberjona lot does not have a crosswalk in which to walk, although there are many people making this pedestrian trip. Adding a crosswalk in this location would improve the safety of pedestrians and respond to an observed need.

**2.) Additions to the Current Zoning Bylaw**

**Car-Sharing**

Car-sharing provides individuals with access to a fleet of shared vehicles, allowing them to avoid owning a car, or a second or third car. Car-sharing can also be a tool for businesses and government organizations, which can use it to replace their fleet vehicles. At the same time, car-sharing at the workplace allows employees to take transit, walk, or cycle to work, since a car will be available for business meetings or errands during the day.

Recommendation: Incorporate into the Zoning Bylaw that a minimum number of car share spaces are provided free of charge to car share services relative to the total amount of parking provided

**Unbundling Parking Costs**

Unbundling parking costs changes parking from a required purchase to an optional amenity, so that households and employers can freely choose how many spaces they wish to lease.

Especially among households with below average vehicle ownership rates (e.g., people with low income, singles and single parents, seniors on fixed incomes, and college students), allowing this choice can provide a substantial financial benefit. Unbundling parking costs means that these households no longer have to pay for parking spaces that they may not be able to use or afford. Charging separately for parking is the single most effective strategy to encourage

	Before	After
Drive Alone	89%	54%
Carpool	9%	12%
Bus	1%	17%
Walk, bike	1%	17%
Total	100%	100%

In Bellevue Washington, travel preference changed dramatically after parking space cost was separated from residential and commercial leases.

households to own fewer cars, and rely more on walking, cycling, and transit. According to a study by Todd Litman,<sup>1</sup> unbundling residential parking can significantly reduce household vehicle ownership and parking demand.

**Recommendation:** Incorporate into the Zoning Bylaw that a new development, whether business or residential, must separate out a fee for parking, rather than incorporating it into the cost of the purchase or lease of the space

**Parking In-Lieu Fees**

In some communities, new developments can waive their minimum parking requirements by making an annual payment (in-lieu of providing parking) to the municipality. The fee is usually utilized for transportation improvements, particularly shared public parking facilities. This allows the redevelopment of constrained sites and provides a revenue stream to support the construction/maintenance of shared public parking facilities such as a central lot or garage.

**Recommendation:** Incorporate into the Zoning Bylaw an option for a new development to waive the minimum parking requirements associated with the zoning in its location, and instead pay a fee that can go to a fund targeting transportation improvements

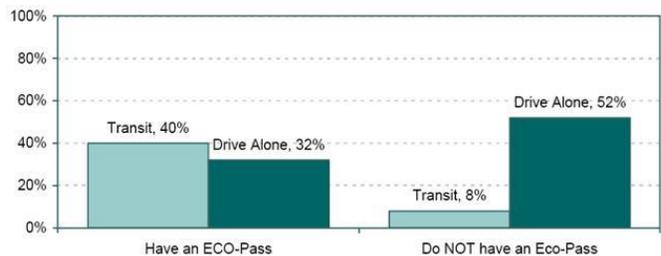
**Bicycle Parking**

Bicycle parking is an essential part of encouraging bicycling and typically serves two important markets. Long-term parking is needed for bicycle storage for residents and employees. This parking is located in secure, weather-protected, restricted access facilities. Short-term parking serves shoppers, recreational users and other. As well as security, convenient locations are a priority – otherwise, bicyclists will tend to lock their bicycles to poles or fences close to their final destination. Bicycle improvements increase mobility, reduce auto dependency, congestion and air pollution, and can be a very important mode of transportation for families with low income.

**Recommendation:** Incorporate into the Zoning Bylaw minimum bike parking facilities for new developments, and encourage existing developments to consider such making such improvements

**Parking Cash Out & Universal Transit Passes**

*Parking cash-out* is a policy whereby employees who may be offered parking as a benefit of their job are offered monthly cash benefits or free transit passes in exchange for giving up their free or employee-paid parking. Often, revenues from paid parking facilities will pay for the free employee transit passes and other benefits. This strategy reduces employee parking demand through financial incentives or free alternative transportation.



Travel preference in Boulder Colorado with & without RTD's "Eco-Pass" universal transit pass

**Recommendation:** Incorporate into the Zoning Bylaw a parking cash-out requirement for any new businesses in the Town Center that do not charge their employees to park on-site.

<sup>1</sup> Todd Litman, *Parking Management Best Practices* (Planners Press, 2006).



## Chapter 5. Conclusions

The comprehensive parking study of Winchester Town Center has revealed that parking spaces are plentiful throughout the day, but they are not available in the prime locations where people want to be the most. Constructing new supply would have no effect on this perennial problem of “front door” availability, because new supply could never be as close as the curb is today. Some of the closest public lots remain underutilized throughout the entire day – especially on weekends.

Rather, this effort has revealed that a well-conceived parking management program would produce the desired availability while creating the mechanisms to address other concerns in the Town Center. If implemented properly, a parking management program may be able to:

- Produce about 15-percent availability on every block face in the Town Center, ensuring that one out of every eight spaces is available
- Provide customer conveniences that make parking hassle-free
- Depart from the ticketing and enforcement regime and allow people to park for as long as they are willing to pay
- Discourage long-term parkers from using prime front-door spaces
- Encourage rail commuters to park in more remote space – many walking to and from their car past Winchester’s retail shops
- Enhance connections into surrounding neighborhoods to facilitate walking and biking to Town Center
- Unlock the potential of the Town Center to accommodate much more development – particularly residential – without needing new parking construction

Through a combined system of pricing tiers, payment technologies, new signing and wayfinding, simple access improvements to parking lots and neighborhoods, and regulatory changes, Winchester can begin to realize the potential of its Town Center for attracting new businesses, residents, and opportunities for merchants while seeing improved parking availability and walking conditions. After decades of approaching parking management within the silo of chasing time-limit violators, demand-responsive pricing will enable the Town to afford such things as:

- Modern parking conveniences, such as in-car meters, pay by cell-phone, and pay-as-you go parking with no tickets
- Sidewalk, walkway, and lighting improvements for places like the Aberjona lot and Shore Road
- Simple signing and information about under-utilized parking supply in the Town Center

By establishing an enterprise fund wholly responsible for the Town Center’s parking system, Massachusetts General Law<sup>2</sup> allows Winchester to utilize surplus parking revenues to make the necessary improvements to Town Center that will better accommodate growth in parking demand as well as walking, biking, and transit use.

Finally, many more flexible regulatory interventions – particularly in the zoning code – will bring Winchester into the 21<sup>st</sup> century, enabling future development to be more affordable and work in unison with the improved parking system.

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<sup>2</sup> MGL Chapter 182 allows non-profit enterprise funds to be created. Through MGL Chapter 40Q, these funds can be used for district improvement financing (as opposed to using tax receipts) for capital infrastructure purchases. MGL Chapter 86 allows these funds to be used for anything improving traffic and parking. This may include simple signing, sidewalk, and even landscaping improvements to make parking more accessible.