

Transportation Demand Management Plan

2023 Update

Introduction

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle trips to help relieve traffic congestion, lower parking demand, and limit air pollution impacts. The purpose of TDM is to promote more efficient utilization of existing transportation facilities and promote sustainable transportation infrastructure. BNYDC’s TDM plan was originally prepared for the Special Brooklyn Navy Yard District in order to establish effective and appropriate TDM measures, based on the Navy Yard’s size, geographic location, and land use.

As per the land use approval to create the special district, BNYDC is required to collect data relevant to the TDM on an annual basis to document changes in parking levels, modes of arrival, transit options, and new technologies and strategies for managing the number of private vehicles accessing the Special Brooklyn Navy Yard District. Every three years (2024, 2027, 2030, etc.), BNYDC will make the data available to the public via its website and will file the BNY TDM Plan with the Department of City Planning (DCP).

2023 Highlights and Updates

There are several notable highlights and updates from 2023, which will be described in detail below.

Arrivals by the numbers	
Shuttle	
↑ 8,400	Unique riders per year
↑ 441,016	Total rides
↑ 9%	Change in ridership from 2022
↑ 1,800	Average daily rides
↑ 60%	Of Yardies use Shuttle at least once per week
Parking	
2,034	Parking spaces
5,716	# of active parking permits
↓ 1,390	Daily # of vehicles accessing the Yard
↓ -13%	Change in # of vehicles accessing the Yard from 2022
↓ 68%	Daily parking utilization (vehicles with parking permits accessing Yard daily)
Pedestrian	
12,913	# total active pedestrian ID cards (no parking)
2,271	# of pedestrians accessing the Yard daily
Ferry	
↑ 313	Daily arrivals
112,386	Annual arrivals at BNY
↓ 1%	Of Yard employees using Ferry*
-1%	Change in Yardie utilization from 2022*
CitiBike	
240	Daily rides
93,902	Annual arrivals at BNY
2%	of Yardies using CitiBike

↑↓ Indicates trend with desirable outcome

↓ Indicates trend with undesirable outcome

*Based on incomplete data. More information in ferry section below

Shuttle System

The BNY shuttle serviced over 8,000 unique riders in 2023 and provided over 441,000 total rides. Average daily ridership in 2023 was 1,800 rides, compared to 1,466 rides in 2022. This represents an increase of 9% in ridership compared to 2022 shuttle ridership levels. 60% of Brooklyn Navy Yard employees report using the BNY Shuttle at least once per week.

CitiBike

Citibike data was collected for the 6 (six) stations within the Yard (5th St & Market St, Clinton Ave and Flushing Ave, Dock 72 & Market St, Flushing Ave & Vanderbilt Ave, Sands Street Gate, Railroad Ave & Kay Ave). According to this available data, 91,080 rides originated at one of these stations, with 93,902 rides ending at one of these stations. The most active station within BNY is Flushing Avenue and Vanderbilt Street at Building 77, accounting for 31.2% of all rides originating or ending at one of these six (6) stations. Average monthly Citibike rides are 7,825 arrivals and 7,590 departures.

Ferry Service

It is believed that Yard employees utilizing the BNY Ferry service increased in 2023 after consistent increases since 2020; however, due to disparities in the data collection process, BNYDC is unable to provide as accurate data at this time. Based on available survey data and observation, it is believed that Yard employee utilization has either remained largely the same or increased. BNYDC is working to improve the accuracy of ferry data for future TDM reports.

Changes and New Developments to the BNY Transportation Network

Since the enactment of the Special Brooklyn Navy Yard District, there have been significant changes to the BNY transportation network. For one, Optimus Ride, the autonomous vehicle pilot within the Yard, has been replaced by the Circuit, a more robust shuttle option for intra-Yard travel. The Circuit accounts for 3.4% of overall Shuttle ridership. Additionally, the BNY Shuttle resumed service to the York Street stop on the DUMBO Route in 2022 which had been suspended due to construction activities in the area.

While current options for traveling to and from the Yard continue to change based on collected data, BNY continues to develop initiatives to make the transportation network safer and more efficient. As of writing, BNYDC is about to begin work on a Transportation and Open Space Improvement Plan, funded by OMB as part of the Capital Planning Scope Development program. This plan will study multimodal transportation within the Yard and make recommendations to improve safety and efficiency. BNYDC is also working to improve bike infrastructure within the Yard to provide cyclists with more parking options.

Summary of 2023 Transportation Survey

2022 marked a return for many Yard businesses to an in-person business model, clearly indicated by the continued increase in usage across most modes in 2023. The implementation of TDM strategies continues to drive a shift in preferred modes of transportation away from single occupancy vehicles. The BNY transportation survey conducted in 2023 revealed the preferred modal options of Yard employees, with an option to select multiple preferred modes:

- 64% preferred BNY Shuttle
- 57% preferred MTA
- 31% preferred walking
- 24% preferred biking
- 26% preferred driving by single occupancy vehicle
- 7% preferred the Ferry
- 4% preferred other modes of transportation

BNYDC staff continues to monitor trends and changes to employees' preferred modes of transportation and will work to make improvements to shift modes away from single-occupant vehicle trips to help relieve traffic congestion, lower parking demand, and limit air pollution impacts in and around the Yard.

8/17/2021

Brooklyn Navy Yard Transportation Demand Management Plan



EXECUTIVE SUMMARY

Transportation Demand Management (TDM) is a combination of services, incentives, facilities, and actions that reduce single-occupant vehicle trips to help relieve traffic congestion, lower parking demand, and limit air pollution impacts. The purpose of TDM is to promote more efficient utilization of existing transportation facilities and promote sustainable transportation infrastructure. This Plan has been prepared for the Special Brooklyn Navy Yard District in order to establish effective and appropriate TDM measures, based on the Navy Yard's size, geographic location, and land use.

The Plan will incorporate and expand on TDM strategies previously identified through a 2015 Strategic Transportation Plan, many of which have been implemented already and have already led to successful outcomes. For example, the main feature of the Yard's transportation network – the launching of an efficient fixed route, last mile shuttle system to replace the former hailed, flex route system – led to a 66% increase in shuttle ridership between 2018 and 2019.

This TDM will serve as the framework necessary to continue to implement existing strategies while also adopting new strategies as both the District continues to grow with new or expanded uses and commuting patterns shift due to new technologies, new infrastructure, or other social behavioral reasons.

INTRODUCTION

The Brooklyn Navy Yard (BNY or the “Yard”) is a 300-acre industrial park located on the Brooklyn waterfront in Community District 2. The Yard is managed by the Brooklyn Navy Yard Development Corporation (BNYDC) on behalf of its owner, the City of New York. In support of its growth and sustainability objectives, and consistent with the City's policy goals of promoting public-transit oriented development and reducing reliance on private automobiles, BNYDC implemented a series of initiatives set forth in the *Brooklyn Navy Yard Transportation Strategic Plan* (2015). BNYDC is now seeking zoning map and text amendments (collectively, the “Proposed Actions”) to facilitate certain recommendations of the *Brooklyn Navy Yard Master Plan* (Master Plan). The Proposed Actions would create a new Special Brooklyn Navy Yard District, with use, bulk, parking/loading, and public space regulations tailored to facilitate the development of a modern industrial campus. To ensure that excessive parking and loading are avoided in connection with Proposed Development, the Special District zoning text would eliminate required accessory parking and instead require that BNYDC maintain a Transportation Demand Management Plan (TDM) to document and evaluate strategies to reduce reliance on automobiles and encourage the use of sustainable, alternative methods of transportation. The TDM plan will incorporate the strategies already implemented from the Transportation Strategic Plan and is expected to evolve over time to respond to changes in travel patterns and to incorporate additional modes of transportation and technologies, with the goal of making additional parking at the Yard unnecessary.

BACKGROUND

The Brooklyn Navy Yard

The Brooklyn Navy Yard was once the site of one of the nation's most storied naval shipbuilding facilities; the Yard was decommissioned in 1966 and reopened in 1969 as an industrial park. BNYDC was formed in 1981 with the mission to create and preserve quality jobs, anchor New York City's modern industrial sector

and its businesses, and connect the local community with the resources and economic opportunity at the Yard. BNYDC seeks to promote local economic development and job creation, develop underutilized areas, and oversee modernization of the Yard's infrastructure and assets while maintaining its historical integrity. The Yard's employment base has grown significantly in recent years and it is now home to over 450 tenants employing more than 11,000 people, up from 5,000 in 2010. The Navy Yard currently has over six million square feet of built area and recently completed its largest expansion since WWII, adding an estimated 1.8 million square feet of new space over the past few years, including the completion and occupancy of the Green Manufacturing Center (GMC), Steiner Media Campus, Building 77, Building 127, Dock 72, Admirals Row, and 399 Sands Building (now 303 Sands).

Existing Tenant Profile

The BNY is now home to over 450 businesses employing approximately 11,000 people. Tenants include, but are not limited to, entertainment and media; architecture, design, engineering, and construction firms; film and TV production studios; contractors; artists, photographers, and jewelers; furniture-makers; plastics manufacturers and distributors; food distributors and a growing community of modern manufacturers of various sorts. Tenants also include academic facilities with programs associated with certain of the Yard's industrial and production tenants. With its largest expansion currently underway, BNYDC expects that this growth will redefine 21st century manufacturing. To ensure that the local community benefits from the Yard's economic development initiatives and success, the BNYDC provides community programs and workforce development services for local residents that match job seekers to opportunities with Yard businesses and strengthen its connection with the surrounding communities. Annually, its on-site Employment Center places about 500 local residents in jobs both within and outside the Yard and over 200 students in internships.

BNY Master Plan (2018)

In 2018, BNYDC completed the *Brooklyn Navy Yard Master Plan* (the "Master Plan"). Based on recent growth trends at the Yard, projected demand for space, and employment goals of the Yard, the Master Plan envisioned new development in the Yard to accommodate an increase in Navy Yard employment to 30,000 employees by 2030 and enhance industrial operations, while further integrating the Navy Yard into the fabric of the surrounding community, further solidifying the Navy Yard's role as a national urban model for sustainable middle-class job creation. The Master Plan anticipated the development of 5.1 million gross square feet of space, prioritizing modern manufacturing buildings that can accommodate the life cycle of growing industrial businesses through a variety of space types. In particular, the Master Plan envisioned vertically integrated buildings with very large double height "flex space" industrial floors at the base of the buildings, more traditional industrial floor plates above the flex space floors, with supporting and creative arts office space located in the upper floors. The Master Plan also envisioned new community facility uses, such as a science and technology museum and new academic uses that would have synergies with and connections to the manufacturing uses in the Yard. In addition, the Master Plan proposed publicly accessible space at the Yard's perimeter to create a community amenity in areas that would not conflict with the Yard's primary function as a modern industrial campus. The Master Plan also contemplated the addition of limited amounts of retail and other uses such as gyms that are compatible with the Yard's core mission, to support the needs of the Yard's tenants as it emerges as a full-fledged central business district and to provide a connection to the surrounding neighborhoods.

The Brooklyn Navy Yard Transportation Strategic Planning Process (2015)

Prior to completion of the Master Plan, and in anticipation of projected employment growth, the transportation network serving the Yard was reevaluated to improve travel to work for existing and future Yard employees. In keeping with BNYDC's mission to promote local economic development and job creation and the organization's commitment to sustainability, goals to accommodate future development were developed to be in line with Transportation Demand Management (TDM) strategies that encourage the use of sustainable transportation options and reduce the use of private automobiles, particularly single-occupancy vehicles (SOVs).

The *Brooklyn Navy Yard Transportation Strategic Plan* was completed in late 2015, and is attached as an Appendix to this document. The Transportation Strategic Plan was the culmination of substantial research and outreach conducted by Philip Habib and Associates (PHA) in 2015. The first phase of the strategic planning process entailed a detailed assessment of the existing conditions in the Yard, identifying user groups/stakeholders, components of the transportation network, and commuting patterns. During this phase of the strategic planning process, PHA surveyed over 450 employees at the Yard to help determine existing travel patterns and how travel patterns vary by tenant type, location of origin, and work schedules. Surveys were conducted in person at the Yard, online, and/or were distributed by Yard tenants. Surveyed employees included representatives of the Yard's more traditional industrial tenants, niche/specialty manufacturing tenants, and office/creative office tenants, reflective of the varied hours of operation, type, and size of tenants that lease space at the Yard. PHA also conducted a planning workshop with employees, held a series of shuttle focus groups (speaking with both shuttle riders and shuttle drivers), and interviewed BNYDC employees involved in, what had been, the existing shuttle and parking systems at the Yard.

The recommendations contained in the 2015 Transportation Strategic Plan were the culmination of this collaborative work. The Transportation Plan identified a series of recommendations designed to promote mass transit access and dis-incentivize driving to the Yard. Measures identified in the Transportation Plan included: (a) upgrading the Yard shuttle system serving the subway stations with an improved vehicle fleet, more efficient and frequent service, a shuttle tracking app, and increased branding and wayfinding signage; (b) establishing improved transit connections by providing ferry connections to the Yard, creating new bus transit connections; (c) improving streetscape conditions along key corridors; (d) promoting bicycle use; (e) changing the Yard parking system through parking permit price increases; and (f) a targeted assessment of parking needs based on the Yard's existing parking supply and usage. Since the completion of the Transportation Plan, BNYDC has implemented most of the plan's recommendations, including upgrading their shuttle system, establishing a NYC Ferry landing in the Yard, and changing the Yard's parking system. There are five Citi Bike stations within the Yard and numerous additional stations in close proximity to the Yard, providing another means of access for workers and visitors.

TDM STRATEGIES

BNY tenants comprise unique groups of employees with varied needs, from large established tenants operating 24/7, to smaller newer tenants in the arts, creative office, and technology industries, who either set their own schedules or work more traditional 9-5 schedules. Due to the variety of tenants, no overarching travel pattern defines Yard employees, despite their shared characteristic of commuting to the Yard daily.

Three key goals were identified in the 2015 Transportation Strategic Plan to address the existing and projected future strains on the BNY transportation network: (1) improve perceptions of Yard accessibility;

(2) make the BNY transit share consistent with competitive markets; and (3) manage future parking demand so as to minimize car utilization and the resulting need for parking.

To achieve the above goals, the following strategies listed in **Table 1** were recommended in the Transportation Strategic Plan. As shown in the table, most of the strategies have already been implemented. Some of the key TDM strategies are discussed further below, and **Figure 1** below shows the existing multi-modal transportation network serving the Yard.

Table 1: BNY TDM Strategies and Their Implementation Status

Strategy	Component	Description	Implemented?
Upgrade Shuttle System	Increase Shuttle Frequency and Hours of Operation	Implement higher frequency shuttle schedule between 6:30 am and 10:30 am and between 4:30 pm and 7:30 pm. Operate limited shuttle service during non-peak weekday hours.	Yes
	Create New, More Efficient Shuttle Routes	New shuttle route with a two-loop system: Loop 1 (the “DUMBO Loop”) providing connections to the A/C and F trains; and Loop 2 (the “Clinton-Washington Loop”) providing connections to the 2/3/4/5, B/D, N/Q/R, G, and C trains.	Yes
	Create a Shuttle Tracking App	Create a shuttle tracking app, providing real-time arrival information	Yes
	Lease New, More Efficient Shuttle Vehicles	Lease new vehicles for both in-Yard and external shuttle systems, with a minimum capacity of approximately 45-seated passengers (peak load capacity of 60 passengers). New vehicles should have two doors to reduce dwell time at stops; be ADA-accessible; and be outfitted with GPS software to support the proposed shuttle tracking app.	Yes
	Improve Shuttle Branding	Create consistent shuttle branding, to be carried through on bus wraps, shelter graphics, stop graphics, schedules, maps, marketing material, and the shuttle tracking app.	Yes
	Install Shuttle Signage and Shelters	Introduce new shuttle signage at all in-Yard and out-of-Yard shuttle stops, and construct new shuttle shelters where feasible at all proposed stops without existing NYCT bus shelters.	Yes
Establish Improved Alternate Transit Connections	Introduce Ferry Connections	Introduce a new ferry landing adjacent to Building 72 (between Dry Docks 2 and 3), and add BNY as a stop on the Astoria route.	Yes
	Create New NYCT Bus Connections	Extend the northern terminus of the B67 bus route from its existing location at Division Avenue to the Williamsburg Bridge Plaza at Broadway and Havemeyer Street, to supplement shuttle system	In discussions with NYCT as part of the Brooklyn Bus Network Redesign Project
	Bike Network Upgrades	Upgrade bike lane connections within the Yard to provide a safe network for tenants and visitors	Yes
	Improve Streetscape along Key Yard Access Corridors	Evaluate streetscape conditions along key corridors outside of the Yard to identify locations for additional lighting and potential streetscape improvements, such as street tree plantings, more diligent enforcement of vehicle parking on the sidewalk, creating additional pedestrian crossings, and/or corner bulb-outs	Ongoing
Implement Changes to the Existing Yard Parking System	Increase the Cost of Yard Parking Permits	Increase the price of a monthly parking permit. Reevaluate the cost of parking again in five to ten years in consideration of actual parking permit demand, changes in transit costs, and inflation	Yes
	Efficiently Increase Yard Parking Capacity	Stripe additional parking spaces within the Yard in vacant and underutilized areas in order to efficiently maximize capacity	Yes
Alternate Modes	On-Site Citi Bike Stations	There are currently three Citi-Bike stations located within the Yard and an additional five stations located along the perimeter. The Bespoke BNY Citi Bike Membership launched on January 1, 2019 and allows for a reduced annual membership cost for tenants along with a cost-sharing program between tenants and employees	Yes

	Car Sharing	There are currently two parking spaces available for Enterprise car share within the Yard. Additional car sharing opportunities being explored.	Yes
	Autonomous Vehicles	Optimus Ride launched service at the Yard on August 7, 2019 and provides a free autonomous vehicle shuttle for non-Yard employees and invited guests between the ferry landing, Building 77 and the Cumberland Street Gate along Flushing Avenue.	Yes
	Greenway Around Yard	The Brooklyn Waterfront Greenway currently extends along the Kent Avenue and Flushing Avenue frontages of the Yard. There are also conventional bike lanes striped adjacent to the Flushing Avenue and Navy Street frontages. In addition, a bike network has been created within the Yard to provide connectivity to the existing bike network along the perimeter.	Yes

Shuttle System

BNYDC sponsors a shuttle service providing free last-mile transportation to the site for Yard tenants and their guests five days per week, 18 hours per day. The shuttle provides seven to 10-minute peak service and 30-minute off peak service to the York Street subway station serving the F subway line, High Street subway station serving the A/C subway lines, the Clinton Washington subway station serving the G subway line, and Atlantic Terminal/Atlantic Avenue-Barclays Center railroad and subway station serving the Long Island Rail Road and 2/3/4/5/B/D/N/Q/R subway lines, respectively. In total, 83 percent of subway-accessible Yard employees that reside in Brooklyn, Manhattan, and Queens are within a ten-minute walk of a station served by one or more of these 13 subway routes.

To increase rider awareness, BNYDC coordinated with the NYC Department of Transportation’s Bus Stop Management team to establish official shuttle stops outside the Yard, with shuttle signage mounted on poles at existing MTA bus stops. Inside the Yard, BNYDC installed bus shelters with seating at fixed stops along the shuttle routes.

The existing shuttle routes were designed and tested to maximize the efficiency of the Yard shuttle system by: (1) connecting to multiple subway lines at each route terminus; (2) implementing specific stop locations (rather than having passengers hail the bus at curbside) in order to reduce the number of times the bus must stop and improve shuttle transparency; and (3) minimizing travel times between shuttle stops. As shown in **Figure 1**, the shuttle service includes a two-loop system: Loop 1 (the “DUMBO Loop,” shown in blue) provides connections to the A/C and F trains; and Loop 2 (the “Atlantic Terminal Loop” shown in green) provides connections to the 2/3/4/5, B/D, N/Q/R, G, and C trains. Each of the loops is discussed in detail below.

In consultation with BNYDC, the 2015 Transportation Strategic Plan recommended that the shuttle operate limited service during non-peak weekday and weekend hours, to serve the many Yard tenants that operate 24/7, with multiple shifts throughout the day, and accommodate off-peak trips to meetings or during lunch breaks. BNYDC shuttles have provided off peak service throughout the day, between 5am to 10:30pm, since the initial rollout of the shuttle system. BNYDC will explore opportunities for weekend service only if there appears to be sufficient demand created by existing and future developments at the Yard.

Figure 1: Existing Multi-Modal Transportation Network



DUMBO Loop

The DUMBO Loop has a round trip travel time of approximately 24-26 minutes (including passenger pickup/drop-off times) and provides connections to the F and A/C trains. To the west of the Yard, the DUMBO Loop exits the Yard from the Sands Street gate, travels west along York Street via Navy Street and picks up/drops off F train passengers at the corner of York and Jay Streets (directly opposite the York Street

(F) Station entrance).¹ The shuttle then continues west along York Street before turning left at Pearl Street, and left again at Sands Street, where A/C passengers are picked up/dropped off at the existing B67/B69 bus stop (an approximately two-minute walk from the High Street A/C Station). The shuttle then returns to the Yard via Sands Street, entering through the Sands Street gate.

Within the Yard, the DUMBO Loop travels from the Sands Street gate to Building 292 with five stops within the Yard that are within a five-minute walk of all Yard buildings: at Sands Street; at 5th Street; at Market Street; at Kay Avenue; and at Railroad Avenue (inbound) and Gee Avenue (outbound) (see **Figure 1**). The Sands Street, 5th Street, and Market Street shuttle stops are served in both the eastbound (inbound) and westbound (outbound) directions.

Atlantic Terminal Loop

The Atlantic Terminal Loop is a 27-minute round-trip shuttle loop that provides connections from the Yard to the 2/3/4/5, B/D, N/Q/R, G, and C trains, as well as the LIRR. From the Sands Street gate, the Atlantic Terminal Loop travels south on Navy Street into Ashland Place, east on Fulton Street, and east on Lafayette Avenue, and north on Clinton Avenue, before returning to the Yard via the Clinton Avenue gate. The route includes two out-of-Yard stops serving the Clinton-Washington (G) Station (at Clinton/DeKalb and Clinton/Lafayette) and one stop located at St. Felix Street and Lafayette Avenue, a two-minute walk from the Atlantic Avenue-Barclays Center 2/3/4/5, B/D, N/Q/R, and LIRR Station complex, the Fulton Street (G) Station, and the Lafayette (C) Station. The two (G) stops were designed to minimize travel times to/from the Yard to this priority subway route, with shuttle riders traveling from the Yard disembarking at Clinton/DeKalb (a one-minute walk from the Clinton-Washington G Station) and shuttle riders traveling to the Yard boarding directly adjacent to the station (at Clinton/Lafayette). The Atlantic Terminal Loop includes in-Yard pickups/drop-offs at four locations (Clinton Avenue gate, Market Street westbound, 5th Street westbound, Sands Street westbound).

Improved Alternate Transit Connections

While the shuttle plays a key role in improving access to the Yard and encouraging greater transit use, additional transit connections have been implemented as part of the TDM strategies at BNY, as detailed below.

Ferry Connections

One of the key assets of the Yard is its waterfront location. A ferry landing was added adjacent to Building 72 (between Dry Docks 2 and 3), and BNY was added as a stop on the Astoria route of the City's East River Ferry. This ferry connection has substantially increased public transit rider choices for the Yard.

Autonomous Vehicles

Launched in August 2019, BNYDC entered into a Pilot Agreement with Optimus Ride to provide free autonomous vehicle service to transport primarily non-BNY ID holders between the ferry landing and public access points along Flushing Avenue including Building 77 and the Cumberland Street Gate.



¹ It should be noted that due to current construction on York Street, the DUMBO Loop shuttle has been temporarily rerouted to depart the Yard through Sands Street, continue up Sands Street and drop off F train riders on Sands Street before turning in front of the bridge, then stopping on the southern side of Sands Street to pick up/drop off A/C train passengers before heading back into the Sands gate. This rerouted loop has been in effect for the past 1.5 years, but the original route is expected to resume in the next few months.

Bike Facilities

Approximately 154 bicycle parking spaces are located within the Navy Yard in outdoor facilities. Currently, only Building 77 has an indoor bicycle facility which is not as well used as the exterior bike parking facilities. For any new outdoor bike parking facilities installed at the Yard, consideration will be given to the placement and security of such facilities so that they are in highly visible locations that can be monitored by BNY security staff and exterior mounted cameras.



At present, there are three Citi-Bike stations located within the Yard and an additional five stations are located along the perimeter. BNYDC is currently working with Citi Bike to enlarge certain interior stations and add a couple of additional stations as part of Citi Bike's infill project that aims to increase facilities where there is strong and growing demand for Citi Bike infrastructure. To encourage Citi Bike ridership, Citi Bike worked with BNYDC to develop a bespoke BNY Citi Bike Membership which launched on August 1, 2016 that allows for a significantly reduced annual membership cost for tenants that includes a cost-sharing program between tenants and employees.

The Brooklyn Waterfront Greenway currently extends along the Kent Avenue and Flushing Avenue frontages of the Yard. There are also conventional bike lanes striped adjacent to the Flushing Avenue and Navy Street frontages. In addition, a bike network has been created within the Yard to provide connectivity to the existing bike network along the perimeter.

Yard Parking

There are approximately 3,040 accessory surface parking spaces in the Yard which includes 2017 spaces across the campus and 1023 spaces within Steiner Studios, which has separately controlled access. Additionally, the 303 Sands Street building on the western side of the Yard, adjacent to the Sands Street Gate, contains 460 parking spaces. During working hours half of these spaces are available to Yard tenants, while the other half serve Admirals Row visitors. Parking in the Yard is provided to parking pass-holders and visitors on a first-come, first-served basis. The existing parking supply exceeds the existing parking demand: on an average weekday (January 2020) approximately 1,570 vehicles enter through the Yard's gates; post COVID-19, this number dropped to approximately 1,340 vehicles per day.

The oversupply of parking is likely due to TDM strategies implemented by BNYDC that simultaneously enhanced transit access and increased monthly parking permit fees. BNYDC will periodically reevaluate the cost of parking in consideration of actual parking permit demand, changes in transit costs, and inflation.

EFFECT OF TDM STRATEGIES IMPLEMENTED TO DATE

TDM strategies that have been implemented at the Yard to date, as described above, have already had a measurable effect in reducing auto dependence and encouraging the use of sustainable transportation options, as discussed below.

Shift from Auto to Other Modes

As shown in Table 2 below, implementation of the TDM strategies discussed above has resulted in a reduction in the percentage of auto trips to the Yard, and a shift to other modes of transportation, such as subway, ferry, and bike. It has also allowed for growth in Yard employees who are now able to commute to the Yard from farther away. For example, it is now possible to travel to the Yard from New Jersey via the NYC Ferry from Lower Manhattan, allowing for a wider distribution.

Table 2: Comparison of Travel Mode Choice Before and After TDM Implementation

Mode	2015 Surveys (Pre-TDMs)		2019 Surveys (Post-TDMs)	
	Overall BNY	Manufacturing / Traditional Uses	Overall BNY	Manufacturing / Traditional Uses
Auto	37.3%	36.0%	22.0%	32.7%
Taxi	1.1%	1.5%	2.8%	3.6%
Subway/Railroad	25.2%	27.2%	39.7%	43.6%
Bus	14.7%	10.3%	9.2%	5.5%
Ferry	--	--	2.1%	3.6%
Walk/Bike	21.7%	25%	24.1%	10.9%

Based on PHA Employee Surveys of BNY employees in April 2015, October and November 2019.

Higher Shuttle Ridership

Based on data collected by BNYDC, the existing shuttle service has around 7,000 unique riders per year, with 204,959 total rides in 2018, and 341,205 total rides in 2019. This represents a 66% increase in shuttle ridership from 2018 to 2019. Average daily shuttle ridership was approximately 902 in early 2020, which means of the people who did not arrive by private autos, an average of 43% utilized the BNY shuttle.

The increase in shuttle ridership is likely due to several key factors and implemented TDM strategies, including (1) increased number of employees in the Yard, (2) increased service, which resulted in shorter wait times, and (3) increased parking rate, from \$50/month to \$125/month. This increase in shuttle ridership is commensurate with the increase in the percentage of trips by subway, which is illustrated in Table 2.

Ferry service

Ferry ridership has experience steady increase at BNY since it launched on May 20, 2019. In early 2020, the BNY ferry stop had an average of 473 daily rides, although it should be noted that ferry ridership typically increases during warmer weather months. Data collected by BNYDC in early 2020 indicate that approximately 12% of ferry riders utilizing the BNY Ferry stop are Yard employees.

Parking

Approximately 2,017 parking spaces are currently available at the Yard, not including the 1023 spaces within Steiner Studios. Data collected by BNYDC in early 2020 (pre-pandemic) indicate that up to approximately 1,600 surface parking spaces were used daily, for a parking utilization rate of approximately 80%, exclusive of spaces within Steiner Studios. In addition, approximately 3,470 vehicles entered the Yard on an average weekday in 2015, as compared to the 1,570 vehicles entering on an average weekday in January 2020. This 55% reduction in vehicles can be attributed to the availability of alternate modes of transportation and the implementation of the aforementioned TDM strategies.

TDM Reporting Requirements and Compliance

BNYDC will collect data relevant to the TDM on an annual basis, starting in 2022. Data will be collected and updated using surveys or other data collection technology to document changes in parking levels, modes of arrival, transit options, and new technologies and strategies for managing the number of private vehicles accessing the Special Brooklyn Navy Yard District. Every three years, BNYDC will make the data available to the public via a website and will file the BNY TDM Plan with the Department of City Planning (DCP).

Reporting would specifically include the following information:

- Existing parking within the Special District;
- Parking utilization rates;
- Plans, if any, for additional parking within the Special District;
- Average daily employees and visitors to BNY (weekday and weekend);
- Transportation mode choice;
- Public transportation options in and around the Special District;
- Indoor and outdoor bicycle parking facilities, including any covered outdoor bicycle spaces, and utilization rates;
- Measures being employed and planned to incentivize alternate means of transportation; and
- Summary of updates on TDM strategies and successes

After each three-year reporting period, BNYDC will provide DCP with an affidavit confirming it has been keeping up with the TDM and expects that the TDM strategies would continue going forward.

Summary

The TDM strategies currently being implemented have been effective at reducing single occupancy vehicle usage at the Yard. Between 2015 and 2019, there was a 41% decrease in auto usage compared to an increase of 57% in subway usage. Likely, the increase in subway ridership was a direct result of the implementation of the BNY last-mile shuttle system, as well as the other TDM strategies employed at the Yard. Given this level of success, over the next three years, or until a major new development changes the conditions, this TDM Plan will be the appropriate plan going forward.

Summary of 2022 Transportation Survey

The implementation of TDM strategies continues to drive a shift in preferred modes of transportation away from single occupancy automobiles. A transportation survey conducted in 2022 revealed the preferred modal options of Yard employees and of the 14% of respondents that never use the BNY shuttle system:

- 64% preferred BNY Shuttle
- 57% preferred MTA
- 31% preferred walking
- 24% preferred biking
- 26% preferred driving by single occupancy vehicle
- 7% preferred the Ferry
- 4% preferred other modes of transportation

2022 marked a return for many Yard businesses to an in-person business model, clearly indicated by the increase in usage across all modal options. The increase in Yard population as we continue to emerge from the pandemic will inform us on the effectiveness of the TDM plan strategies as it seemingly remains the appropriate plan of action as we enter 2023.