



November 14, 2019

Director of Community Development, Zoning Officer, and Planning Board
City of Hoboken
94 Washington Street
City of Hoboken, NJ, 07030

**RE: Parking and Transportation Demand Management Report
Stevens Institute of Technology
1 Castle Point Terrace
City of Hoboken, NJ, 07030
SE&D Job Number: S-19027**

Dear Board Members:

Stonefield Engineering and Design, LLC ("Stonefield") has prepared this report to present various information related to parking permits and transportation demand strategies on the Stevens Institute of Technology ("Stevens") campus. The Transportation Demand Management (TDM) plan began as a pilot program in January 2019 and has been implemented as a full program in August 2019 per the ordinance for the University District. The University District ordinance requires that Stevens provide 0.8 parking spaces per parking permit, unless they adhere to a TDM plan with annual updates submitted to the Planning Board to support the parking requirement reduction. Stevens has enacted a TDM plan to support campus development projections and will comply with all reporting requirements. This report outlines the TDM program on campus and details the required relevant information for the 2019 reporting period.

The TDM plan aims to reduce the parking demand at Stevens and limit congestion on the surrounding roadways. The plan promotes public transportation usage by providing financial incentives for commuters, creating a more pedestrian friendly campus, organizing programs for ride-share and car-share, and discouraging driving through restructuring the parking permit pricing system. The overall goal of the TDM plan is to decrease single-occupancy vehicle (SOV) usage through a variety of programs.

POPULATION FIGURES

As requested by the City of Hoboken, Stevens has tracked student, faculty and staff population figures for the current enrollment year and has estimated population projections for the following three (3) enrollment years. The population figures are sourced from Institutional Research and Human Resources at Stevens. In order to estimate population in the next three (3) enrollment years, Stevens has created a campus development plan to project the future increase in students, faculty and staff as they work to construct the additional facilities to accommodate these campus users. **Table I** details the requested population figures.



TABLE 1: CAMPUS POPULATION FIGURES

	AY 2019-20 (Current Year)	AY 2020-2021 (Projected Year 1)	AY 2021-2022 (Projected Year 2)	AY 2022-2023 (Projected Year 3)
Student Population Total	7,283	7,478	7,810	7,973
Undergraduate On-Campus Residents	1,307	1,307	1,307	2,003
Undergraduate Leased Housing Residents	564	564	564	141
Undergraduate Non-Residents	1,788	1,951	2,122	1,871
Graduate Students	3,624	3,656	3,817	3,958
Faculty/Staff Population Total	1,191	1,232	1,288	1,322
Adjuncts/Part-Time Staff	251	258	270	275
Full-Time Employees	940	974	1,018	1,047
Total Campus Population	8,474	8,710	9,098	9,295

PARKING PERMITS ON CAMPUS

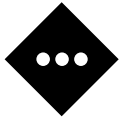
Stevens maintains 847 parking spaces on campus in seven (7) surface parking lots and in one (1) parking garage. Faculty, staff and non-resident students are eligible to request parking permits if they live outside of the City of Hoboken. All Hoboken residents are prohibited from requesting a permit. Stevens collects data on permit requests in order to project parking demand for future years. **Table 2** contains the requested parking permit information by campus population and permit type.

TABLE 2: CAMPUS PARKING PERMITS

	AY 2018-19 (Prior Year)	AY 2019-20 (Current Year)	AY 2020-2021 (Projected Year 1)
Student Permits Total	387	490	509
Undergraduate Residents	26	23	23
Undergraduate Non-Residents	125	174	190
Graduate Students	236	293	296
Faculty/Staff Permits Total	555	423	439
Adjuncts/Part-Time Staff	212	115	119
Full-Time Employees	343	308	320
Total Campus Permits	942	913	948

CAMPUS PARKING INVENTORY

Currently, the Stevens campus is operating with 0.93 parking spaces per parking permit. Throughout the day, there is high parking turnover due to varied class schedules; therefore, every person with a parking permit does not require their own parking space. There are students that only take classes at night, as well as students who only take classes on certain days of the week. There are a number of part-time staff as well. This



shared-parking aspect of Stevens allows for continued development and expansion without the need to provide excess parking. Based on population projections and a reduction in the percentage of the population with parking permits due to the implementation of the TDM plan, Stevens is projected to operate with 0.87 parking spaces per parking permit in 2023.

Periodic studies of the Stevens campus parking supply are conducted through the TDM plan reporting. As a result of the latest Parking Utilization Study, conducted October 22nd and 24th, 2019, the total parking supply is 847 spaces. To establish the peak utilization and parking space per permit ratio, all parking lots on campus were studied on a typical weekday from 8:00 a.m. to 10:00 p.m. **Appendix A** details the results of the parking utilization study. The peak parking utilization was observed to be 1:00p.m., with 712 parking spaces occupied and 78% of those with permits utilizing parking. In the existing condition, 135 spaces are typically available during the peak parking time.

Based on historical data, Stevens has been improving their parking space per parking permit ratio. This ratio has fluctuated based on construction on campus and variations in permit requests, but the most recent campus parking inventory reported to the City of Hoboken detailed that the campus was operating with 0.82 parking spaces per parking permit in Spring 2018. In the Spring of 2019, Stevens was operating with a parking space per parking permit ratio of 0.91. With the introduction of the TDM plan, the current ratio has increased to 0.93. This trend should allow Stevens to maintain an appropriate parking space per parking permit ratio in the future as campus population increases.

TDM PROGRAM POLICIES

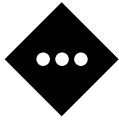
The TDM program at Stevens began as a pilot program in January 2019 to assess interest in various programs and organize the program administratively. The planning involved research and surveys of stakeholder groups on campus in order to encourage maximum participation. As of August 2019, a full program has been implemented on campus. Stevens employs a full-time TDM Manager to administer the programs, improve the programs and develop new programs and partnerships to make commuting as efficient as possible for campus users. A Commuter Club has been established to manage and connect people that are eligible for TDM benefits. A complete list of all TDM strategies and campus policies are the following:

1. Establishment of the Commuter Club

As of August 2019, Stevens has established the Going Green Commuter Club. Membership is available to all full-time, part-time, and adjunct employees who do not request or are not eligible for an on-campus parking permit. Membership in the Commuter Club entitles employees to TDM incentives, discounts and giveaways. Eligibility to receive these benefits vary, and are based on employment status, previous parking permit status, and residency. The Commuter Club is creating a sense of community among Stevens employees who do not drive alone to campus and functions as an advocacy group for the promotion of the TDM program. The Commuter Club is an important aspect of the TDM program at Stevens as it allows members to share commuting ideas and tips. Through this club, the Stevens administration is better able to understand transportation behavior on campus and easily convey targeted messages and surveys to commuters.

2. Subsidized Public Transit

There are two (2) public transit reimbursement programs currently available to Commuter Club members. In order to encourage employees to change their behavior from driving to public transit, any full-time employee who had an individual parking permit during the previous academic year and meets the parking permit



eligibility requirements is entitled to a transit reimbursement of \$500 in exchange for giving up their permit for one full year. Other full-time employees who did not purchase an individual parking permit in the previous academic year and meet the eligibility requirements are entitled to receive a \$100 transit reimbursement.

The TDM manager organizes this program and tracks registrations in the Commuter Club in order to distribute reimbursements. In the future, changes to the cost of reimbursements may change based on results. If participation does not meet the projected targets, reimbursements are subject to increase in order to influence more drivers.

3. Shuttle Service

The Stevens shuttle network in Hoboken runs four (4) main routes. Currently, students unable to live on-campus can elect to live in Stevens leased apartment buildings around Hoboken and utilize two (2) shuttle routes to campus. The other two (2) shuttle routes operate as commuter shuttle lines designed to connect campus to local transit centers. To access the regional network of public transit, commuters can take NJ Transit trains, buses, light rail, and the PATH trains from Hoboken Terminal and the 9th Street/Congress Street Light Rail Station to destinations in New Jersey and New York. The Stevens shuttles operate regularly to bring commuters back and forth from these stations to campus.

The shuttle service is reevaluated before each academic year. Adjustments in routes and frequency based on off-campus housing locations are considered each year. Ridership is periodically analyzed, and passengers are surveyed in order to ensure adequate service. Changes are made annually to ensure that demand is met.

4. Subsidized Ride-Hailing Services

As a result of various meetings and surveys of stakeholders on campus, one of the main hesitations to changing commuting habits is the lack of flexibility of arriving or leaving the campus if the commuter does not have access to a car on campus. Ride-hailing services such as Uber and Lyft provide on-demand private and shared rides and can provide transportation when flexibility is needed. As a part of the TDM program at Stevens, members of the Commuter Club who have opted into the public transit subsidies are eligible for ride-hailing credits for either Uber or Lyft. Those who meet the \$500 transit reimbursement eligibility requirements can receive \$25 in credit, and those who meet the \$100 transit reimbursement eligibility requirements can receive \$15 in credit.

This program is administered by the TDM Manager as requests are submitted. Participants may request credit and specify their preferred ride-hailing application, and the TDM Manager fills requests electronically. In the future, this process could be adjusted based on participants. All subsidies are subject to adjustment based on participation and progress towards meeting the TDM goals each year.

5. Subsidized Car Sharing Services

All members in the Commuter Club are eligible for a car sharing membership through Zipcar. Zipcar provides a short-term car rental by the hour for those who do not have a car and need access to one occasionally. Through the TDM program, Stevens is offering to pay for the annual membership fee for any member of the Commuter Club who would like a membership. This service will help those who live in urban areas and either walk or commute to campus. Future plans include expanding to other companies such as Getaround in order to provide additional car sharing options.



6. Carpool Matching and Free Permit

Members of the Commuter Club who are full-time employees eligible to purchase individual parking permits but instead form a carpool team are eligible to receive a free parking permit. The TDM Manager aids in forming carpool teams if contacted by an interested employee. Carpooling is an important TDM program that limits the number of SOV on campus and provides an opportunity for those who cannot access public transportation to take part in limiting traffic around campus.

7. Bicycle Improvements

All members in the Commuter Club are eligible for a bike share membership through JerseyBike. JerseyBike provides a bike sharing service with access to Bayonne, Guttenberg, Hoboken, North Bergen, Port Imperial, Weehawken and West New York. Through the TDM program, Stevens is offering to pay for the annual membership fee for any member of the Commuter Club who would like a membership. This service will help those who live in urban areas and either walk or commute to campus. A bike share membership can also provide a first mile/last mile solution to commuters who do not live close to a transit station, or as an alternative to the Stevens shuttle service.

Stevens has received an Honorable Mention from the League of American Bicyclists through its Bicycle Friendly University program. Stevens is committed to improving bicycle infrastructure on campus and will consider improvements in the future. These improvements will be outlined in the Bicycle Master Plan, which will be published within the next academic year. Short-term plans include adding CitiBike to the membership options in order to provide a first mile/last mile solution to commuters who live in New York City and Jersey City.

8. Parking Permit Restriction

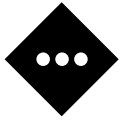
In order to limit SOV trips to and from campus, Stevens has restricted the eligibility for parking permit requests. Hoboken residents are not permitted to apply for parking permits regardless of status. The exceptions to this restriction are those with disabilities or temporary mobility limitations who have received prior approval through Stevens Transportation & Parking, in consultation with Human Resources. In the future, if Stevens does not maintain the level of participation expected through the reimbursements and other TDM programs, Stevens could consider further geographic restriction.

9. Parking Permit Price Adjustments

An important factor for campus users when choosing their method of transportation to campus is the cost. Low parking fees and high transit costs prohibit many from taking advantage of the regional transportation network available to them. In addition to providing incentives for employees who take public transportation, Stevens is working to adjust parking permit prices to discourage driving. Employee parking fees are charged on a scale based on salary, and those prices were increased by 3% as of August 2019. The TDM program plans to reassess the pricing each academic year. In addition, Stevens created a process for adjunct faculty and part-time employees to apply for parking permits which did not exist in past years. Clear policies and increased fees are aimed to reduce permit requests on campus.

10. Educational Information

An important TDM strategy is the education of campus users on the benefits of using public transportation, and the opportunities now available at Stevens through the TDM program. Stevens has updated



their online transportation page and their intranet site for internal use. These pages now contain updated information and instructions for receiving subsidies and participating in programs. As the program expands, more information will be added to the webpages.

As a method to assist individuals in their commuting decision, Stevens has added a Commuting Cost Calculator to the TDM intranet page. This calculator allows commuters to view the true cost of their commute, considering various factors including mileage to work, gas usage and vehicle maintenance. This calculator provides a comparison to those considering changing their commute.

11. Enforcement

In order to improve parking enforcement on campus, Stevens is planning to retain a vendor to implement License Plate Recognition (LPR) technology into campus parking enforcement. This technology will streamline parking permit requests and ensure that all parking permit restrictions are enforced. LPR technology will help the campus police in surveillance of parking areas and further discourage illegal parking.

12. Data Collection

As this is the first semester with a full TDM program, Stevens is monitoring the program to set base targets for future enrollment and to use in future analyses of changes over time. Also, as the parking space to parking permit ratio is currently 0.93 which exceeds the 0.8 requirement, there are no requirements for the number of participants. The current TDM program goals are to educate and create a commuting community on campus, in addition to begin changing commuting habits. Enrollment data can be found in **Table 3** below.

TABLE 3: FALL 2019 TDM PROGRAM ENROLLMENT DATA

Program	Fall 2019 Enrollment Targets (Employees)	Fall 2019 Enrollments (Employees)
Transit Reimbursement (Previous Driver)	5	7
Transit Reimbursement (Previous Commuter)	100	87
Ride-Hailing Subsidy (Previous Driver)	5	7
Ride-Hailing Subsidy (Previous Commuter)	100	76
Carpool Members	20	12
JerseyBike Membership	100	83
Zipcar Membership	100	76

VEHICLE REDUCTION GOALS

One of the main goals of the TDM plan is to reach specific vehicle trip reduction goals. Based on the shared parking element of campus, the critical measurement to reducing vehicle trips is to manage the number of parking permits that are distributed. As the campus population continues to grow, Stevens will adjust the TDM plan enrollment targets in order to limit the increase in parking permits released. In addition to monitoring



permits released, Stevens will continue to collect and compare parking utilization rates on campus to ensure that the parking supply continues to meet demand. Over time, a decrease in daily parking utilization will show a reduction in the vehicle trips on campus. Stevens’ goal is to maintain or reduce peak parking utilization as campus population increases.

Stevens plans to adhere to the TDM plan outlined above and will continue to provide annual updates to the Planning Board to support a reduction to the 0.8 parking spaces per parking permit ratio on campus if needed. The goal of the TDM plan is to keep the parking space per parking permit ratio at or above 0.75 in the future as campus continues to expand. In order to maintain this ratio, the number of permits should not exceed 1,156 permits at any given time. Current projections do not show an anticipated drop in the parking space to permit ratio below 0.8, however this will be continuously monitored in the event that actual population figures and permit requests vary from projected values.

Table 4 details the projected increase in parking permits based on the increase in population, projected future permit requests, and the resulting parking space per permit ratio to represent shared parking on campus. Based on the current population projections and TDM plan, the demand for parking at Stevens will not exceed the supply and the parking space per parking permit ratio will not fall below 0.8. The TDM programs and policies are anticipated to continue to be effective in reducing the number of permits requested and consequently the number of vehicles on campus.

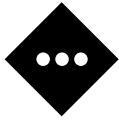
TABLE 4: PARKING PERMIT DEMAND

	Campus Population	Number of Permits (Without TDM)	Number of Permits (With TDM)	Reduction in Permits from TDM Plan	Number of Spaces on Campus ¹	Parking Space per Permit Ratio (With TDM)	Percentage of Campus Population with Permits
AY 2018-2019 (Pre TDM Plan)	8,125	942	N/A	N/A	855	0.91	12%
AY 2019-2020 (TDM Year 1)	8,474	920	913	7	847	0.93	11%
AY 2022-2023 (TDM Year 4)	9,295	1,021	1,001	20	867	0.87	11%

CONCLUSION

To comply with the ordinance for the University District, off-street parking requirements will continue to be regulated through this annual reporting process which will continually monitor the adequacy of parking on campus as it relates to overall campus growth. This initial report contains population reports, parking permit data, and a parking utilization study for review by the City of Hoboken. Based on the most recent parking utilization study, there is ample parking per accommodate the projected increase in campus population over the next few years. This report meets the annual reporting requirement outlined in the City’s ordinance for the

¹ The number of spaces vary due to temporary construction staging on campus.



University District and will allow the City to continually receive updated data on Stevens population increase and associated parking demand.

Best regards,

Charles D. Olivo, PE, PTOE
Stonefield Engineering and Design, LLC

Matthew J. Seckler, PE, PTOE
Stonefield Engineering and Design, LLC

TECHNICAL APPENDIX



Appendix A: Existing Parking Utilization Data
 Steven's Institute of Technology, Hoboken, New Jersey
 Tuesday, October 22, 2019

Location	Parking Areas - Occupancy							Total Current Occupancy	Utilization	Net Change in Occupancy	Percentage of Permit Holders Utilizing Parking
	Castle Point Parking Lot	Howe Center Parking Lot	Admissions Center Parking Lot	Griffith Lot	Babbio Garage	McLean Lot	8th Street Lot				
Supply (spaces)	77	42	11	127	431	13	146	847			913
8:00 AM	38	12	0	63	108	5	42	268	32%		29%
8:30 AM	41	19	1	61	133	4	54	313	37%	45	34%
9:00 AM	44	23	2	62	164	4	68	367	43%	54	40%
9:30 AM	45	28	4	59	242	4	94	476	56%	109	52%
10:00 AM	48	32	4	67	274	4	101	530	63%	54	58%
10:30 AM	51	32	9	68	310	5	114	589	70%	59	65%
11:00 AM	51	31	10	64	331	5	117	609	72%	20	67%
11:30 AM	54	33	10	72	372	6	122	669	79%	60	73%
12:00 PM	57	37	10	75	380	6	123	688	81%	19	75%
12:30 PM	56	38	11	78	392	6	125	706	83%	18	77%
1:00 PM	55	38	10	78	400	6	125	712	84%	6	78%
1:30 PM	55	38	7	71	397	6	123	697	82%	-15	76%
2:00 PM	55	34	8	77	399	6	126	705	83%	8	77%
2:30 PM	54	33	8	77	402	6	123	703	83%	-2	77%
3:00 PM	46	32	5	74	400	6	124	687	81%	-16	75%
3:30 PM	47	31	6	78	374	6	127	669	79%	-18	73%
4:00 PM	43	30	5	76	333	7	121	615	73%	-54	67%
4:30 PM	45	24	4	69	317	8	118	585	69%	-30	64%
5:00 PM	46	23	0	57	294	8	111	539	64%	-46	59%
5:30 PM	50	21	0	58	272	7	94	502	59%	-37	55%
6:00 PM	51	17	1	58	253	7	91	478	56%	-24	52%
6:30 PM	50	17	2	56	227	7	103	462	55%	-16	51%
7:00 PM	50	21	3	60	220	9	114	477	56%	15	52%
7:30 PM	49	22	3	58	198	9	112	451	53%	-26	49%
8:00 PM	49	18	3	56	168	7	106	407	48%	-44	45%
8:30 PM	49	20	2	57	137	6	104	375	44%	-32	41%
9:00 PM	49	15	1	50	98	6	72	291	34%	-84	32%
9:30 PM	45	10	1	47	64	4	54	225	27%	-66	25%
10:00 PM	46	8	1	47	52	4	21	179	21%	-46	20%