City of Newark, DE

Newark, DE

Downtown Parking Supply & Demand Study
Final Report

June 3, 2015

PHL15113.00

TimHaahs
www.timhaahs.com
550 Township Line Road, Suite 100
Blue Bell, PA 19422
T: 484.342.0200
F: 484.342.0222

www.timhaahs.com

TIMOTHY HAAHS & ASSOCIATES, INC.
550 Township Line Road, Suite 100
Blue Bell, PA 19422

June 3, 2015

Mr. Mark F. Dunkle
Parkowski, Guerke, & Swayze, P.A.
116 West Water Street
Dover, DE 19903

RE: City of Newark Parking Supply and Demand Study
Newark, DE

Mr. Dunkle:

Thank you for the opportunity to work with you on this important project. We are submitting the Final Report for the City of Newark Downtown Parking Supply & Demand Study. This report includes the current parking conditions of on- and off-street public parking lots, private-owned customer parking lots within the study area, and the Trabant Parking Garage operated by the University of Delaware. It also contains our estimated future parking demand projections. Please feel free to call Todd Helmer, Vicky Gagliano, or Megan Leinart with any immediate questions.

Very truly yours,

Todd Helmer, PE
Project Manager/Vice President

Bo Kyung Choi, MCRP
Planning Analyst

CC: Vicky Gagliano, LEED AP, MBA, TimHaahs
Megan Leinart, LEED AP BD+C, TimHaahs

TABLE OF CONTENTS

TABLES AND FIGURES

Introduction

The City of Newark (the City) retained Timothy Haahs and Associates, Inc. (TimHaahs) to perform consulting services to identify the current parking supply and demand for a portion of the Central Business District (CBD). The City also seeks to assess the future parking adequacy based on the potential development plans within the study area. In order to achieve the goals and objectives of this study, the TimHaahs team conducted the parking condition assessment through visits and observations of the public and private downtown parking facilities, and quantified the preliminary future parking adequacy projections.

Scope of Services

1. Meet with the City of Newark and the Downtown Newark Partnership's Parking Committee to confirm study objectives, boundaries, procedures, and concerns about parking in the areas.

2. Obtain and review any existing reports, studies, surveys, and parking statistical information pertinent to the parking study, as well as obtain local zoning ordinances that pertain to parking.

3. Analyze and inventory the current public parking supply including type of facility, location, hours of operation, and rates for all existing parking facilities, on- and off-street, within the study area.

4. Meet with the University of Delaware to understand better the dynamics of the parking issues on campus in proximity to the stated boundary area.

5. Perform occupancy counts for all spaces within the target area throughout a typical busy day.

6. Receive information from the City concerning key activity levels for the actual survey day. This will allow us to adjust our model and graphically map out the fluctuations throughout the year, as the University enrollment has a significant impact on the parking conditions.

7. Evaluate pedestrian traffic patterns, specifically to and from the parking facilities.

8. Identify the areas of existing parking surpluses or shortages and, if necessary, the number of new parking spaces required to meet any existing shortages.

9. Recommend parking rates and time limits, if appropriate, which will allow the City to better manage the short-term, long-term, public and employee parking supply in the downtown area.

10. Obtain and review, with assistance from the City, all proposed, approved, on-going, and future development plans within the study area in order to better understand the impact on parking needs.

11. Determine the future parking demand based on planned-future developments, comparing the demand projections to the future parking supply.

12. Identify the areas where the greatest parking supply deficiencies will exist. If additional spaces are needed to satisfy the future parking demand, identify potential locations that could satisfy this demand.

13. Prepare a task report and provide draft to the City of Newark and the Downtown Newark Partnership's Parking Committee for review. Incorporate draft report comments into the final report.

14. Present the findings of the report to City of Newark representatives and Newark City Council.

Study Area

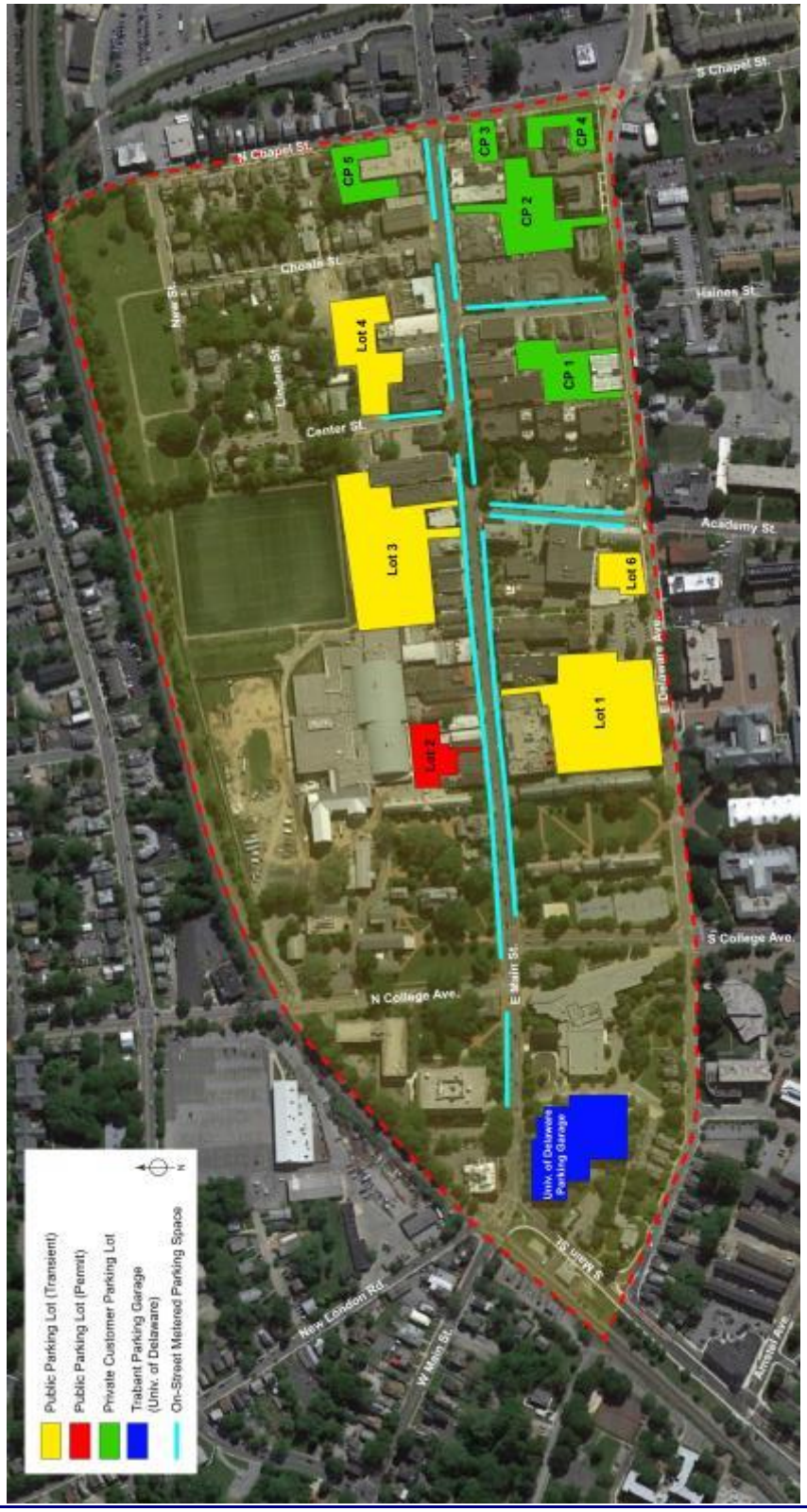
The City of Newark is located in New Castle County, Delaware. The study area is bordered by the CSX rail line to the north, Chapel Street to the east, E. Delaware Avenue to the south, and S. Main Street / New London Road to the west. We understand the 25 to 30 space Deer Park Tavern private parking lot is heavily utilized by customers during Friday evenings and due to the distance from the core downtown area, we do not believe this location significantly impacts the overall conditions for the customers and guests visiting the bulk of the businesses. The parking area was inadvertently excluded on the original survey maps which were reviewed by City representatives and therefore, we did not include the Deer Park Tavern private parking lot in this analysis. A map of the study area is shown on Figure 1.

Figure 1: Focus Area Map

Source: Timothy Haahs & Associates, Inc. 2015

A map illustrating the location of the various parking facilities is included below.

Figure 2: Parking Facility Location Map (Public & Private Facilities)



Source: Timothy Haahs & Associates, Inc. 2015

2015 Parking Conditions

TimHaahs collected parking inventory data of all City-owned parking lots and several private-owned customer parking lots within the study area during our field visit on Friday, April 10, 2015. Field observations and parking occupancy counts were conducted on the same day from 10AM until 8PM. Through conversations with City and University representatives, we understand the busiest day of the week is Friday. We also informally observed the parking conditions during our visit which further confirmed that the overall activity level on Friday is greater than most other days of the week.

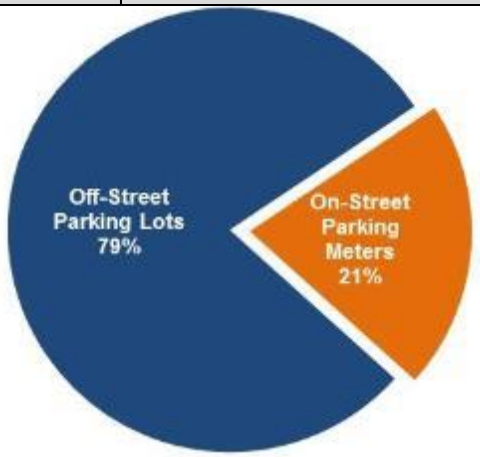
Downtown City-Owned Parking Supply

The TimHaahs team physically verified the on- and off-street parking areas on Friday, April 10, 2015 during our site visit. Figure 3 illustrates the distribution of the study area parking supply.

Figure 3: 2015 Public Parking Supply

CITY-OWNED OFF-STREET PARKING LOTS		
Facility / Type	**User Group**	**Total Supply**
Lot 1	Transient	191
Lot 2	Permit	37
Lot 3	Permit / Transient	200
Lot 4	Permit / Transient	147
Lot 6	Transient (4HR Metered)	33
TOTAL		**608**

CITY-OWNED ON-STREET PARKING AREAS			
Street	**Between**	**Total Supply**	**Loading**
Main St. (N)	Chapel St. & Choate St.	11	
Main St. (N)	Choate St. & Center St.	18	
Main St. (N)	Center St. & College Ave.	31	3
Main St. (N)	College Ave. & New London Rd.	8	
Main St. (S)	Chapel St. & Haines St.	16	4
Main St. (S)	Haines St. & Academy St.	14	
Main St. (S)	Academy St. & College Ave.	27	4
Center St. (E)	Main St. & Lot 4 Entrance	7	4
Academy St. (E)	Delaware Ave. & Main St.	9	
Academy St. (W)	Delaware Ave. & Main St.	8	
Haines St. (E)	Delaware Ave. & Main St.	11	
Chapel St. (W)	New St. & Main St.	2	
TOTAL		**162**	**15**



Location	Spaces
Off-Street	608
On-Street	162
Total	**770**

Source: Timothy Haahs & Associates, Inc. 2015

A total of 770 city-owned public parking spaces, including 608 off-street spaces and 162 on-street spaces, were identified throughout the study area.

The parking fee for transient parkers is $1.00 per hour at Lots 1, 3 and 4. All on-street parking meters, and those located within Lot 6 are $1.25 per hour. Permit holders pay $85.00 per month. A total of 15 on-street meters, including 11 meters on Main Street and 4 meters on Center Street, are reserved as loading zone areas. The City operates the loading zone from 6AM to 4PM on Main Street and from 4AM to 1PM on Center Street. These spaces are open to the public during the hours in which they are not utilized as a loading zone.

The TimHaahs team also observed the private-owned parking lots serving retail / restaurant customers and apartment residents, as well as the Trabant Parking Garage owned and operated by the University of Delaware. During our field study, we identified the parking supply of private customer parking lots. For the purpose of our analysis, we excluded all spaces within the private lots that were marked as reserved for apartment residents.

University of Delaware Trabant Garage

The University of Delaware provided data related to the 581-space Trabant garage for Friday, March 13th, 2015 as data that is representative of a typical busy Friday. Based on the data provided, there were 163 transient vehicles present between 9PM and 10PM. The Trabant Garage charges $2.00 per hour for the transient parkers. Permit parkers pay $90.00 per month.

Entrance to the UD Trabant Garage from W. Main Street

We understand that roughly 150 spaces are available to the general public as there are 431 users with permits. However, due to the nature of the University environment, many of the permit holders are only present Monday through Friday between 8AM and 5PM which allows for additional transient vehicle capacity during other hours and days of the week. It is therefore very difficult to quantify the actual number of transient spaces available at this location as it fluctuates on a daily and hourly basis pending the utilization of the existing permit holders. Furthermore, in our opinion, this location may not be desirable by most downtown customers and visitors due to the walking distance and absence of a vibrant streetscape between the garage and the central area in downtown. In order to include this data in our analysis, we would need more detailed information including the total number of transient spaces available by hour which is more difficult to calculate. In addition the number of spaces could significantly change on a week by week basis pending the weather, campus events, etc. The photographs on the following page illustrate the pedestrian view east along Main Street looking from the Trabant Garage, and another view just two blocks east from The Green where the streetscape and walkability is significantly more attractive.

Figure 4: Trabant vs. The Green Streetscape (looking east along Main Street)

Source: Bing Maps and Timothy Haahs & Associates, Inc. 2015

The hourly data for the Trabant Garage is reflected in the table on the following page, but in order to not skew the results by over or understating the availability of transient parking in this facility; we are excluding it from the calculation of the occupancy and adequacy tables later in this report.

Table 1: Trabant Transient Demand (Friday March 13th, 2015)

Hour	Vehicles
12AM	24
1AM	23
2AM	23
3AM	23
4AM	23
5AM	23
6AM	29
7AM	30
8AM	43
9AM	89
10AM	104
11AM	145
12PM	145
1PM	137
2PM	121
3PM	109
4PM	80
5PM	85
6PM	104
7PM	130
8PM	154
9PM	163
10PM	138
11PM	127

Source: University of Delaware, and Timothy Haahs & Associates, Inc. 2015

While the Trabant garage may be capable of meeting the needs of downtown customers and visitors, its location makes it less desirable than other on- and off-street parking areas. If additional parking supply is needed in order to meet the future parking demand, and funds to build more proximate parking areas are not available, then we would recommend exploring ways to better integrate the Trabant garage into the overall downtown parking system. Some potential options may include a program that encourages all downtown employees to park in the Trabant garage with the incentive of a new direct shuttle circulator for their safety and convenience. Customers and visitors could also utilize the Trabant garage for overflow parking and to ride on the same shuttle circulator.

Downtown Privately Owned Parking Supply (Non-Reserved)

There are 170 spaces located within the 5 private parking lots, which are available for customer use, given they are shopping or dining at one of the adjacent businesses. Table 2 outlines the privately owned parking supply within the study area.

Table 2: 2015 Private Parking Supply

Facility / Type	User Group	Total Supply	Reserved	Transient
CP 1	Customers / APT Residents (123 Delaware Ave)	37	21	16
CP 2	Customers / APT Residents (Trader's Alley)	87	6	81
CP 3	Customers (Papa John's)	25		25
CP 4	Bank Customers (TD Bank)	26		26
CP 5	Customers / APT Residents (Astra Plaza)	34	12	22
TOTAL		**209**	**39**	**170**

Source: Timothy Haahs & Associates, Inc. 2015

General Field Observations

Parking Lot Ingress / Egress

Our general observation was that the parking lots throughout the city were fairly easy to navigate into and out of with signage and traffic routes providing a convenient entry/exit experience. However, we did find that the experience of driving into Lot 2 presented some significant challenges that may be addressed. The entry/exit into Lot 2 is only wide enough for one vehicle, which could create a challenge with cars attempting to enter and exit at the same time. In addition, we found that during times of high pedestrian activity, this entry/exit caused significant vehicular/pedestrian conflicts as well. Specifically, exiting the parking lot made it difficult to see if pedestrians were coming, which could create a safety issue if people are not paying attention. Given that this lot is permitted, most people parking there would likely be familiar with the entry/exit configuration and the pedestrian conflicts, but it is still a concern to address given the safety considerations. We understand the 2015 capital budget includes a line item to address the ingress/egress concerns noted above.

Pedestrian/Vehicular Conflicts

Pedestrian traffic between the parking areas and the main destinations in the downtown core was overall well-marked, with signage and sidewalks providing adequate pedestrian travel between the parking areas and the main destinations. Improvements could be made, specifically in the larger parking lots, in the area of signage to more clearly direct patrons via the appropriate pedestrian routes. Specifically, pedestrian/vehicular conflicts could occur as people attempt to utilize the alley between Lot 3 and Main Street. Providing additional signage to direct people to the correct exits could help to limit these conflicts.

Loading Zones

As previously mentioned, a total of 15 on-street meters including 11 meters on Main Street and 4 meters on Center Street, are reserved as loading zone areas. The City operates the loading zone from 6AM to 4PM on Main Street and from 4AM to 1PM on Center Street. These spaces are open to the public during the hours in which they are not utilized as a loading zone. During our site visit, we noted the signage posted regarding the hours of operation for the loading zone parking spaces. Of particular note, it is very difficult for a driver to read the sign, while operating a vehicle, and understand that parking is permitted in those spaces after 1PM or 4PM, pending location. We recommend installing new signage that more clearly states the hours restricted for Loading so that a motorist can actually view and understand that parking in those areas is permitted during certain hours of the day. During the evening hours, we noted that many of those spaces were unoccupied and assume it is because they are painted yellow and the signage is not clear or easy to read while driving at night.

Instead of signing those spaces as a loading zone, it may be more appropriate to sign them as “No Parking; 6AM – 4PM; Monday thru Friday” with a note at the bottom in smaller font stating that deliveries and loading is permitted during those hours. By flipping the message, drivers can quickly gauge the availability of those spaces based on the time of day and if in error, the message on the meter will remind them that parking is not legal as it is an active loading zone only.

Residential Parking Areas

The City requested our observation of the use of residential permits within the Special Residential Parking District. We drove through the residential areas periodically throughout the morning, afternoon, and evening hours during our survey day. Based on our observation, there were some non-permit parkers on Center St. and Choate St., particularly the north side of those streets. The number of illegal vehicles is not significant but more than half of the vehicles on those streets were displaying guest parking permits. We understand each residential address is eligible for up to two (2) resident and two (2) guest permits per household free of charge. Based on our observation, the guest permits may be utilized full-time by another resident of the household (beyond the first two) or used by a student or employee wishing to avoid downtown parking fees.

We recommend revising the RPP program and charging a monthly rate for each guest permit requested (up to two (2) permits) or selling daily and weekly guest parking permits to each resident upon their request. These adjustments will significantly reduce any abuse to the residential guest permits and in turn, free up more on-street parking spaces which can be metered and opened to the general public to generate revenue.

Parking Rates

At the current time, the parking rates appear appropriate, if not a little low, within the core downtown parking area. Given the future parking needs, it may be helpful to increase the parking rates in order to generate additional revenue in order to financially support any future parking additions, improvements, or expansions.

<THIS AREA INTENTIONALLY LEFT BLANK>

2015 Survey Day Parking Demand

TimHaahs collected parking demand during our site visit on Friday, April 10, 2015 from 10AM to 8PM. Based on discussions with City officials prior to the field visit, the TimHaahs team understands that the peak parking demand is commonly generated on Friday due to the visitors to the various downtown attractions.

According to the result of our field study, the parking supply including public and private lots, and on-street parking meters, within the study area experienced a peak hour demand between 8PM and 10PM. Figure 5 quantifies and illustrates the parking demand by hour for the survey day.

Figure 5: 2015 Survey Day Parking Demand (Study Area)

Facility / Type	Total Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
City-Owned Off-Street Parking Lots	608	370	524	498	411	463	542
On-Street Parking Meters	162	97	139	125	115	126	136
Private Owned Parking Lots	170	135	165	153	158	158	166
TOTAL	**940**	**602**	**828**	**776**	**684**	**747**	**844**

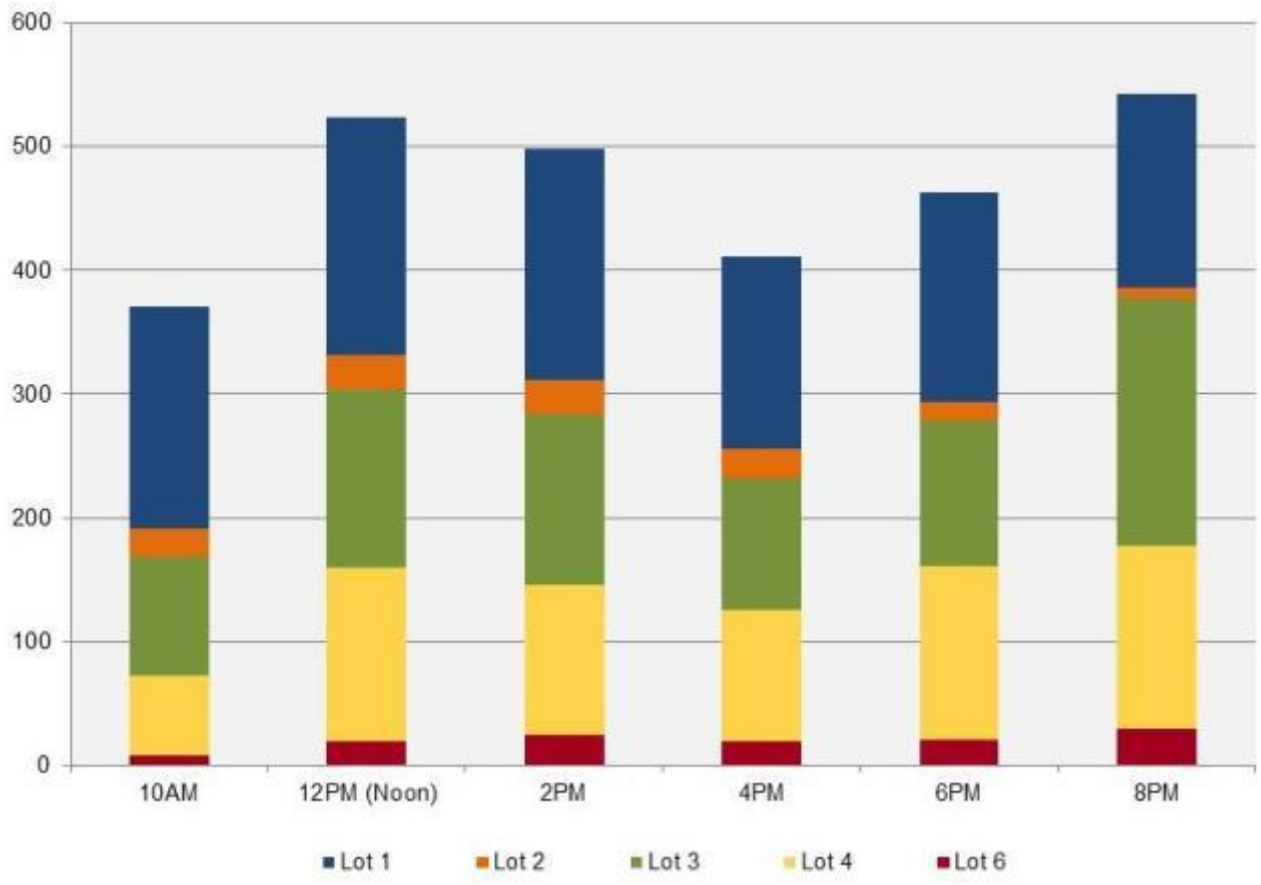
Source: Timothy Haahs & Associates, Inc. 2015

The city-owned off-street parking lots experienced the peak demand between 8PM and 10PM on the survey day. Lots 1 and 2 experienced a peak hour demand between 12PM and 2PM while the other lots experienced a peak hour demand between 8PM and 10PM on the survey day. On-street parking meters experienced peak demand between 12PM and 2PM on the survey day.

Based on the visual observations regarding pedestrian movement in the downtown area, TimHaahs assumes that restaurant visitors for lunch and dinner on Friday drive the high parking demand within the study area. Figure 6 quantifies and visually depicts the parking demand of the city-owned off-street parking facilities.

Figure 6: 2015 Survey Day Parking Demand (Off-Street Public Lots)

Facility / Type	Total Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
Lot 1	191	179	193	187	155	170	156
Lot 2	37	23	27	27	24	14	9
Lot 3	200	96	144	138	106	118	200
Lot 4	147	64	140	121	106	140	147
Lot 6	33	8	20	25	20	21	30
TOTAL	**608**	**370**	**524**	**498**	**411**	**463**	**542**

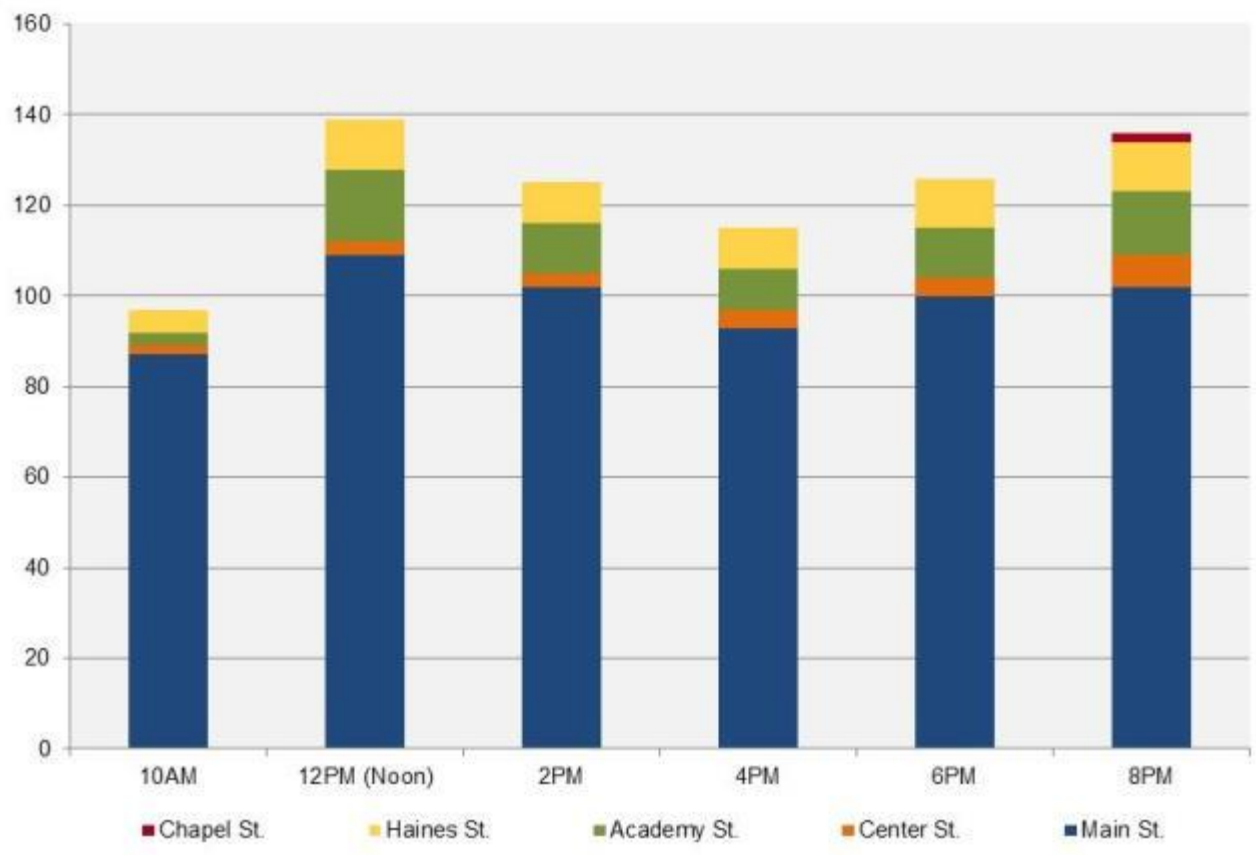


Source: Timothy Haahs & Associates, Inc. 2015

On-street parking meters experienced peak demand between 12PM and 2PM on the survey day. Based on the visual observations regarding pedestrian movement in the downtown area, TimHaahs assumes that restaurant visitors for lunch and dinner on Friday drive the high parking demand within the study area. Figure 7 quantifies and visually depicts the parking demand of the city-owned on-street parking meters.

Figure 7: 2015 Survey Day Parking Demand (On-Street Public Meters)

Street	Between	Total Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
Main St. (N)	Chapel St. & Choate St.	11	5	9	6	9	9	10
Main St. (N)	Choate St. & Center St.	18	13	17	18	15	14	17
Main St. (N)	Center St. & College Ave.	31	25	28	26	21	16	25
Main St. (N)	College Ave. & New London Rd.	8	8	8	6	6	6	1
Main St. (S)	Chapel St. & Haines St.	16	9	12	11	15	16	16
Main St. (S)	Haines St. & Academy St.	14	11	12	12	12	14	13
Main St. (S)	Academy St. & College Ave.	27	16	23	23	15	25	20
Center St. (E)	Main St. & Lot 4 Entrance	7	2	3	3	4	4	7
Academy St. (E)	Delaware Ave. & Main St.	9	2	9	7	6	6	7
Academy St. (W)	Delaware Ave. & Main St.	8	1	7	4	3	5	7
Haines St. (E)	Delaware Ave. & Main St.	11	5	11	9	9	11	11
Chapel St. (W)	New St. & Main St.	2	0	0	0	0	0	2
TOTAL		**162**	**97**	**139**	**125**	**115**	**126**	**136**

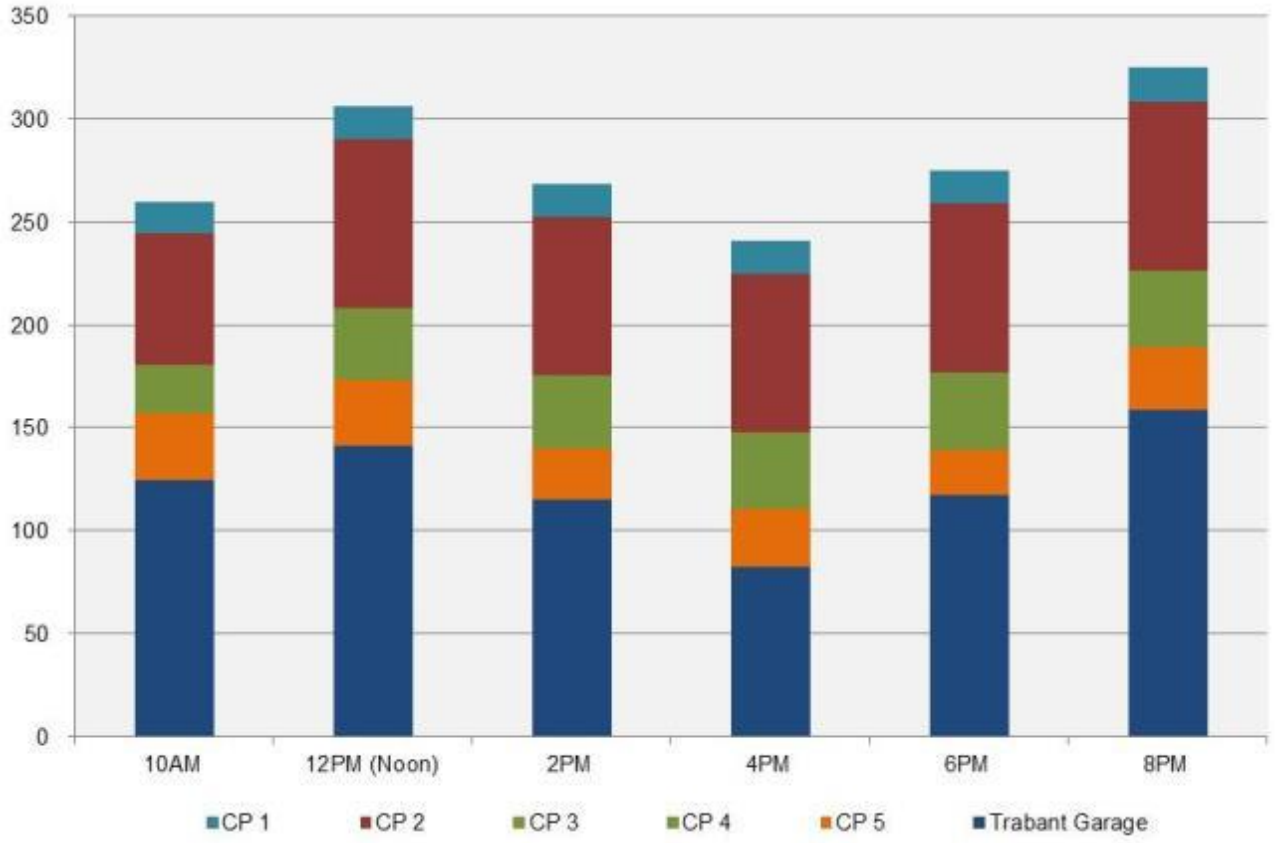


Source: Timothy Haahs & Associates, Inc. 2015

TimHaahs also observed the private-owned parking facilities serving retail and restaurant customers to identify the utilization patterns of the entire downtown study area. As previously mentioned, we did not include spaces within the private lots which were marked as reserved. Also note we did not include the transient supply for the Trabant garage as it varies based on the occupancy of the permit holders. In addition, the parking lot adjacent to the Deer Park Tavern is not included in the below table, however, we understand it is often fully utilized during Friday evenings. Figure 8 quantifies and illustrates the parking demand of the private lots during the survey day and excludes all vehicles parked in reserved spaces.

Figure 8: 2015 Survey Day Parking Demand (Private Lots and Trabant Garage)

Facility	Supply	10AM	12PM	2PM	4PM	6PM	8PM
CP 1	16	15	16	16	16	16	16
CP 2	81	64	82	77	77	82	82
CP 3	25	12	21	12	23	22	20
CP 4	26	11	14	23	14	16	17
CP 5	22	33	32	25	28	22	31
Sub-Total	**170**	**135**	**165**	**153**	**158**	**158**	**166**
Trabant Garage	Variable	125	141	115	83	117	159
Total	**170***	**260**	**306**	**268**	**241**	**275**	**325**



Source: Timothy Haahs & Associates, Inc. 2015
** Trabant Garage transient supply varies by hour based on utilization of monthly permit holders*

Seasonal Calibration

When performing a downtown parking study, it is necessary to calibrate the survey day data to a design day which is representative of typical busy conditions. For a downtown study, we typically like to calibrate our data to the 85th percentile or the 2nd or 3rd busiest month of the year. Designing and planning for peak demand results in parking facilities which are underutilized most of the year, vice versa, designing for the average demand results in parking facilities only meeting the demand for half of the year. Therefore, by designing to the 85th percentile, we are able to balance the need to meet the downtown demand while not overbuilding and using up valuable land and financial resources.

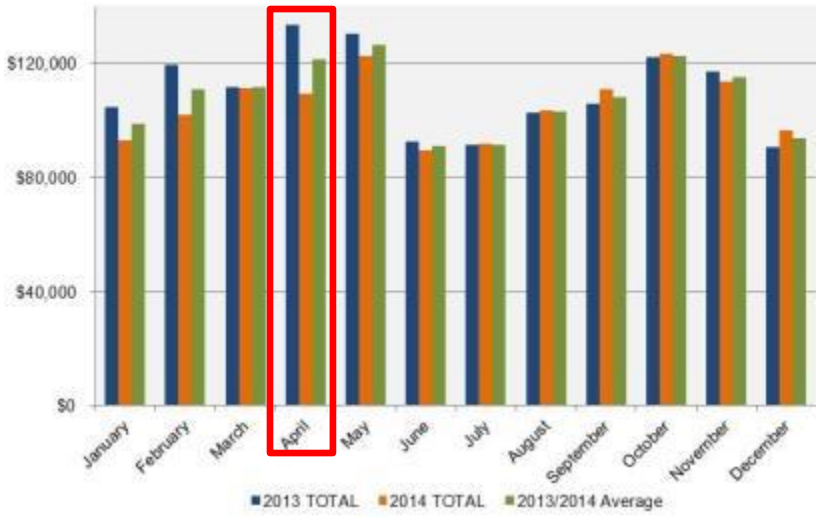
Based on the monthly revenue data provided by City representatives, the parking demand during the month of April is representative of typical busy conditions or the 2015 Design Day. The following figure outlines the data provided and illustrates the monthly fluctuation in revenue for 2013 and 2014.

Figure 9: 2013 and 2014 Monthly Revenue

2013	Lot 1	Lot 3	Lot 4	Lot Total
January	$44,099	$31,052	$29,543	$104,695
February	$62,172	$28,100	$29,275	$119,547
March	$61,613	$29,646	$20,519	$111,778
April	$66,383	$35,532	$31,437	$133,351
May	$68,476	$33,662	$28,206	$130,344
June	$42,239	$28,595	$21,957	$92,791
July	$43,032	$22,523	$25,891	$91,446
August	$55,050	$25,190	$22,401	$102,641
September	$56,841	$26,975	$21,971	$105,787
October	$62,115	$35,252	$24,773	$122,140
November	$60,944	$29,243	$27,066	$117,253
December	$42,510	$26,470	$21,638	$90,618
2013 TOTAL	$665,474	$352,239	$304,677	$1,322,391

2014	Lot 1	Lot 3	Lot 4	Lot Total
January	$39,050	$35,982	$17,988	$93,019
February	$50,391	$29,954	$21,610	$101,956
March	$57,789	$31,625	$21,894	$111,308
April	$55,064	$30,373	$23,913	$109,349
May	$60,814	$29,847	$31,945	$122,606
June	$38,513	$26,104	$24,850	$89,467
July	$44,567	$21,340	$25,888	$91,795
August	$44,314	$23,280	$36,057	$103,652
September	$54,434	$25,834	$30,530	$110,798
October	$60,600	$29,447	$33,198	$123,245
November	$56,280	$26,379	$30,873	$113,531
December	$37,319	$33,551	$25,761	$96,631
2014 TOTAL	$599,134	$343,715	$324,507	$1,267,356

2013/2014 Average	Lot 1	Lot 3	Lot 4	Lot Total
January	$41,575	$33,517	$23,766	$98,857
February	$56,282	$29,027	$25,443	$110,751
March	$59,701	$30,635	$21,207	$111,543
April	$60,723	$32,952	$27,675	$121,350
May	$64,645	$31,755	$30,076	$126,475
June	$40,376	$27,349	$23,404	$91,129
July	$43,800	$21,931	$25,889	$91,620
August	$49,682	$24,235	$29,229	$103,146
September	$55,637	$26,404	$26,251	$108,292
October	$61,357	$32,350	$28,986	$122,692
November	$58,612	$27,811	$28,969	$115,392
December	$39,914	$30,011	$23,699	$93,624
TOTAL AVERAGE	$632,304	$347,977	$314,592	$1,294,873



Source: City of Newark and Timothy Haahs & Associates, Inc. 2015

2015 Design Day Parking Occupancy

Since the survey day data is anticipated to reflect typical busy conditions, we are able to utilize the data as our Design Day. The city-owned off-street parking system experienced a peak hour occupancy of 90% between the hours of 8PM and 10PM. During that time, 98% of the private lots were occupied. However, on-street parking meters experienced a peak hour occupancy of 95% between 12PM and 2PM and only 84% during the overall peak hour of 8PM to 10PM. The following table outlines the parking occupancy during the survey day for the overall study area. Again, since the Trabant garage supply is variable, it has been excluded from the occupancy analysis.

Table 3: 2015 Design Day Parking Occupancy (Study Area)

Facility / Type	Total Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
City-Owned Off-Street Parking Lots	608	94%	101%	98%	81%	89%	82%
On-Street Parking Meters	162	60%	86%	77%	71%	78%	84%
Private Owned Parking Lots	170	79%	97%	90%	93%	93%	98%
TOTAL	**940**	**64%**	**88%**	**83%**	**73%**	**79%**	**90%**

Source: University of Delaware, and Timothy Haahs & Associates, Inc. 2015

2015 Effective Parking Supply

When calculating the parking adequacy, a cushion is applied to the parking supply in order to compensate for mis-parked vehicles (i.e. oversized vehicles which cannot fit within the stall striping and end up taking up two spaces or vehicles parked over the stall lines which do the same, etc.), spaces lost due to maintenance or snow removal, and the flow of vehicles in and out of parking spaces. Industry standards typically apply a cushion between 85 and 95 percent to reflect the inability for a parking system or facility to operate at a constant 100 percent efficiency with a single vehicle ready to occupy a parking space at the same moment another vehicle is leaving.

Based on the one-way streets within the downtown area, the existing use of signage, and the number of parking facilities in the study area, a 90 percent cushion has been applied to all city-owned, on-street parking areas and the transient parking lots 1, 3, 4 and 6, as well as all identified private customer lots. In addition, a 95 percent cushion has been applied to the city-owned permit parking lot, Lot 2, since the parking permit holders are regular users and typically use that facility on a daily basis. The table below outlines the calculations for the effective supply.

Table 4: Effective Parking Supply

Facility / Type	Total Supply	Factor	Effective Supply	Cushion
City-Owned Off-Street Parking Lots (Transient)	571	90%	514	57
City-Owned Off-Street Parking Lots (Permit)	37	95%	35	2
On-Street Public Parking Meters	162	90%	146	16
Private Owned Customer Parking Facilities	170	90%	153	17
TOTAL	**940**		**848**	**92**

Source: Timothy Haahs & Associates, Inc. 2015

There is a 92-space cushion after applying the effective supply factor to the actual supply resulting in an effective parking supply of 848 spaces within the study area that are available for use by the general public.

2015 Design Day Parking Adequacy

In order to calculate the parking adequacy (parking surplus or shortage), we compare the peak hour parking demand against the effective parking supply as previously calculated. Table 5 summarizes the parking adequacy for each type of parking facility captured in this analysis.

Table 5: 2015 Design Day Parking Adequacy by Facility Type

Facility / Type	Effective Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
City-Owned Public Parking Lots	**549**	**179**	**25**	**51**	**138**	**86**	**7**
Lot 1	172	(7)	(21)	(15)	17	2	16
Lot 2	35	12	8	8	11	21	26
Lot 3	180	84	36	42	74	62	(20)
Lot 4	132	68	(8)	11	26	(8)	(15)
Lot 6	30	22	10	5	10	9	(0)
Private Owned Parking Facilities	**153**	**18**	**(12)**	**0**	**(5)**	**(5)**	**(13)**
CP 1	14	(1)	(2)	(2)	(2)	(2)	(2)
CP 2	73	9	(9)	(4)	(4)	(9)	(9)
CP 3	23	11	2	11	(1)	1	3
CP 4	23	12	9	0	9	7	6
CP 5	20	(13)	(12)	(5)	(8)	(2)	(11)
TOTAL	**702**	**197**	**13**	**51**	**133**	**81**	**(6)**

Street	Between	Total Supply	Factor	Effective Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
Main St. (N)	Chapel St. & Choate St.	11	90%	10	5	1	4	1	1	(0)
Main St. (N)	Choate St. & Center St.	18	90%	16	3	(1)	(2)	1	2	(1)
Main St. (N)	Center St. & College Ave.	31	90%	28	0	(3)	(1)	7	12	3
Main St. (N)	College Ave. & New London Rd.	8	90%	7	(1)	(1)	1	1	1	6
Main St. (S)	Chapel St. & Haines St.	16	90%	14	2	(1)	(0)	(1)	(2)	(2)
Main St. (S)	Haines St. & Academy St.	14	90%	13	2	1	1	1	(1)	(0)
Main St. (S)	Academy St. & College Ave.	27	90%	24	5	(2)	(2)	6	(1)	4
Center St. (E)	Main St. & Lot 4 Entrance	7	90%	6	1	(0)	3	2	2	(1)
Academy St. (E)	Delaware Ave. & Main St.	9	90%	8	6	(1)	1	2	2	1
Academy St. (W)	Delaware Ave. & Main St.	8	90%	7	6	0	3	4	2	0
Haines St. (E)	Delaware Ave. & Main St.	11	90%	10	5	(1)	1	1	(1)	(1)
Chapel St. (W)	New St. & Main St.	2	90%	2	2	2	2	2	2	(0)
TOTAL		**162**		**146**	**35**	**(7)**	**11**	**27**	**20**	**10**

Facility / Type	Effective Supply	10AM	12PM (Noon)	2PM	4PM	6PM	8PM
City-Owned Off-Street Parking Lots (Transient)	514	167	17	43	127	65	(19)
City-Owned Off-Street Parking Lots (Permit)	35	12	8	8	11	21	26
On-Street Public Parking Meters	146	35	(7)	11	27	20	10
Private Owned Customer Parking Facilities	153	18	(12)	0	(5)	(5)	(13)
TOTAL	**848**	**232**	**6**	**62**	**160**	**101**	**4**

Source: Timothy Haahs & Associates, Inc. 2015

For the 2015 Design Day, there is an overall parking surplus of four spaces during the peak hour. More importantly, there is an estimated 19-space shortage in the City-owned parking areas available for transient use and only a 10-space surplus in the on-street parking areas.

On the other hand, with the exception of the mid-day lunch hour, the parking adequacy ranged from a surplus of 62 to 232 spaces during the rest of the day.

Future Parking Conditions

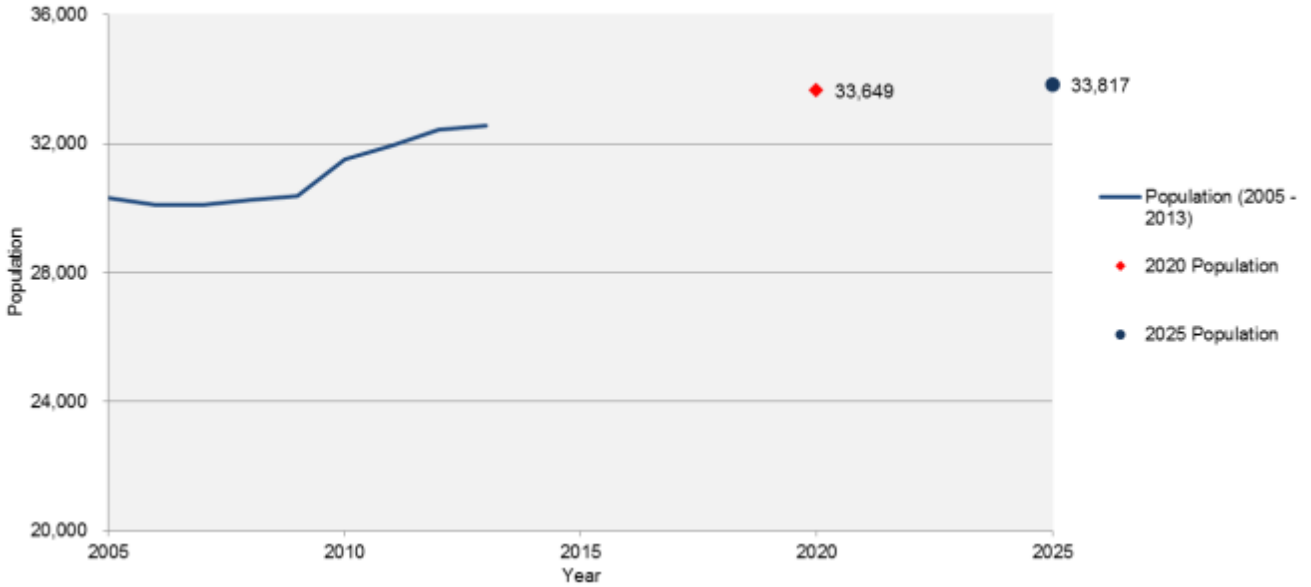
There are several factors which may impact the future parking conditions in downtown Newark. Normal demand growth is caused by general changes in population while development demand growth is caused directly from new development projects in the study area. This section describes each factor and quantifies an estimated range for the potential increase or decrease in parking demand.

Population Growth

In general, one consistent factor in parking demand growth is the projected population growth estimate. When looking back to 2005, the average annual growth rate is approximately 0.35%; however, the data is partially skewed by the recession. If we evaluate the growth rate from 2009 until 2013, near the end of the recession, the average annual growth rate is approximately 0.80%. Based on the 2020 and 2025 population projections, we have applied a 0.5% annual population growth factor from 2015 until 2020 and a 0.1% annual population growth factor from 2021 to 2025.

Figure 10: Historical and Projected Population in Newark, DE

Year	Population (2005 - 2013)	Changes
2005	30,331	
2006	30,092	(0.79%)
2007	30,111	0.06%
2008	30,259	0.49%
2009	30,371	0.37%
2010	31,517	3.77%
2011	31,940	1.34%
2012	32,430	1.53%
2013	32,549	0.37%
…		
2020	33,649	
…		
2025	33,817	



Source: City of Newark, U.S. Census, and Timothy Haahs & Associates, Inc. 2015

After applying the normal growth rate to the 2015 Design Day Peak Demand, we are able to estimate the future demand and adequacy as follows:

Table 6: Estimated Future Demand and Adequacy from Normal Growth ONLY

Demand	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
City-Owned Off-Street Parking Lots	542	545	547	550	553	556	556	557	557	558	558
On-Street Parking Meters	136	137	137	138	139	139	140	140	140	140	140
Private Owned Parking Lots	166	167	168	169	169	170	170	171	171	171	171
Total	**844**	**848**	**852**	**857**	**861**	**865**	**866**	**867**	**868**	**869**	**870**

Surplus/Shortage	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
City-Owned Off-Street Parking Lots	7	4	2	(1)	(4)	(7)	(7)	(8)	(8)	(9)	(9)
On-Street Parking Meters	10	9	8	8	7	6	6	6	6	6	6
Private Owned Parking Lots	(13)	(14)	(15)	(16)	(16)	(17)	(17)	(18)	(18)	(18)	(18)
Total	4	(0)	(5)	(9)	(13)	(17)	(18)	(19)	(20)	(21)	(22)

Source: Timothy Haahs & Associates, Inc. 2015

Proposed Future Developments

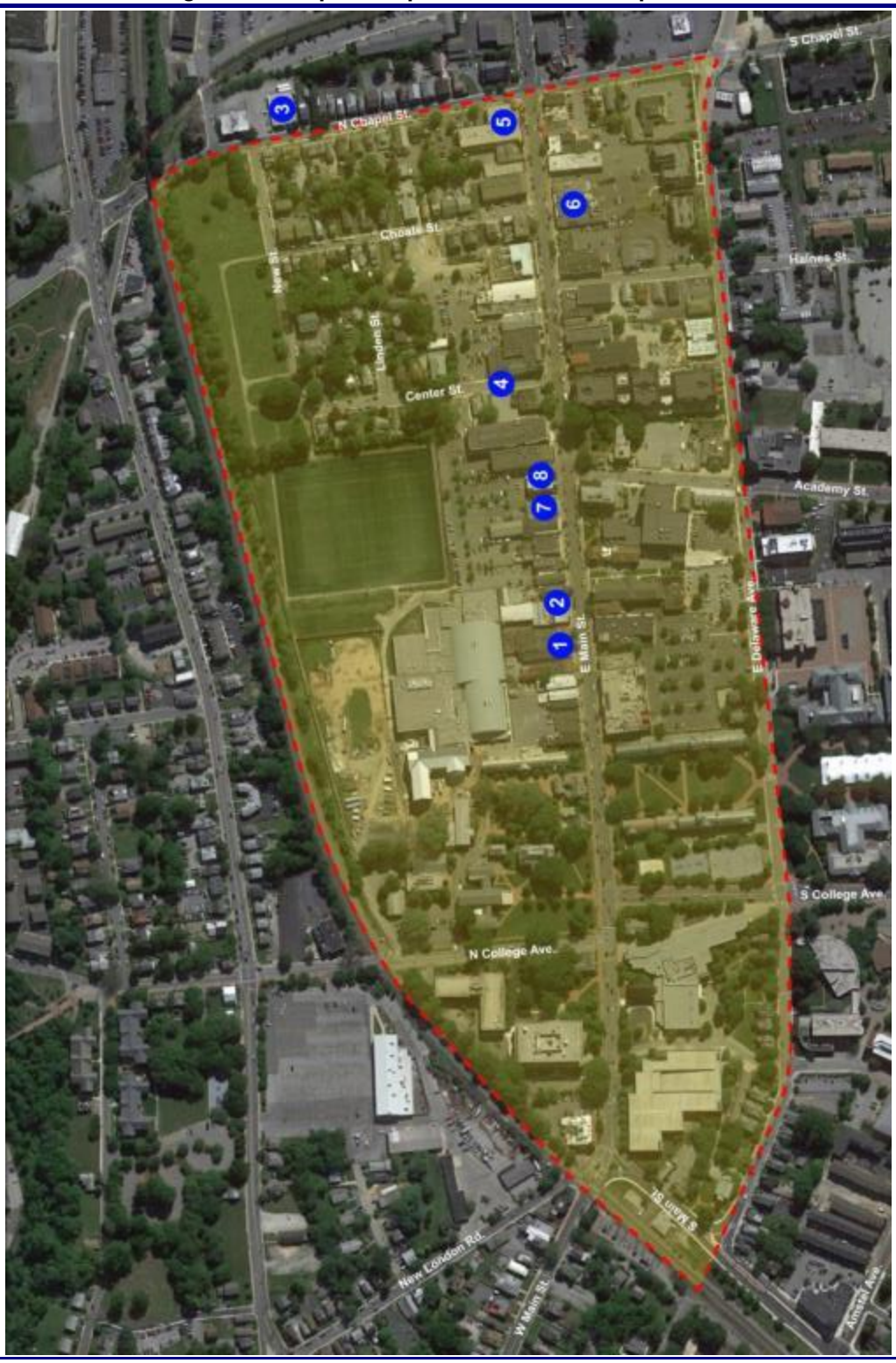
The City representatives provided the following list of developments which are expected to impact the study area parking conditions. For the purpose of this analysis, we have assumed all of these projects would be completed by 2020.

Table 7: List of Proposed Future Developments

No.	Address	Proposed Plan	Parking	Estimated Parking Impact	Status
1	58 E. Main Street	39,050 GSF Mixed-Use Building (24 Floor Apartment / 6,800 sq.ft. 1st Floor commercial Space)	Takes out a small private parking lot and replaces it with a 23 space parking lot which will be rented to the City ($1 a year for 99 years) for long term (monthly) parking lot. The project received a 51-space parking waiver.	Estimated negative 30 to 40-space net impact	Approved
2	70 E. Main Street	2 Apartment Units	Does not displace parking. Needs a 4 space parking waiver.	Increases demand by 4 spaces Negative 4-space net impact	Currently Under Review
3	52 N. Chapel Street	3,382 sq.ft of Office / 12 Apartment Units	Takes out a commercial private parking lot but replaces it with code compliant parking lot.	Net zero impact	
4	Lofts at Center Street	3,000 sq.ft. of Office / 30 Apartment Units	Code compliant and does not displace any existing parking	Net zero impact	
5	174 E. Main Street & 21 Chapel Street	8 Apartment Units	It will take out some residential and commercial parking in an existing private lot and replace it with nearly Code compliant parking for the residential piece of the development. Still requires a 4 space parking waiver, which will be added to the 63 space waiver already granted for the property, if approved – and will remove at least 12 spaces currently serving the commercial building associated with it.	Estimated negative 20 to 40-space net impact	
6	147 E. Main Street	12 Apartment Units	If approved will be code compliant for residential. Private commercial and residential property, which already has a 40 space parking waiver. Spaces will be lost during construction only	Negative 40 to 50-space net impact	
7	92 E. Main Street	Conceptual Plan submitted w 5000 sq ft retail/14 apartments	Will disrupt Lot #3 during construction. Depending on plan actually submitted may take out some parking. Will require a parking waiver.	Estimated negative impact 22 to 25 spaces	Potential Project – 12+ mos.
8	96 E. Main Street	No plan submitted. Potential redevelopment project.	Will disrupt Lot #3 if pursued during construction. Depending on plan actually submitted may take out some parking. Will require a parking waiver.	Uncertain impact	
				Estimated negative 116 to 159-space net impact	

Source: City of Newark and Timothy Haahs & Associates, Inc. 2015

Figure 11: Map of Proposed Future Developments



Source: City of Newark and Timothy Haahs & Associates, Inc. 2015

After applying the estimated impact from development, we anticipate a 133 to 176-space shortage by 2020 and a 137 to 176-space shortage by 2025. This does not include the transient spaces which may be available in the Trabant Garage. The table below summarizes the estimated 2020 and 2025 parking adequacy.

Please note, per the UD representatives, approximately 150 transient spaces are regularly available within the Trabant Garage. However, between 8PM and 10PM on the Friday night which data was provided, 159 transient vehicles were present, implying that the transient supply may be more than 150 spaces (because the permit holders have vacated the facility). We were not able to quantify the actual number of spaces available for transient use between 8PM to 10PM but we do anticipate there may be availability for transient use during the evening hours.

We **did not** include the Trabant Garage in the overall impact because:

1.) We know that the busiest time for the entire study area is between 8PM and 10PM on a Friday evening with a surplus of 4 spaces **BUT, we also know that the second busiest time is between 12PM and 2PM** with a surplus of only 20 spaces.

2.) Since the Trabant Garage serves University users, it is regularly utilized by the permit holders Monday through Friday between 8AM and 5PM, and therefore, **it is not a viable long-term solution for the City to rely on for its downtown transient parking needs.**

3.) While the Trabant Garage may have excess transient capacity during the evening hours, it **did not** have excess capacity between the hours of 12PM and 2PM (Table 1), in fact, after adjusting for the effective supply factor**, there is a 14-space shortage of transient spaces within the Trabant garage between 12PM and 2PM**.

Table 8: Estimated Future Demand and Adequacy from Normal Growth & Development

Timeline Summary	Adequacy
2015 Effective Supply	848 spaces
2015 Design Day Demand	844 spaces
2015 Design Day Adequacy	**4-space surplus**
2020 Normal Growth Demand Impact	negative 21-space net impact
2020 Development Impact	negative 116 to 159 net impact
2020 Parking Adequacy	**133 to 176-space shortage**
2025 Normal Growth Demand Impact	negative 4-space net impact
2025 Development Impact	none included
2025 Parking Adequacy	**137 to 180-space shortage**

Source: Timothy Haahs & Associates, Inc. 2015

Summary

We anticipate a future parking shortage based on the impact from proposed development and normal growth. In addition, the privately owned parking facilities were also observed as being very well utilized during the peak hours and clearly signed for their specific customers only. Note that our analysis does not include the parking available in the University's Trabant Garage based on its proximity to the core downtown area. Even though the Trabant Garage is at the far west end of the study area, it is still within a 4 to 5 minute walk to the commercial area.

As development occurs, it may be necessary for more customers and visitors to utilize the Trabant Garage during busy hours or it may be feasible to promote employee use to free up more downtown parking spaces for customers and visitors.

Understanding that the City would like to encourage downtown growth and development, while maintaining a sufficient amount of proximate public parking to support the commercial district, it may be necessary to consider a parking structure. Based on the existing inventory of city-owned surface parking lots, only Lot 1 is capable of accommodating an efficient footprint for a parking garage. The other city-owned lots are either too small (Lots 2 and 6) or the odd shaped geometrics of the lot are not conducive to accommodating an efficient parking garage (Lots 3 and 4).

If the City decides to build a parking garage, consideration should be given to the use of the Trabant garage as an interim solution to address all displaced parking areas during the construction of a centralized parking garage. We would recommend coordinating with University representatives in order to mitigate the impact of the parking conditions during construction.