
# POUGHKEEPSIE DOWNTOWN PARKING IMPROVEMENT PLAN

## ANALYSIS OF FUTURE PARKING DEMAND

MAY, 2018

In Association With:
**Behan Planning and Design**
**Tri-State Traffic Data, Inc**

NELSON
NYGAARD

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# INTRODUCTION

Parking does not exist independently; it is intricately intertwined with the overall mix of land uses and activities it serves. As Downtown Poughkeepsie evolves and attempts to attract a variety of new land uses, this relationship becomes increasingly important. Nationally, there is a trend toward residential and infill developments with less supplied parking to achieve locally focused economic development goals. This chapter explores the relationship between existing land use patterns and observed parking demand to project the expected level of future demand, identify where development may be accommodated, and recommend corresponding parking facility management actions.

The land use and parking demand analysis covers the entire study area and uses an adapted parking model. The model is based on the concepts that parking demand for different types of land uses changes over the hours of the day and that people parking in a mixed-use area like Downtown Poughkeepsie are regularly sharing spaces for more than one land use. The model is calibrated to match the real demand observed during utilization counts in order to better model behavior specific to the study area and to more accurately determine potential parking demand for future developments.

The team created three development scenarios for the focus area. Scenario characteristics are added to baseline land use characteristics and entered into the calibrated model to determine the expected future parking demand. This demand is compared to the existing supply to understand how the parking system may need to change in the future to satisfy demand while meeting economic development goals.

# LAND USE AND PARKING ANALYSIS METHODOLOGY

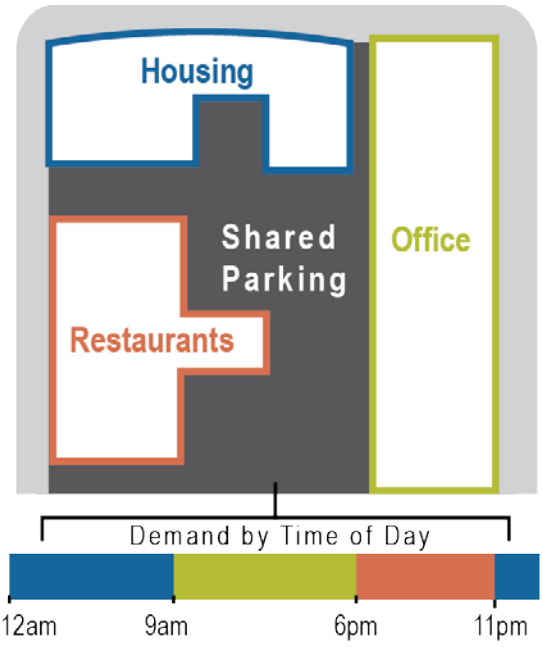
In similar studies, Nelson\Nygaard has demonstrated that projections using the Institute of Transportation Engineers (ITE) parking generation rates overstate demand for a mixed-used environment like downtown Poughkeepsie. In particular, downtowns offer the opportunity to share parking spaces between various uses throughout times of the day and week, thereby reducing the total number of spaces required compared to the same uses in stand-alone developments. This analysis develops its projected scenarios of potential future demand through past experience, Urban Land Institute (ULI) methodologies, and context-specific ratios in a calibrated model that best approximates the Downtown Poughkeepsie study area.

## BACKGROUND

Understanding the relationship between land use patterns and parking demand is critical. The study area functions as a mixed-use parking district with a unique user behavior profile which poses challenges in managing parking resources. Traditional development expectations often assume that parking will be provided for each separate development with little or no consideration of shared parking or access among different uses. This may be applicable to suburban sites with lots of space and isolated single land uses, but is not appropriate in a mixed-use environment like Downtown Poughkeepsie.

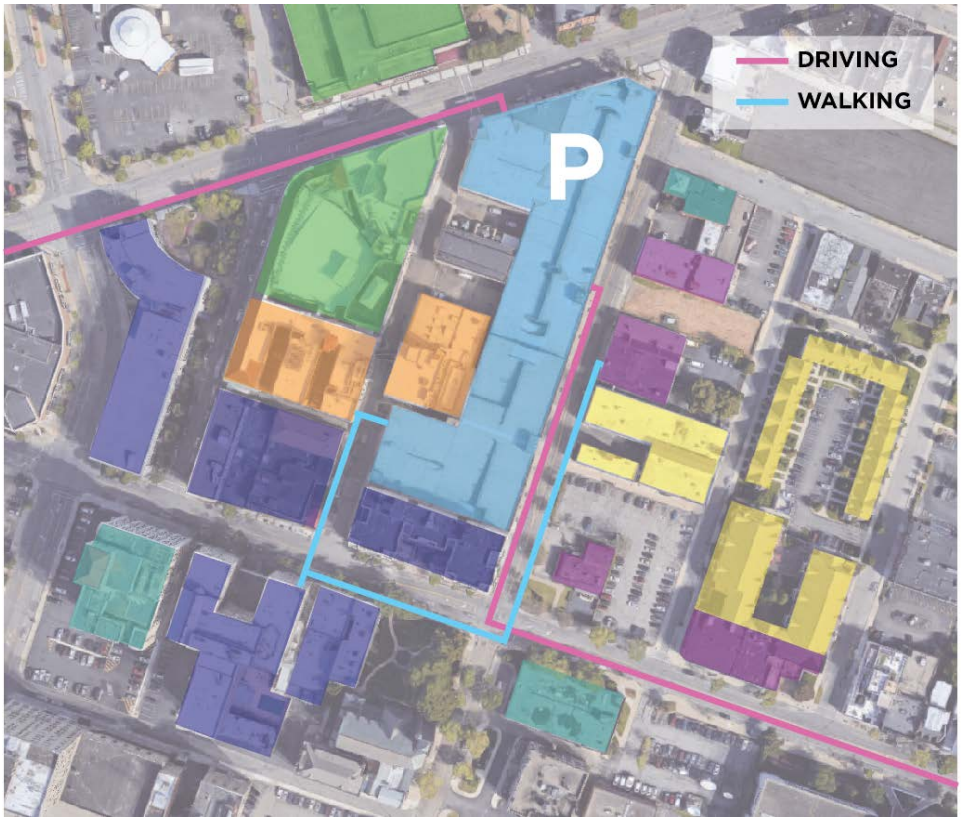
In a proven principle often referred to as "staggered peaks," the actual demand for parking varies by use throughout the hours of a day and days of a week: office space generates parking demand during traditional weekday business hours; parking for residential housing is often highest overnight as many residents use their cars during the day; and the parking demand generated by bars and restaurants is highest during meal times and in the evening (Figure 16). If parking is shared between multiple uses, the aggregated parking demand by time of day is less than the total that would be programmed separately for each use.

Figure 1 Demand Temporal Distribution




A second principle of shared parking in a mixed use area is often referred to as "internal capture," whereby a single parking space that normally serves one land use at a time may serve another land use at the same time simply by the virtue of someone walking to a second destination after parking at their first destination. In the example shown in Figure 2, an individual may park in the garage, attend class in the morning, walk to a pizza shop in a mixed-use building for lunch, and pick up clothing at a dry cleaner before leaving the area. This eliminates demand for one parking space at the pizza shop and one parking space at the dry cleaner. Mixed use areas naturally promote this type of shared parking which eliminates the need for many redundant parking spaces.

Figure 2 Reduced Parking Demand in Park Once Districts



Mixed use areas typically experience reductions compared to traditional parking demand assumptions as a result of both staggered peaks and internal capture, depending on how well uses are mixed together and what the walking environment is like between them. There are several ways in which Downtown Poughkeepsie already supports shared parking patterns. For example, the following groups make use of only a single parking space where parking generation tables require two spaces:

- Office workers who patronize Downtown restaurants at lunchtime
- Poughkeepsie Grand Hotel guests who attend Civic Center or Bardavon events
- Visitors to downtown who visit a restaurant before a show at the Civic Center
- Downtown residents who own vehicles yet walk to services

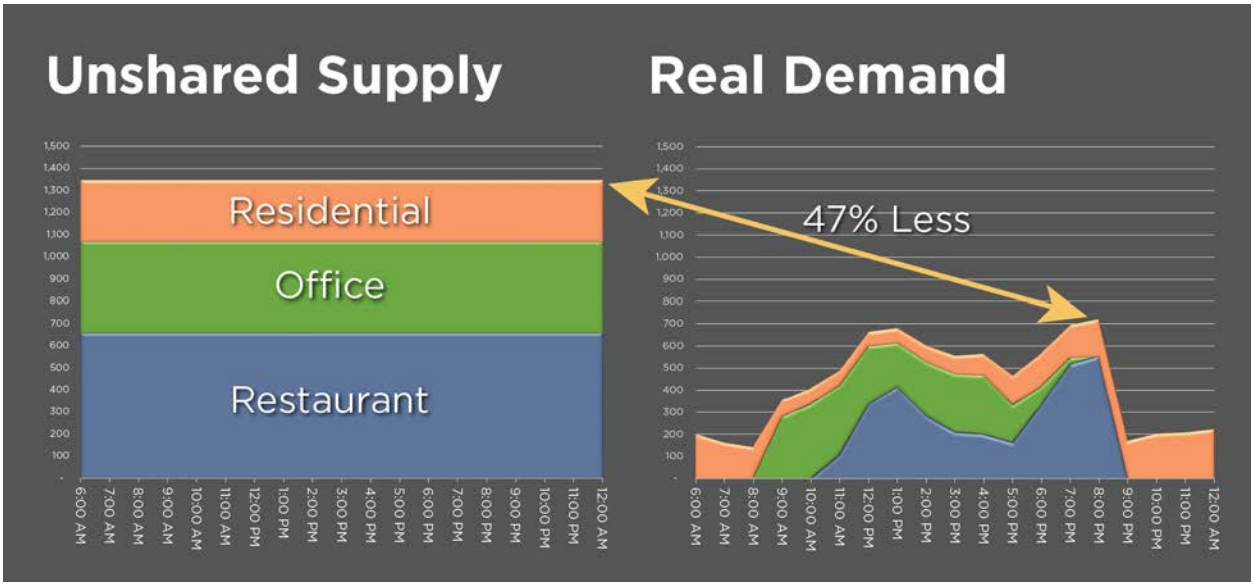
# MODELING PARKING DEMAND

The analysis methodology used in this report is different than a traditional parking generation exercise due to the consideration of staggered peaks and internal capture principles. Most often, parking generation analyses rely on the Institute of Transportation Engineers' (ITE) periodic report titled Parking Generation, which is the prevailing national standard in determining expected parking demand for a development or set of land uses. ITE standards are based on parking demand studies submitted to ITE by a variety of parties, including public agencies, developers and consulting firms. These studies are often based on peak hour demands of suburban sites with isolated, single land uses that provide free parking.[1] To calculate the estimated parking demand generated by a development, an analyst multiplies a peak parking demand factor for each land use type by the physical size of each use type and assumes that the peak amount of parking is required all day every day and exclusively for that use (Figure 3).

The most recent parking generation manual available is the 4th edition (2010) and is used as a comparative starting point to determine baseline assumptions. However, as described previously, to model a mixed-use business district environment, Nelson\Nygaard has created an adapted parking model with inputs from the Urban Land Institute's (ULI) Shared Parking Manual (2nd Edition, 2005) and Poughkeepsie-specific land use and parking data to reflect actual staggered peaks and internal capture behavior. Both the ITE and ULI manuals report demand by time of day for most land uses. By layering this information with peak parking ratios, an analyst can determine a more realistic peak parking demand for land uses in a given area.

[1] Institute of Transportation Engineers, Parking Generation 4th Edition, 2010, page 2

Figure 3 Example: Traditional Expected Parking Demand v. Real Demand Profile




The step-by-step modeling process is as follows:

1. **Existing Land Use**: Categorize and aggregate existing land uses to determine the built square footage that attracts parking demand and adjust for known vacancies. This involves reviewing parcel data provided by Dutchess County and verifying the current use of parcels within the study area.
2. **Traditional Parking Demand Model**: Calculate and compare how much parking would be "required" if each existing land use had its own, dedicated supply of parking based on the Institute of Transportation Engineers' (ITE) Parking Generation guidebook.
3. **Calibrate Parking Model to Context**: Calibrate by approximating the captive market effect, transit access, resident car ownership, and other factors specific to the Downtown Poughkeepsie study area.
4. **Adapted Parking Model**: Apply an adapted parking model derived from the Urban Land Institute's (ULI) Shared Parking Manual to show the expected parking demand throughout the course of an average weekday, adjusted for staggered peaks and internal capture.
5. **Observed Parking Demand**: Compare the adapted model-generated parking demand to observed parking utilization counts collected in Fall 2017 and calibrate the model if necessary to match observations.
6. **Future Land Use**: Add future development scenarios to the existing land uses and model the new expected parking demand.

# EXISTING LAND USE PARKING DEMAND ANALYSIS

The study area for the land use, shared parking, and demand forecast analysis is the same as the inventory and utilization study area. While the area west of Columbus Drive is largely of different character than the traditional Downtown, significant development projects have been identified in this area that are likely to change the parking dynamics. The study area consists of a mix of land uses with over 120,000 square feet of active retail floor space, over 250,000 square feet of active service space, and over one million square feet of public and private office space.

Figure 5 spatially identifies the use categories for all non-vacant properties. These were derived through verification of parcels identified in GIS shapefiles supplied by Dutchess County. Parks, parking lots, and vacant parcels are excluded as non-parking generators. Rather than apply a vacancy rate to all residential, office, retail, and service uses, a determination was made on the status of the property on a parcel-by-parcel basis based on street level imagery dated September, 2017. Thus, certain parcels that appear to have an unused building are not included on the map or in the analysis. Single family, two-family, and three-family housing were also excluded in this modeling exercise because these developments typically have their own driveway parking and do not rely on other parking resources. These uses are identified on the map as Non-Qualifying Residential parcels. All existing land uses that inform the parking demand model are grouped in categories and summarized as accurately as possible in Figure 4.

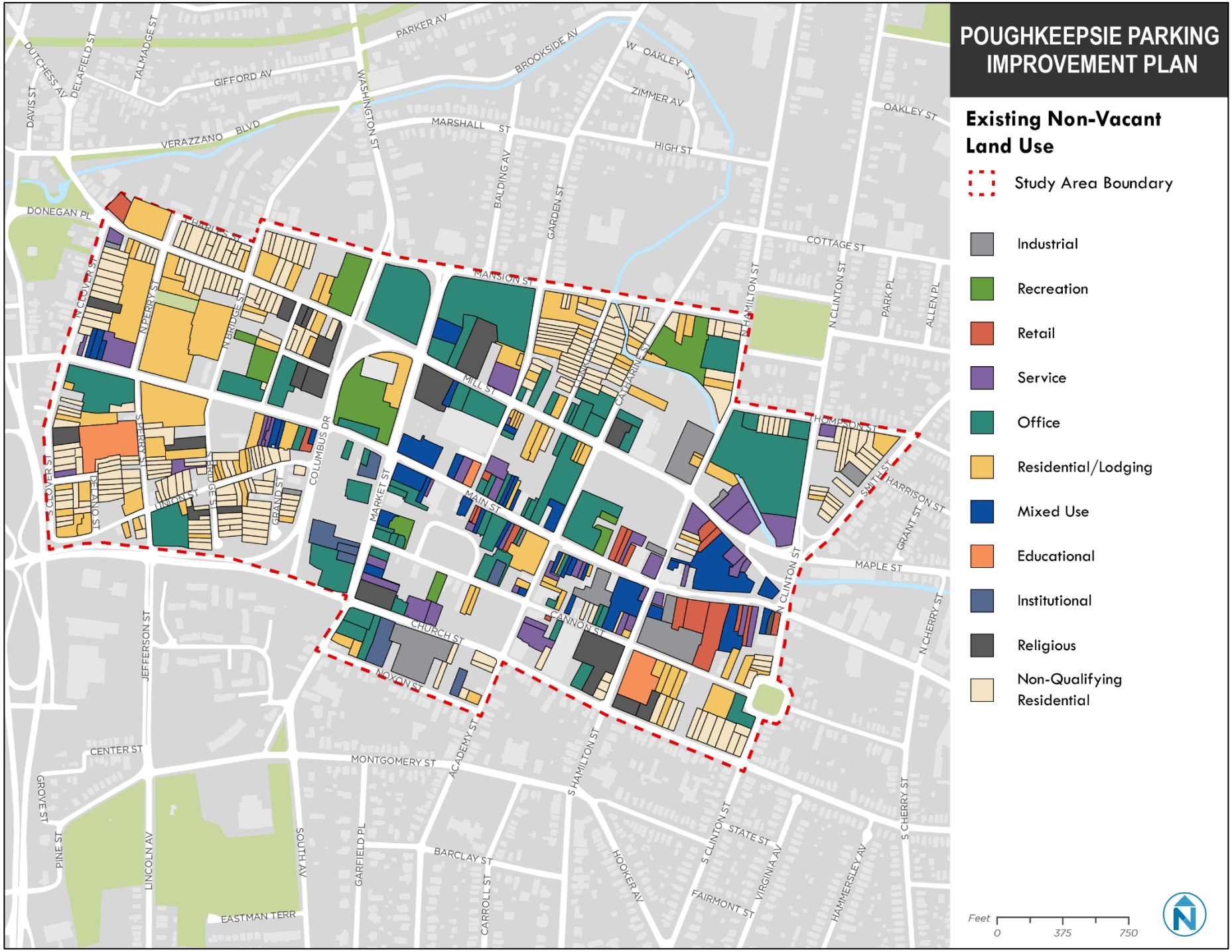
**Figure 4 Existing Land Use in Study Area**

| Land Use | Number | Units |
|---|---|---|
| **Industrial** | | |
| General Light Industrial | 165,664 | Square Feet |
| Manufacturing | 10,386 | Square Feet |
| Warehouse | 5,940 | Square Feet |
| Mini-Warehouse | 8,541 | Square Feet |
| **Recreational** | | |
| Live Theater | 944 | Seats |
| Auditorium[2] | 3,950 | Capacity |
| Recreation/Community Center | 63,060 | Square Feet |
| **Retail** | | |
| Auto Parts and Sales | 11,594 | Square Feet |
| Supermarket | 19,041 | Square Feet |
| Convenience Market | 19,393 | Square Feet |
| Pharmacy/Drugstore | 2,014 | Square Feet |
| Liquor Store | 2,100 | Square Feet |

[2] Includes stated Civic Center show capacity of 3,050 and Chance Theater show capacity of 900

| Land Use | Number | Units |
|---|---|---|
| Apparel Store | 15,643 | Square Feet |
| Furniture Store | 7,132 | Square Feet |
| Generic Retail | 45,250 | Square Feet |
| **Service** | | |
| Sit-down Restaurant (no bar) | 6,426 | Square Feet |
| Sit-down Restaurant (bar) | 76,256 | Square Feet |
| High Turnover Restaurant | 36,499 | Square Feet |
| Fast Food | 28,251 | Square Feet |
| Coffee/Donut Shop | 4,662 | Square Feet |
| Laundromat | 5,195 | Square Feet |
| Auto Service | 36,872 | Square Feet |
| Bank | 23,444 | Square Feet |
| Generic Service | 38,236 | Square Feet |
| **Institutional** | | |
| Gallery | 10,953 | Square Feet |
| Clinic | 24,010 | Square Feet |
| Postal Services | 726 | Square Feet |
| Judicial Complex | 87,493 | Square Feet |
| **Religious** | | |
| Church | 134,281 | Square Feet |
| Mosque | 3,711 | Square Feet |
| Funeral Home | 8,811 | Square Feet |
| **Office** | | |
| General Office | 727,076 | Square Feet |
| Medical Office | 40,130 | Square Feet |
| Government Office | 308,812 | Square Feet |
| **Educational** | | |
| High School | 60 | Students |
| Trade School | 242 | Students |
| **Residential/Lodging** | | |
| Apartment | 1,074 | Units |
| Retirement Community | 119 | Units |
| Nursing Home | 81,480 | Square Feet |
| Hotel | 216 | Rooms |

Figure 5 Existing Non-Vacant Land Use for Parking Demand Analysis



# EXISTING PARKING SUPPLY AND DEMAND

At the time of data collection, there were 7,151 total inventoried parking spaces within the study area. As Figure 6 shows, during the weekday midday peak, over 3,500 parked cars occupied about 50% of the parking supply. On the weekend, parking occupancy is much lower.

This analysis assumes that typically no more than 90% of the parking supply should be full. This creates a 10% "reserve" of parking spaces that can be used for overflow during events, overlap during peak times, and additional operational reserve. Thus, observed demand charts include a dashed line denoting the 90% supply mark. Model outputs refer to "recommended reserve" before defining excess capacity.

Figure 6 Overall Study Area Parking Utilization - Wednesday, September 20, 2017

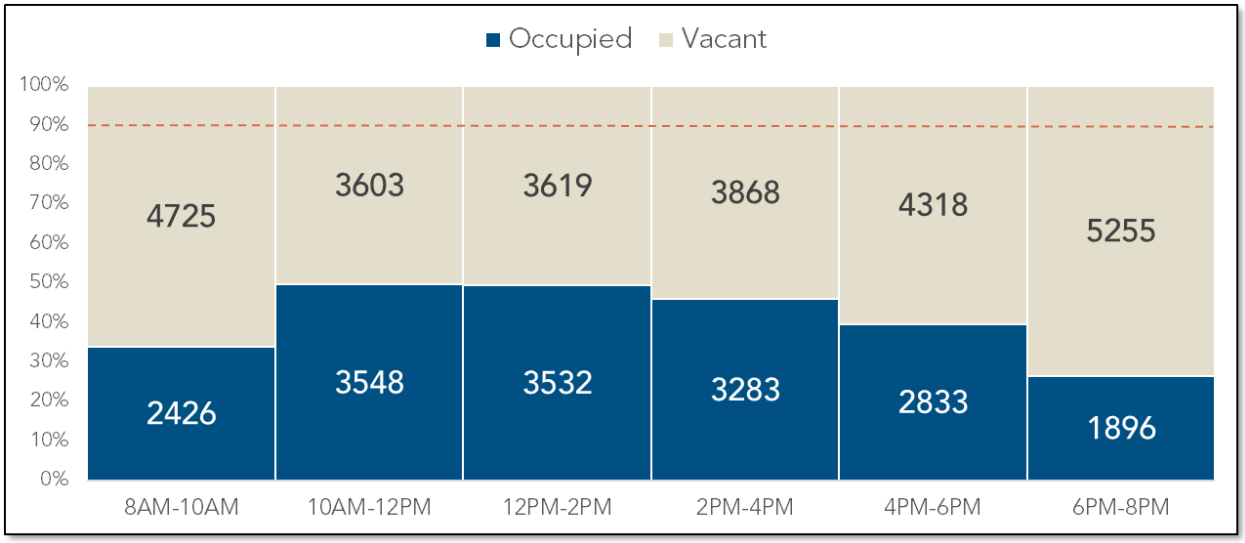
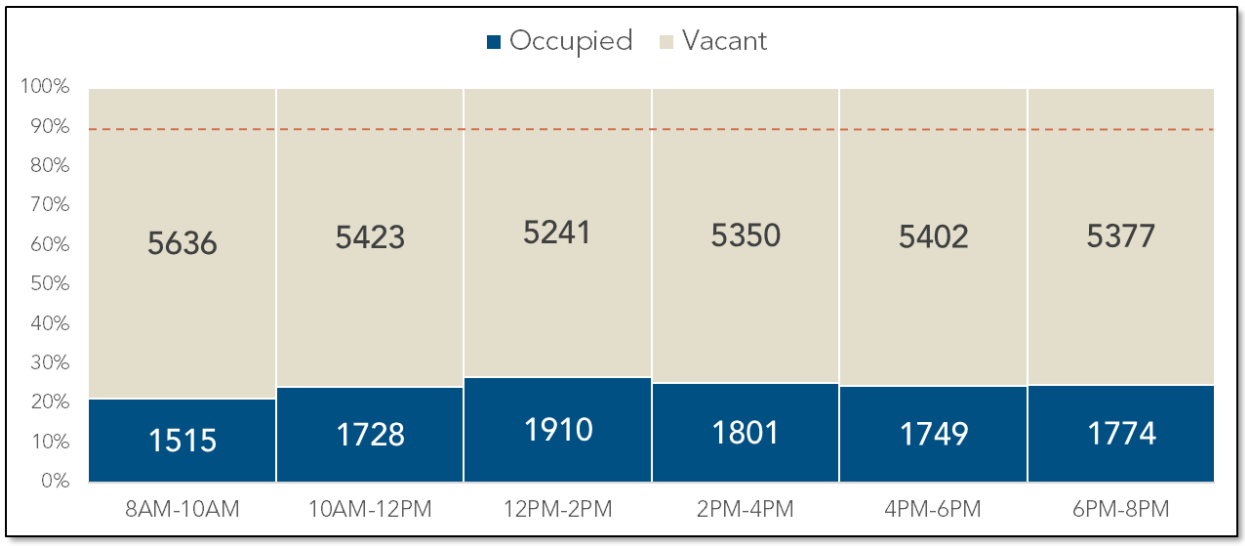



Figure 7 Overall Study Area Parking Utilization - Saturday, September 23, 2017



# MODEL CALIBRATION

In order to better model varying land use contexts, the model is equipped with adjustable variables that represent the effects of the following concepts:

**Captive Market Effect:** Unlike traditional stand-alone developments, mixed-use and walkable environments in Downtown Poughkeepsie encourage and provide opportunities for customer, visitors, and employees to visit multiple destinations using one parking space, rather than having to drive and park multiple times during a visit. An average percentage of internal capture reduction of 32% for commercial land uses and 31% for residential land uses[3] was applied to the study area based on the land use mix, as well as observations of the existing pedestrian environment.

**Transportation Demand Management:** Another parking demand reduction factor included in the analysis is an adjustment for transportation demand management (TDM). These types of programs work collectively to change how, when, where, and why people travel and provide people the options to reduce reliance on the single-occupant vehicle. TDM measures include a range of cycling, walking, transit, and carpooling incentives that can range from simple infrastructure such as bicycle parking, bus shelters, and sidewalks to more advanced information campaigns and financial incentives to leave the car at home. A TDM measure that many cities use is paid parking, which clarifies the real cost of parking provision for the user and may encourage some to use a more cost-effective mode of transportation such as walking, biking, or taking transit. The Poughkeepsie model applies no TDM reductions to employee and residential parking demand as employer and landlord participation in TDM programs is minimal.

**Parking Demand User Groups:** These factors impact the final calculation by defining the average share of peak parking demand attributable to non-office employees and office visitors, which often have different parking demand rates than traditional office employees. Twenty percent of peak retail/service parking demand is assigned to retail/service employees while 80% of peak office parking demand is assigned to office employees. These numbers represent national averages derived from research efforts.[4]

**Transit Access:** Retail areas with access to transit services appear to have lower peak parking demand than those sites without transit service.[5] As the study area encompasses Poughkeepsie's central business district and is served by most bus transit lines, this value is kept constant at eight percent.

**CBD Location**: According to industry research, an adjustment of roughly 20% reflects auto ownership in locations that are not immediately downtown, but well served by transit. Adjustments as low as 50% appear to be appropriate for urban CBD locations.[6] Since 37% of households within the study area do not have access to a personal vehicle,[7] a 37% reduction was applied to residential land uses within the Downtown Poughkeepsie shared parking model.[8]

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[3] Institute of Transportation Engineers. Trip Generation Handbook, 2nd Edition. pg. 129

[4] Urban Land Institute. Shared Parking Second Edition. pg. 11

Shoup, D. C., & American Planning Association. The High Cost of Free Parking. pg. 86

[5] Institute of Transportation Engineers. Parking Generation, Fourth Edition. pg. 227

[6] Urban Land Institute. Shared Parking Second Edition. pg. 88

[7] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

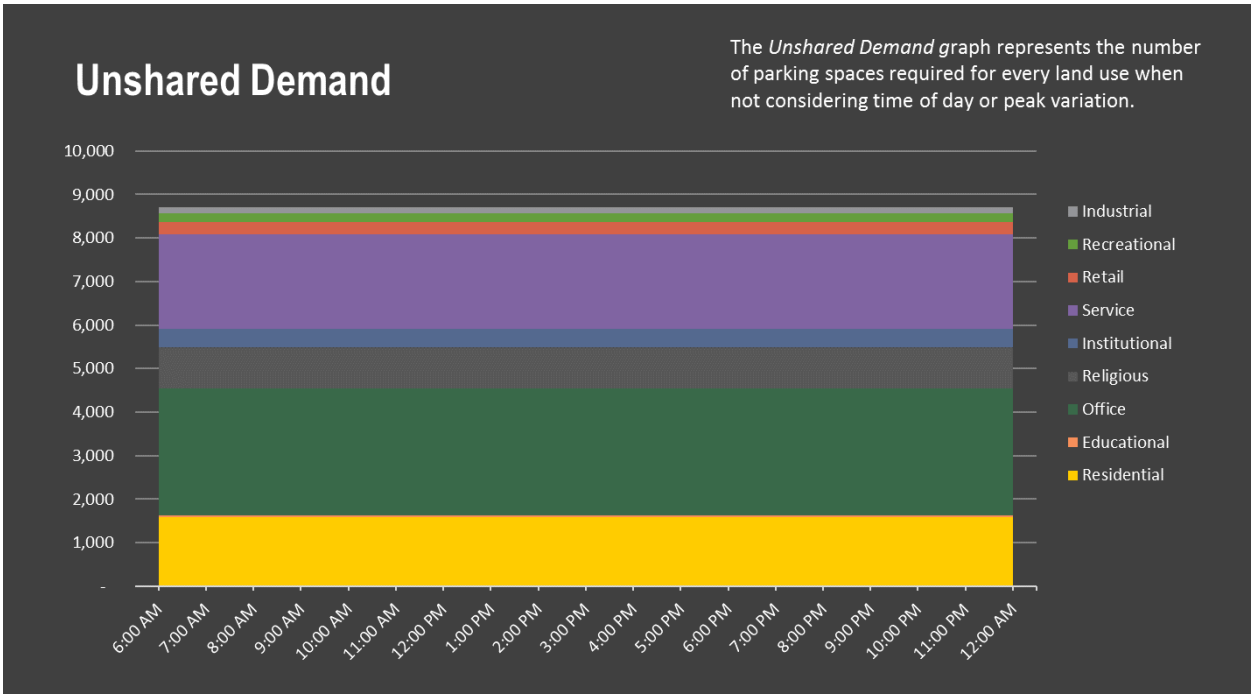
[8] American Community Survey data is aggregated at the Census Tract and Block Group levels and incorporates high margins of error

# MODELED PARKING DEMAND

## Weekday

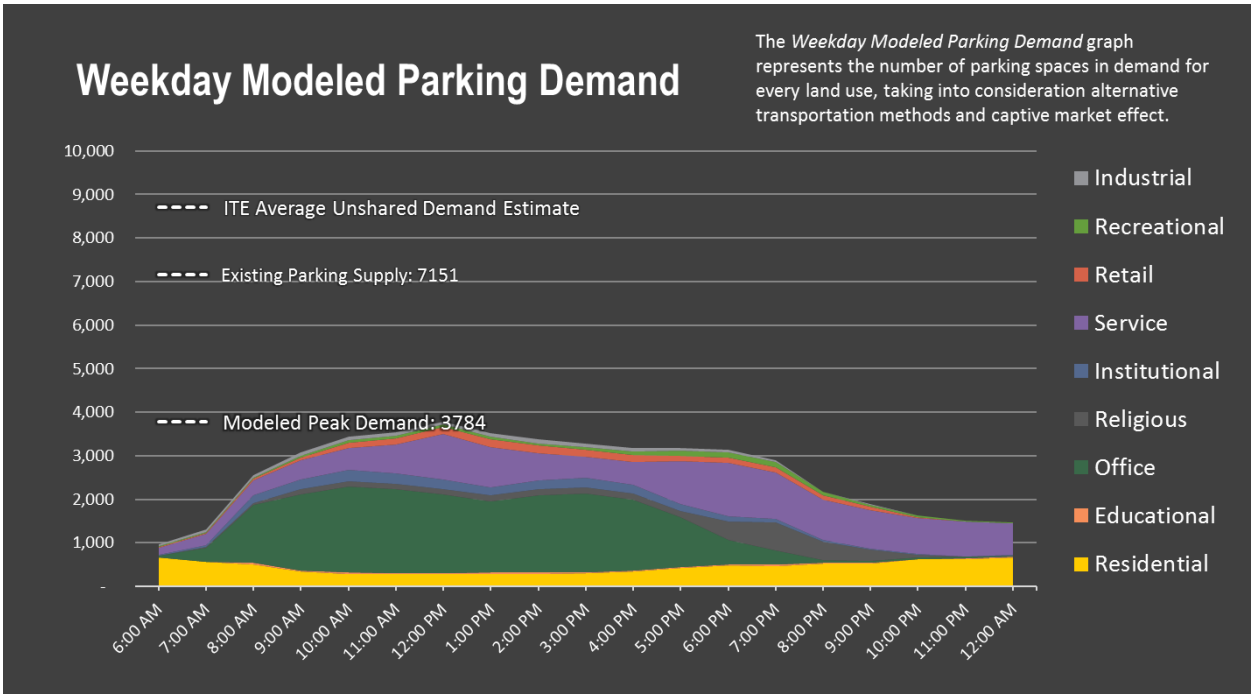
According to national parking generation rates from ITE, the expected parking demand—assuming that each land use has its own dedicated supply of parking—is 8,700 spaces. The study area has an existing supply of 7,151 spaces (excluding lots under construction at the time of data collection). Thus, the parking supply is about 1,500 spaces less than what national standards would suggest is needed, assuming each land use had its own separate parking supply.

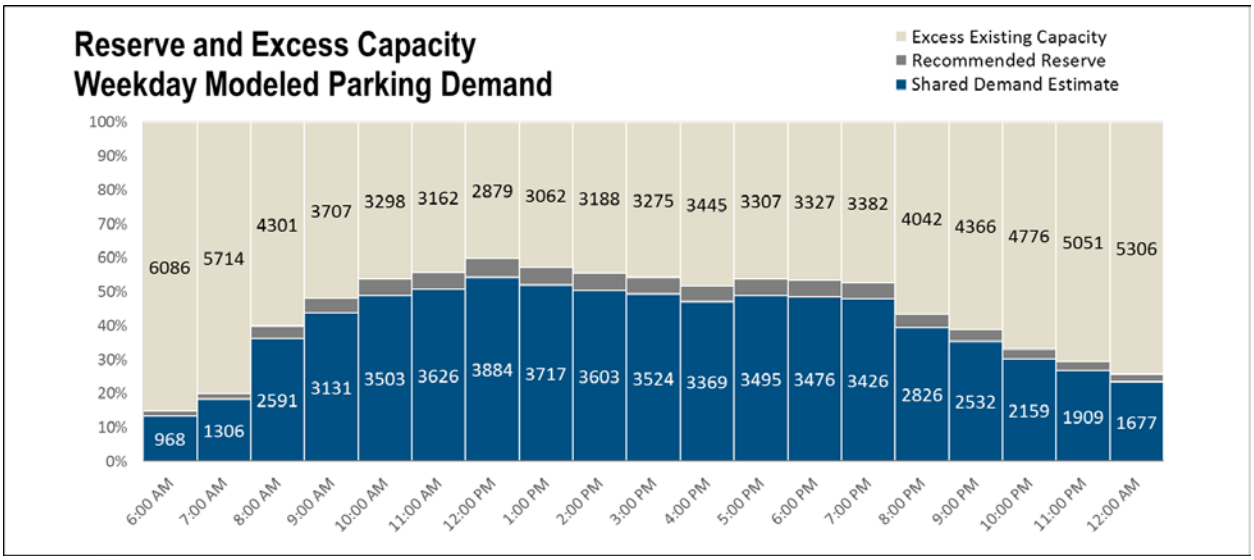
Figure 8 Existing Land Use Weekday Unshared Parking Demand (ITE)



While ITE estimates would require more than 8,700 parking spaces, the weekday parking demand model estimates a peak demand at 12 p.m. of 3,784 spaces. This indicates that there is a surplus of almost 3,000 empty spaces, not including a 10% reserve supply (Figure 9). The model predicts that the land uses in the study area generate much less parking demand than national standards require and that existing parking is overbuilt.

Figure 9 Existing Land Use Modeled Weekday Parking Demand

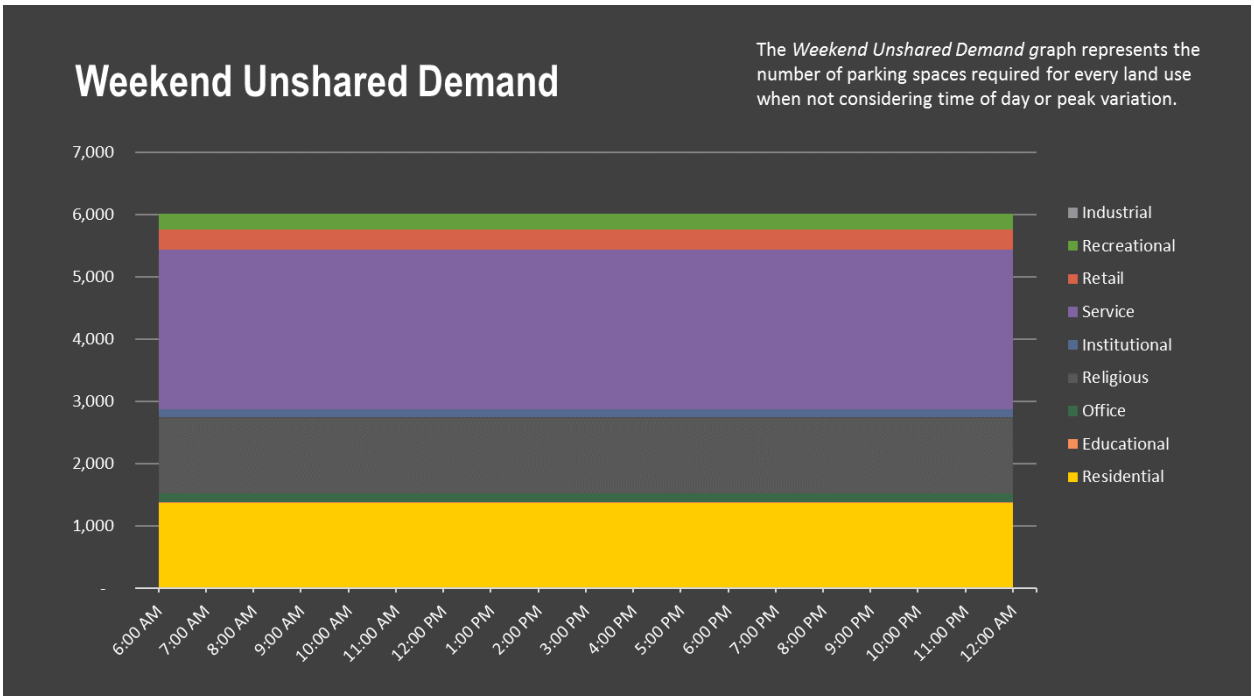


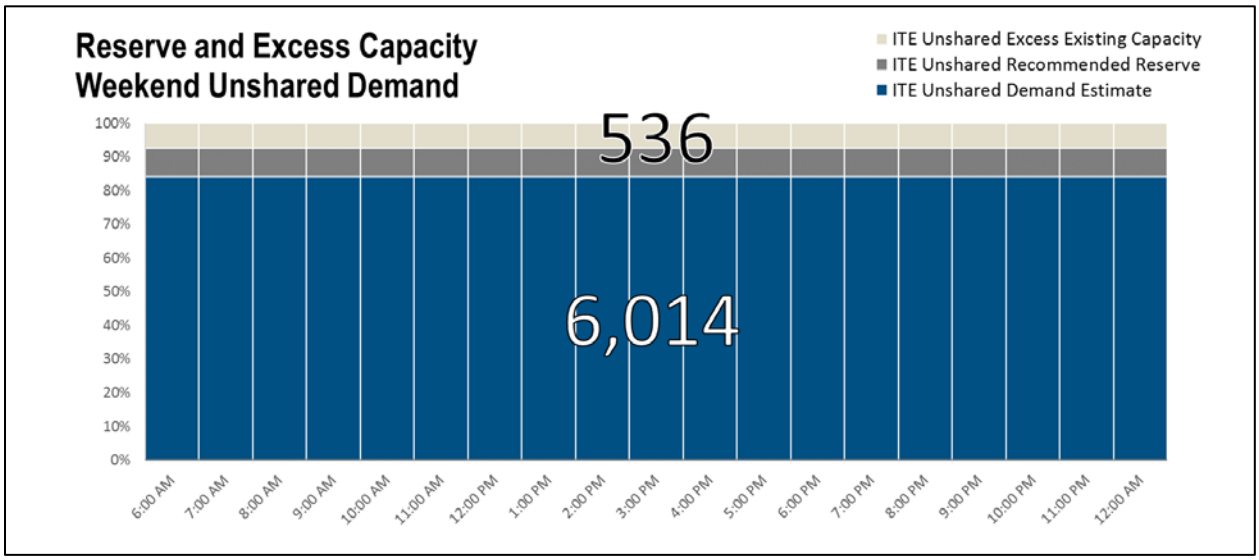



# Weekend

According to national parking generation rates from ITE, the needed number of parking spaces on weekend days is 6,014 spaces. Providing for a 10% reserve, the existing supply exceeds national standards by over 500 spaces, even assuming that no parking would be shared.

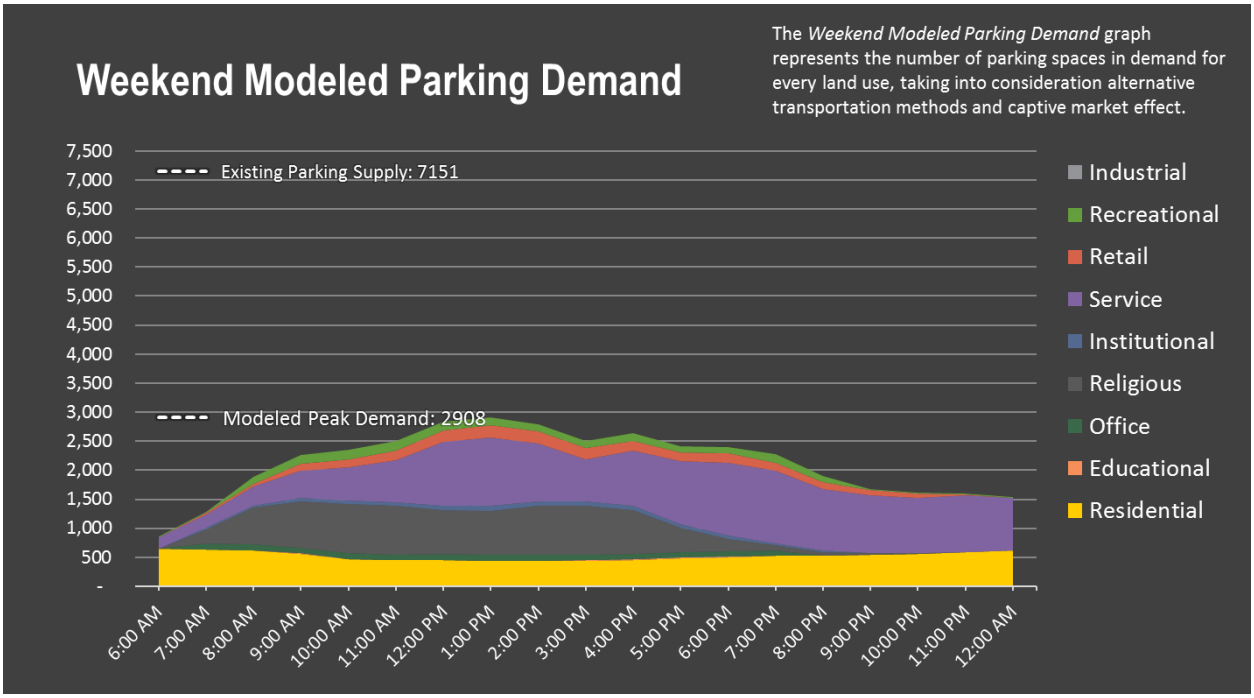
Figure 10 Existing Land Use Weekend Unshared Parking Demand (ITE)

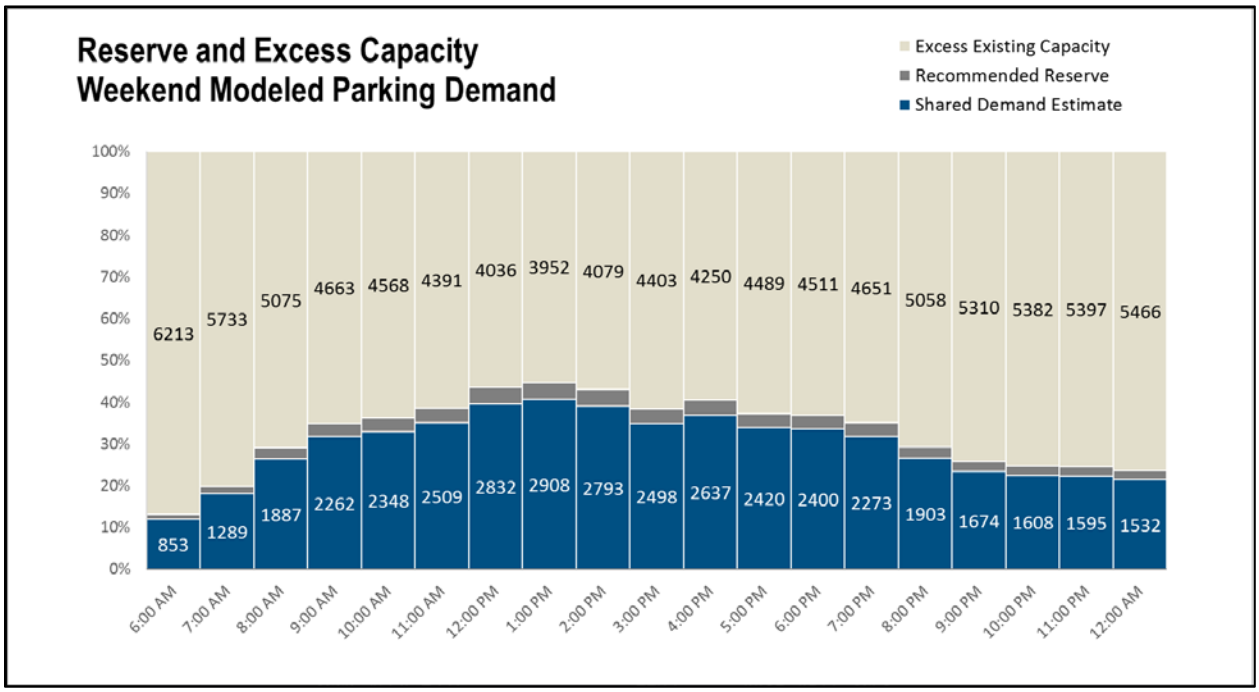


While ITE estimates would require more than 6,000 parking spaces, the weekend parking demand model estimates a peak demand at 1 p.m. of 2,908 spaces. The weekend parking demand model estimates a large supply surplus, over 3,900 spaces, not including a 10% reserve supply (Figure 11). Like the weekday case, the model again predicts that the land uses in the study area generate much less parking demand than national standards require.

Figure 11 Existing Land Use Modeled Weekend Parking Demand



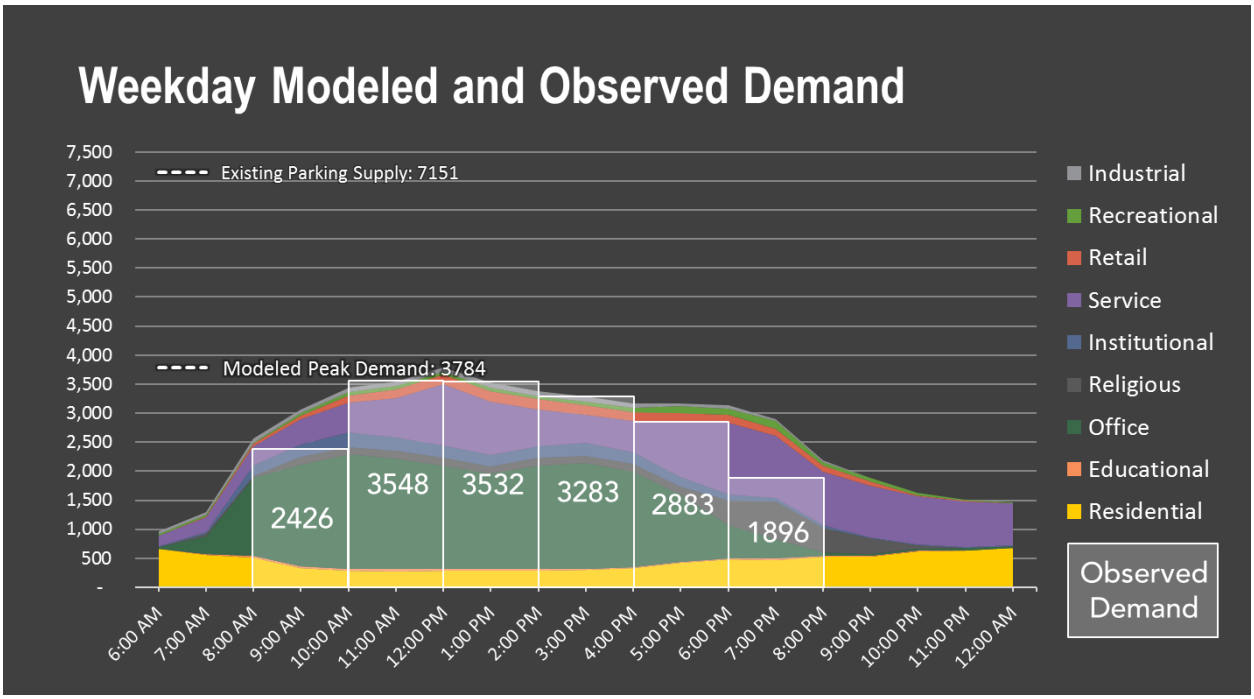



# MODEL VERIFICATION

In fall 2017, a parking utilization survey of all parking assets in the study area was conducted to accurately capture the downtown's parking demand throughout the course of a weekday and weekend day. To understand how closely the modeled demand matches actual demand, this analysis compares the modeled results by time of day to observed utilization.

Based on observation of parking utilization, the peak weekday demand is 3,548 vehicles between 10 a.m. and 12 p.m. This compares to the model's estimated peak count of 3,784 at 12 p.m. The modeled and observed weekday demand show similar trends throughout the course of a day. Peak values fall within 10% of each other, which indicates a valid model calibration. Note that observed weekday demand is often lower than the modeled figure. This means that modeled demand is conservatively estimated at a higher level for the purpose of recommending facility conversion or consolidation.

Figure 12 Comparison of Weekday Modeled and Observed Demand




## KEY FINDINGS

Overall, there is still ample parking supply across the study area at all times. In addition, not all of the parking supply is currently open to the public. A shared parking program which integrates more private parking into the municipally managed supply may be beneficial to minimize special event disruption and accommodate future development. Future development that generates both daytime and evening parking demand could occur depending on its location relative to lightly utilized parking facilities.

# SPECIAL EVENTS

In person observations were made when no events were being held at the Bardavon Opera House, the Mid-Hudson Civic Center, or the Chance Theater. In order to best replicate observed conditions, the model was calibrated and verified without including the capacities of those performance facilities. While the absolute peak parking demand would not change significantly during event programming, due to the fact that peak demand occurs during the middle of the business day, evening demand is affected significantly by simultaneously scheduled events.

Figure 13 describes the modeled impact that an event at a single venue or combination of venues would have on system-wide parking demand on an event day during the already established peak period as well as during the likely event period between 8 p.m. and 10 p.m. Daytime parking demand for event venues includes staff and staging personnel while evening demand mostly consists of event attendees. In the event of simultaneous events at all three venues, evening parking demand may increase by 766 spaces, a 37% demand increase compared to evenings with no events.

While plenty of system-wide capacity remains throughout the study area to accommodate this demand, the proximity of these three large performance venues can create localized parking shortages best handled via improved coordination, improved information systems, and shared parking agreements described in the Strategic Plan for Parking Operations and Management.

Figure 13 Forecasted Special Event Parking Burden

| Event(s) | 12PM – 2PM Demand | Change | 8PM – 10PM Demand | Change |
|---|---|---|---|---|
| No Event | 3,784 | | 2,181 | |
| Bardavon | 3,810 | +26 | 2,333 | +152 |
| Civic Center | 3,858 | +74 | 2,674 | +493 |
| Chance | 3,806 | +22 | 2,326 | +145 |
| Bardavon, Civic Center | 3,884 | +100 | 2,826 | +645 |
| Bardavon, Chance | 3,832 | +48 | 2,478 | +297 |
| Civic Center, Chance | 3,880 | +96 | 2,819 | +638 |
| Bardavon, Civic Center, Chance | 3,906 | +122 | 2,971 | +790 |

# FUTURE LAND USE PARKING DEMAND ANALYSIS

City staff has helped to identify viable future development scenarios based on development projects either currently under construction or in the approval process. Other growth projections based on national and regional factors, such as the available vacant commercial property stock, were used to inform feasible levels of future development activity.

- **Scenario 1**: Developments in progress, approved, or pending site plan approval
- **Scenario 2**: Reactivation of apartments and storefronts in vacant mixed-use buildings
- **Scenario 3**: Redevelopment of portions of certain parking facilities into active uses

Each development scenario is described and added to existing land use within the parking forecast model to determine increased demand and excess capacity. For each scenario analysis, no future parking supply additions, such as those typically accompanying residential developments, are added to the system capacity. This is a conservative assumption that attempts to solely measure the impact on a static supply. Additionally, some developments may build replacement parking while some may be able to share parking that exists today. Specific supply additions are unpredictable. However, should any proposed redevelopment within a scenario result in the loss of public or private parking supply, the supply total within the model is appropriately adjusted downward.

## SCENARIO 1 – EXPECTED DEVELOPMENT

The first scenario represents a continuation of existing policy conditions and an assumption that user behavior remains unchanged. Demand is projected based on all development projects within the study area that are either under construction, possessing an approved site plan, or awaiting planning board approval.

Figure 14 Expected Development Projects

| Project Address | Residential Units | Commercial Sq. Ft. | Status |
|---|---|---|---|
| 178 Main Street | 70 | 12,000 | Under Construction |
| 40-44 Cannon Street | 49 | 7,000 | Under Construction |
| 278-282 Main Street | 19 | 11,000 | Approved Site Plan |
| 23 Academy Street | 15 | 6,000 | Approved Site Plan |
| 387 Main Street | 22 | 7,000 | Approved Site Plan |
| 1-3 Grand Street | 6 | 6,600 | Approved Site Plan |
| 36 North Clover Street | 41 | - | Planning Board Review |
| Total | 222 | 49,600 | |

The projects listed in Figure 14 total 222 residential units and 49,600 square feet of commercial space. This commercial space includes 6,600 square feet of event space, comparable in use pattern to a community center, and 43,000 square feet of service/retail space, which is split according retail/service use ratios of focus areas within the study area for modeling purposes.

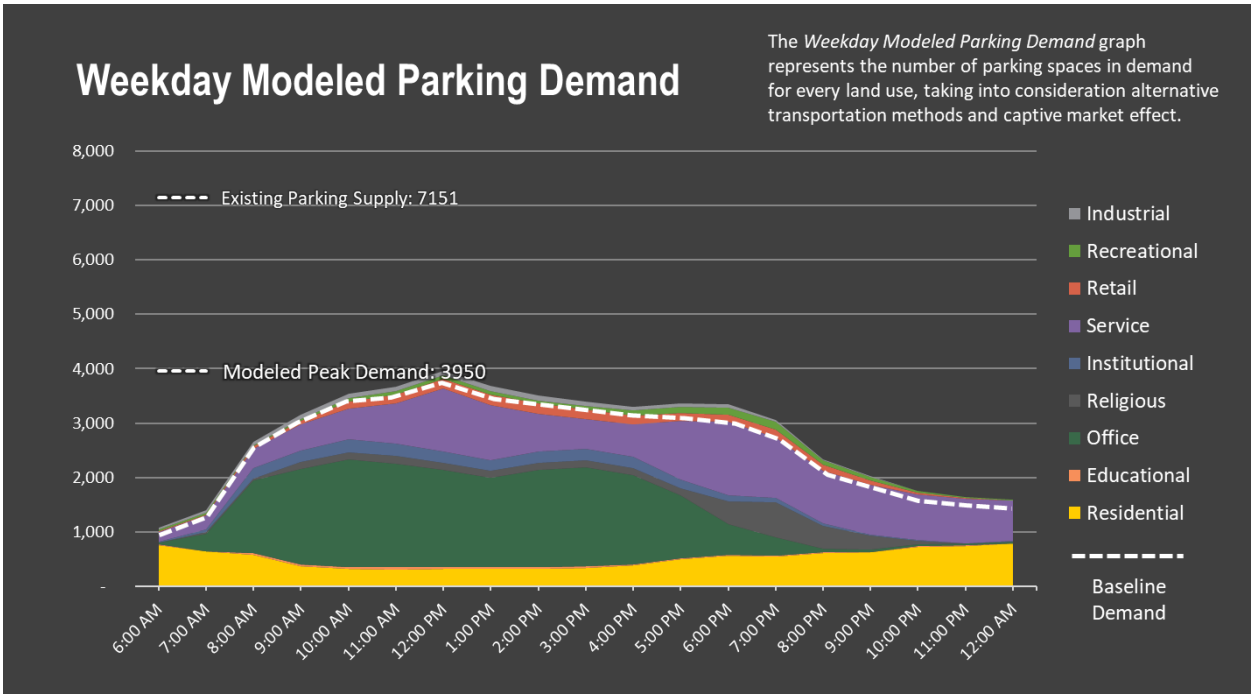
Figure 15 Expected Development Impacts on Study Area Land Use

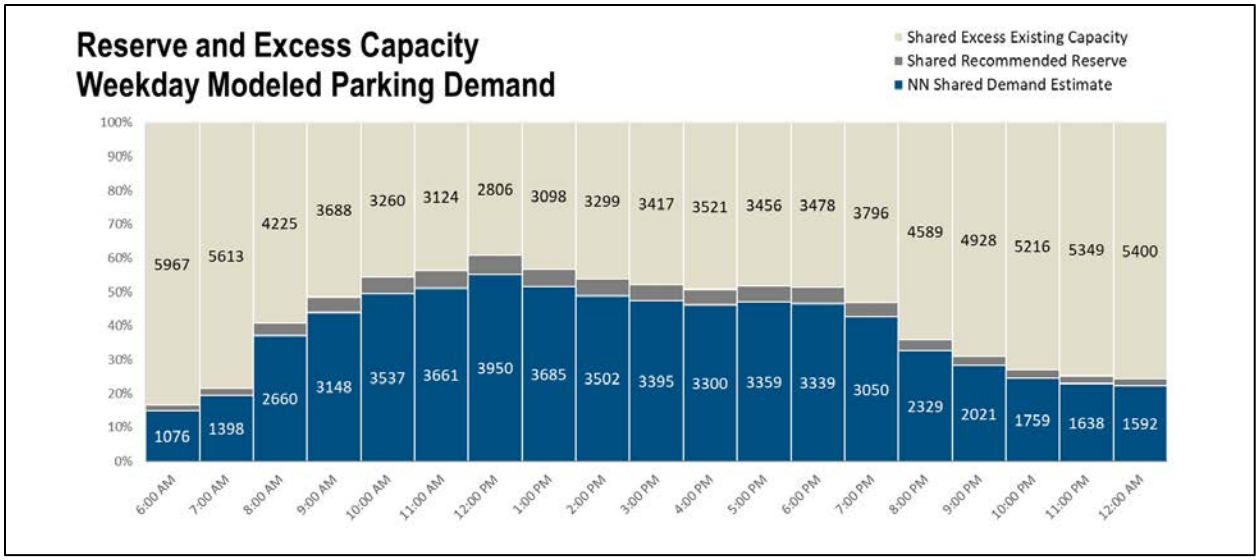
| Land Use | Baseline | Added Quantity | Scenario 1 Total | % Increase |
|---|---|---|---|---|
| Apartment | 1,074 Units | 222 Units | 1,296 Units | 21% |
| Retail | 122,167 Sq. Ft. | 9,037 Sq. Ft. | 131,204 Sq. Ft. | 7% |
| Service | 255,841 Sq. Ft. | 33,963 Sq. Ft. | 289,804 Sq. Ft. | 13% |
| Community Center | 63,060 Sq. Ft. | 6,600 Sq. Ft. | 69,660 Sq. Ft. | 10% |

## KEY FINDINGS

The demand analysis in Figure 16 shows that expected development produces a new weekday demand peak of almost 4,000 parking spaces, a 4% demand increase over baseline conditions, at 12 p.m. The excess supply within the study area would still exceed 2,800 spaces. The most significant change in parking demand throughout the day occurs early in the evening, when services see a pronounced uptick in demand as traditional day shift employees frequent restaurants and run errands.

Figure 16 Scenario 1 Modeled Demand






# SCENARIO 2 - MODERATE GROWTH

Scenario 2 adds to existing and pipeline development by surveying vacant properties and projecting the impact that renovation and reactivation of these properties would have on the existing parking demand.

## Vacant Commercial Properties

A review of parcels within the study area identified a number of existing commercial storefronts which appeared to be vacant or otherwise underutilized based on street-level imagery dated September, 2017. Adding together the vacant/underutilized space within the study area provides guidance on the percentage of commercial properties that could theoretically be occupied with little capital investment. Reactivating this space would presumably add to existing local parking demand.

Figure 17 Approximate Count of Vacant Commercial Storefronts

| Area | # Vacant | Total # of Parcels | % of Total Parcels |
|---|---|---|---|
| Main Street | 27 | 113 | 23.9% |
| Market Street / Civic Center Plaza | 4 | 35 | 11.4% |
| Academy / Catherine Street | 9 | 55 | 16.3% |
| Cannon Street | 5 | 23 | 21.7% |
| Church Street | 2 | 20 | 10.0% |
| Mill Street | 2 | 52 | 3.8% |
| Garden Street | 0 | 24 | 0% |
| Conklin Street | 0 | 32 | 0% |
| TOTAL | 49 | 354 | 13.8% |

Overall, this tabulation shows that there are about 50 vacant commercial storefronts within the study area that could potentially be occupied by new business growth, using existing building stock. This would equate to approximately 14% of the commercial storefronts within the downtown core.

Recognizing that there is existing space in downtown buildings, downtown parking demand could increase without substantial new construction. Noting that that floor area of vacant parcels varies, the percentage of observed vacant storefronts in the selected commercial core acts as a proxy for the amount of additional commercial square footage that might generate parking demand.

## Vacant Residential Properties

A GIS query of properties within the study area was conducted to identify other parcels that might contain underutilized residential units, or upper floor space which would likely accommodate residential apartment space if converted. This review, verified via observations of September 2017 street level imagery, estimates that there is the potential to add 65 additional rental apartments to the study area inventory in existing buildings.

The latest Dutchess County Rental Housing Survey from 2016 was reviewed to determine adjustments necessary to the proposed increase in apartment inventory. This study found that the residential property vacancy rate remains at approximately 2% for both the City of Poughkeepsie and all of Dutchess County.

## Development Scenario

Allowing for the reactivation of all vacant commercial storefronts within the selected commercial core would increase the active commercial square footage inventory by 31,276 square feet. Applying the residential vacancy rate to the potential additional apartment inventory, 64 units could add to the active parking demand.

The resultant increases in land use categories as part of Scenario 2 are enumerated in Figure 18. The Scenario 2 quantities reflect the addition of reactivated apartments and storefronts to the expected development included in Scenario 1.

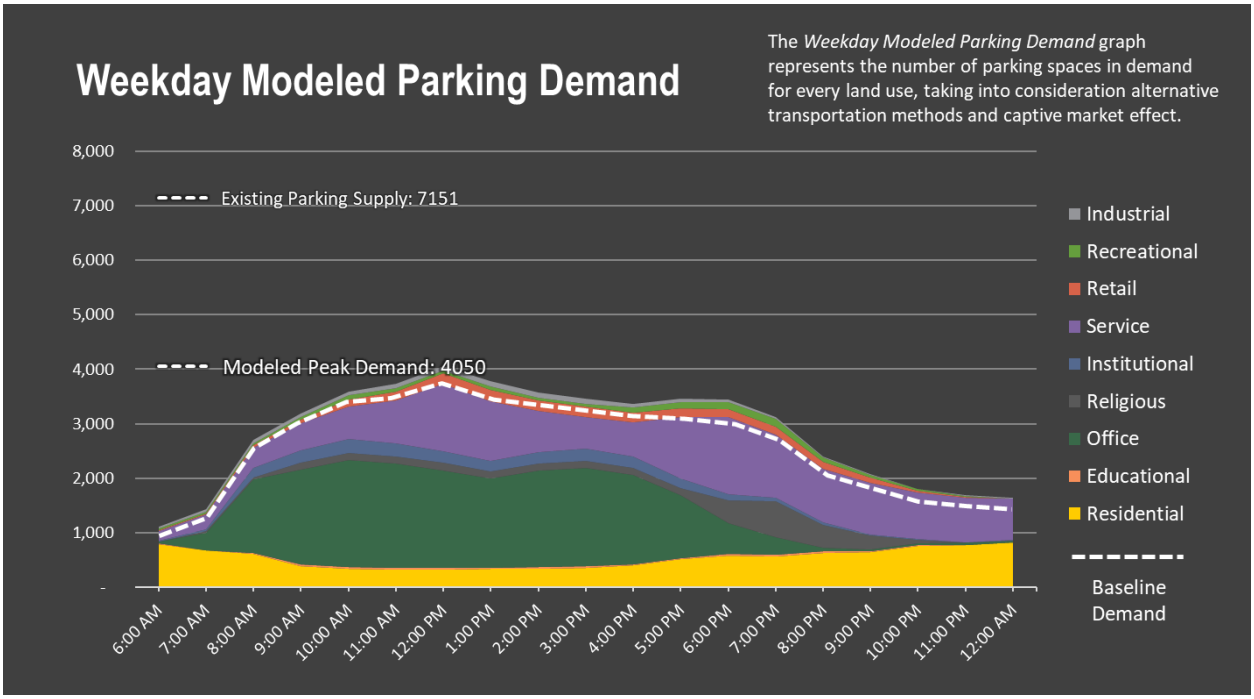
Figure 18 Scenario 2 Development Impacts on Study Area Land Use

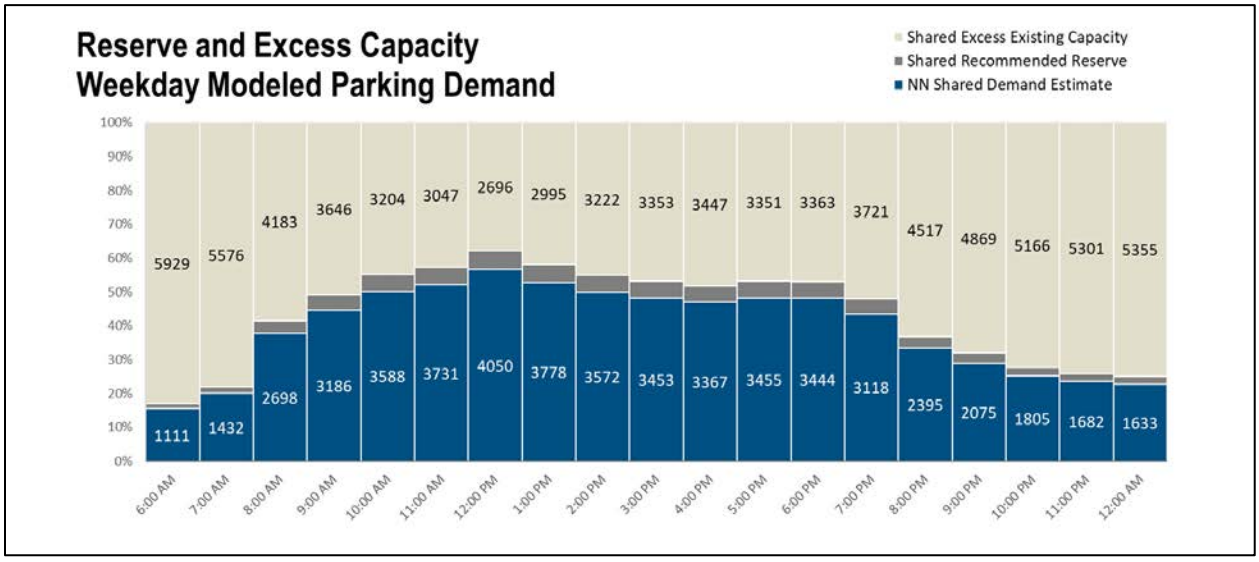
| Land Use | Baseline Quantity | Scenario 1 Quantity | Added Quantity | Scenario 2 Quantity | % Increase over Baseline |
|---|---|---|---|---|---|
| Apartment | 1074 Units | 1,296 Units | 64 Units | 1,360 Units | 27% |
| Retail | 122,167 Sq. Ft. | 131,204 Sq. Ft. | 7,081 Sq. Ft. | 138,285 Sq. Ft. | 13% |
| Service | 255,841 Sq. Ft. | 289,804 Sq. Ft. | 24,195 Sq. Ft. | 313,999 Sq. Ft. | 23% |
| Community Center | 63,060 Sq. Ft. | 69,660 Sq. Ft. | - | 69,660 Sq. Ft. | 10% |

## KEY FINDINGS

The demand analysis in Figure 19 shows that reactivation of vacant apartments and storefronts in the commercial core produces a new weekday demand peak of over 4,000 parking spaces, a 7% increase over baseline conditions, at 12 p.m. The excess supply within the study area would still approach 2,700 spaces as no supply was lost in property redevelopment and no new parking was added as part of the proposed redevelopment.

Figure 19 Scenario 2 Modeled Demand



# SCENARIO 3 - ACCELERATED GROWTH

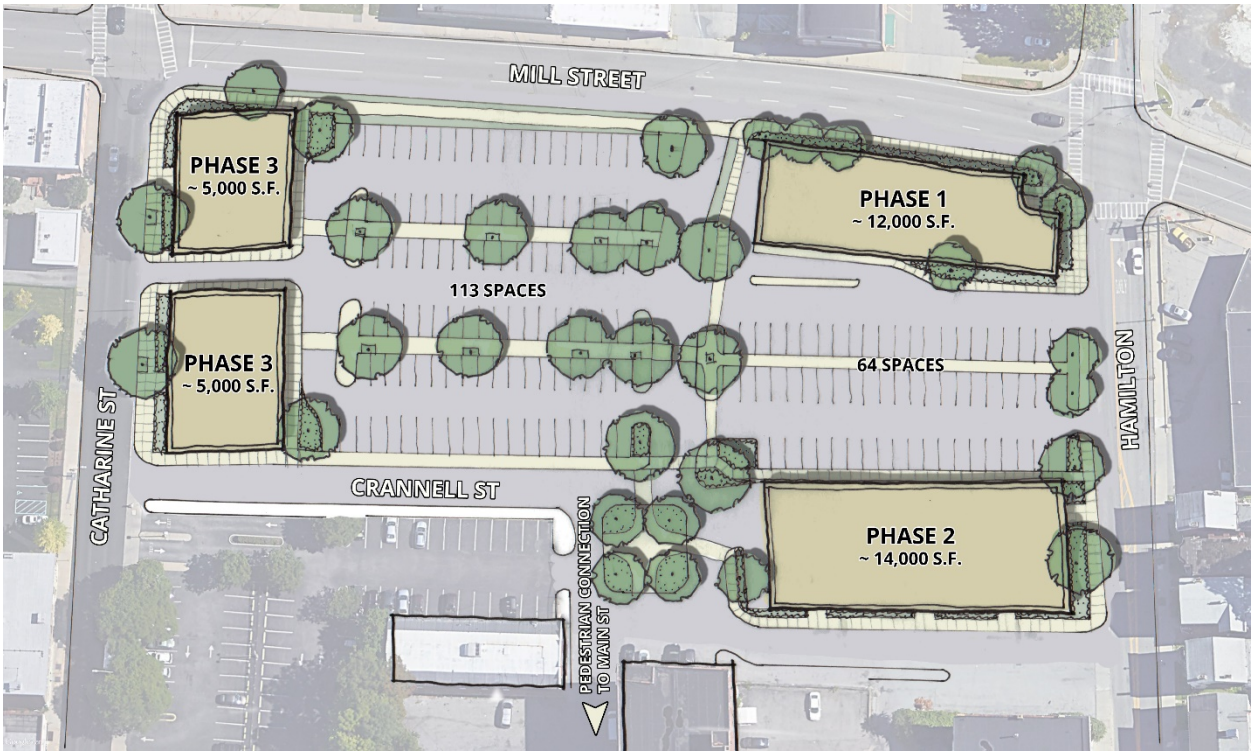
Noting that the existing parking supply still vastly exceeds demand under anticipated development conditions as well as potential downtown revitalization activity, draft concepts for redevelopment of existing surface parking lots were created. These concepts would reduce the publicly available supply while adding to system demand.

## Development Concepts

The first development opportunity in Scenario 3 involves a total reconfiguration of the large underutilized Crannell Lot. The lot is chosen for redevelopment due to performance observations that show the lot not more than 20% full in any time period (See the Assessment of Existing Conditions and Demand document). The reconfiguration would re-emphasize Crannell Street, previously a north-south street linking Mill and Main Streets that divided the block between Catharine and Hamilton Streets, but that now functions as an alley and access road for the lot immediately to the north. Crannell Street would become a more pedestrian friendly street, fronted by new active buildings, and connected to the pedestrian-only Old Crannell Street. This design uses smaller-footprint buildings, but a single "large footprint" building could be used instead.

Of the current 340 spaces in the Mill Street Lot, 177 would be retained in this scenario, a loss of 163 spaces from the public parking inventory. The buildings on site would cover 36,000 square feet and would host a mix of retail and service business. Buildings along Catharine Street would be multi-story and house an additional 20 residential units.

Figure 20 Crannell Lot Development Concept



The second development concept furthers attractive pedestrian access to parking facilities while intensifying use along additional Downtown corridors. In addition to a commercial/residential building fronting Cannon Street along southern edge of what is now the Liberty Lot, the concept creates a prominent new corner on Main Street as well as an attractive pedestrian connection from the parking area through the block to Main Street.

The Liberty Lot would lose 68 of its 145 parking spaces, though this figure is dependent on the reconfiguration of the lot. A two-story building with a total of approximately 33,800 square feet of usable floor area could house commercial uses on the ground floor and apartments on the 2nd floor.

Figure 21 Liberty Street Lot Development Concept

# Development Scenario

The increases in land use categories as part of the development concepts in Scenario 3 are added to previous development totals from Scenarios 1 and 2 in Figure 22.

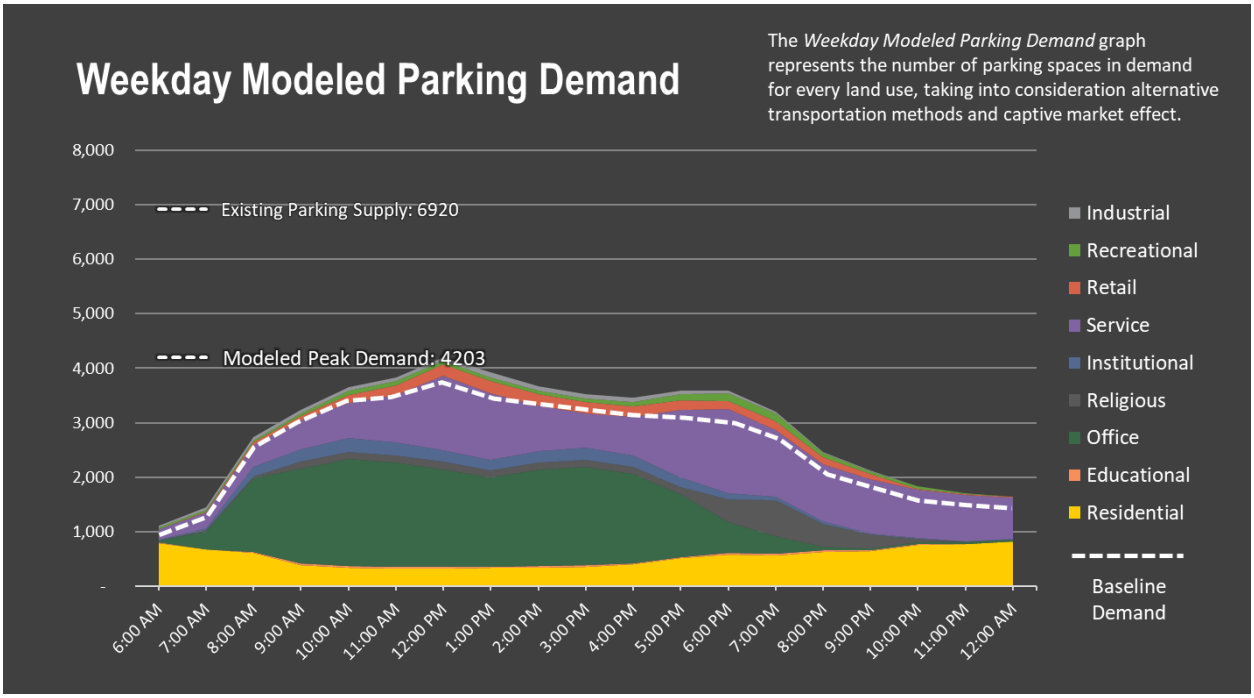
**Figure 22 Scenario 3 Development Impacts on Study Area Land Use**

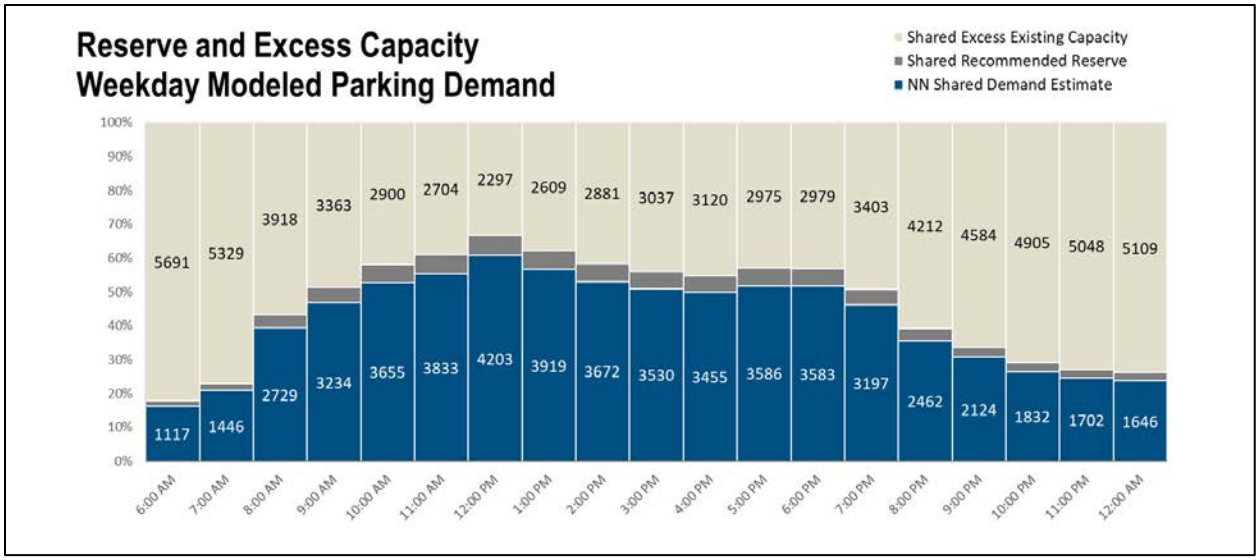
| Land Use | Baseline Quantity | Scenario 1 Quantity | Scenario 2 Quantity | Added Quantity | Scenario 3 Quantity | % Increase over Baseline |
|---|---|---|---|---|---|---|
| Apartment | 1074 Units | 1,296 Units | 1,360 Units | 38 Units | 1,398 Units | 30% |
| Retail | 122,167 SF | 131,204 SF | 138,285 SF | 11,976 SF | 150,261 SF | 23% |
| Service | 255,841 SF | 289,804 SF | 313,999 SF | 40,924 SF | 354,923 SF | 28% |
| Community Center | 63,060 SF | 69,660 SF | 69,660 SF | - | 69,660 SF | 10% |
| Parking Supply | 7,151 Spaces | 7,151 Spaces | 7,151 Spaces | -231 Spaces | 6,920 Spaces | -3.2% |

## KEY FINDINGS

Developments proposed in Scenario 3 add 153 spaces to the peak demand over the Scenario 2 peak level. The new weekday peak of 4,203 spaces is an 11% increase over baseline modeled peak demand. Excess supply shrinks by a greater amount in Scenario 3, owing to the loss of 231 spaces, but even when a 10% reserve over peak demand is accounted for, excess capacity approaches 2,300 spaces.

**Figure 23 Scenario 3 Modeled Demand**






# IMPACT ON PUBLICLY ACCESSIBLE SUPPLY

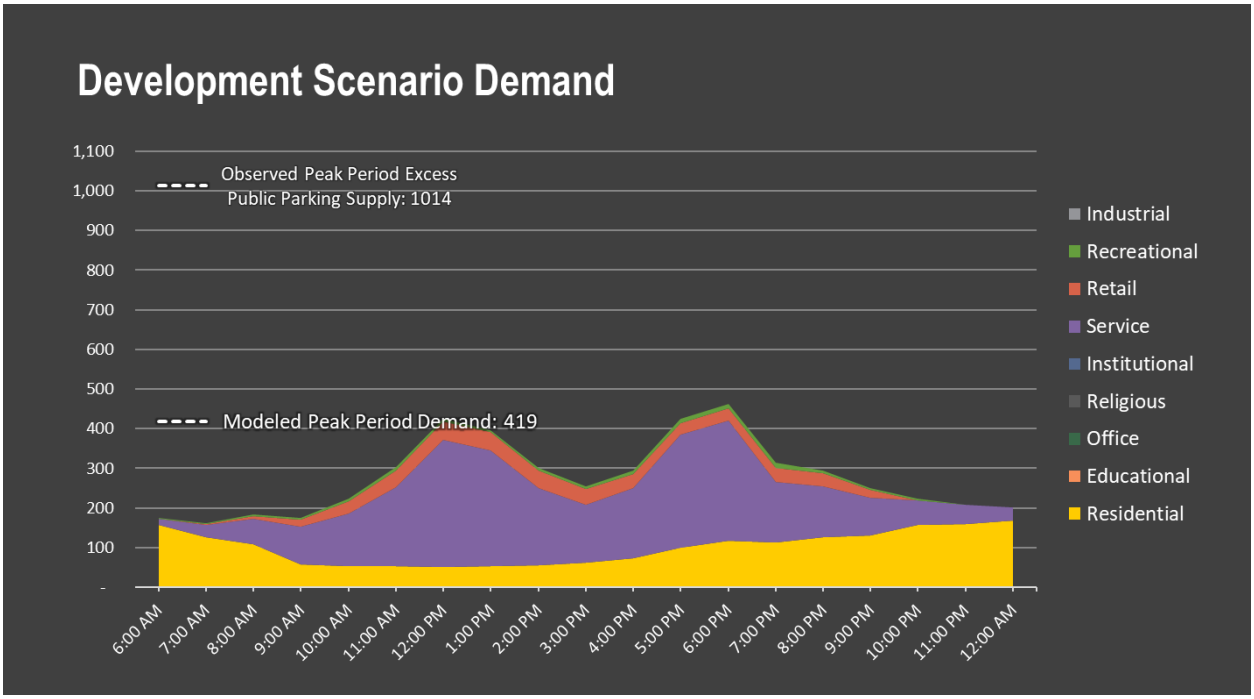
As stated in the Assessment of Existing Conditions and Demand report, peak demand for publicly accessible parking would need to increase by 1,222 spaces to meet a 90% utilization level. When all development scenarios included in this analysis are combined, peak modeled demand increases by only 419 spaces.

Assuming that 231 parking spaces would be lost in as part of development described in Scenario 3, and looking solely at demand created by the development scenarios, it is estimated that 533 publicly accessible parking spaces would remain unused during the weekday peak period (Figure 24 and Figure 25).

**Figure 24 Future Publicly Accessible Parking Supply**

| | Parking Spaces |
|---|---|
| Current Publicly Accessible Supply | 3,407 |
| Future Publicly Accessible Supply | 3,176 |
| 90% Occupancy | 2,858 |
| | |
| Observed Peak Period Demand | 1,844 |
| Available Future Supply | 1,014 |
| | |
| Modeled Additional Peak Demand | 419 |
| **Future Excess Supply** | **595** |

Figure 25 Forecasted Future Demand and Available Supply




# SYSTEM INVENTORY RECOMMENDATIONS

In summary, excess capacity exists in the parking system, including in publicly accessible spaces in the downtown core. Larger surface lots in the publicly-owned and operated inventory, such as the Crannell and Liberty Lots, are prime candidates for development, while leaving some public parking inventory intact. Should the publicly accessible demand continue to reduce the available supply, the City should make an effort to add shared privately-owned lots to the parking system as described in the Strategic Plan for Parking Operations and Management.