PRINCETON NURSERIES

GENERAL DEVELOPMENT PLAN

Approved by the Township of Plainsboro Planning Board
September 21, 2020

PRINCETON UNIVERSITY

Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Development Application

July 2020

Applicant	The Trustees of Princeton University
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Application Report

General Development Plan For Princeton Nurseries

Block 102, Lots 5 and 6, and Block 106, Lot 1
Township of Plainsboro
Middlesex County, New Jersey

Submitted by:
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c/o Princeton Forrestal Center
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July 31, 2020

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I. Introduction

This report accompanies an application for General Development Plan (hereafter "GDP") approval that has been submitted by The Trustees of Princeton University (hereafter "Princeton University" or "the University") to the Township of Plainsboro (hereafter "Plainsboro" or "the Township") under the requirements of the New Jersey Municipal Land Use Law (MLUL) at N.J.S.A. 40:55D-45.1 et seq. and Article XVI of Chapter 85, *Subdivision and Site Plan Review*, of the Township of Plainsboro code. The subject lands of this GDP application are designated as Block 102, Lots 5 and 6, and Block 106, Lot 1, on the Tax Maps of the Township of Plainsboro, a tract consisting of ±109 acres that is referred to as the proposed Princeton Nurseries development site (hereafter "Nurseries site") throughout this document. The Nurseries site is located in PMUD Planned Unit Development Zone (hereafter "PMUD Zone").

This application proposes the design and development of the Princeton Nurseries site as a walkable, integrated mixed-use neighborhood development with a strong sense of place, defined by a "Main Street"-style commercial component, varied housing opportunities, modern office environments and vibrant civic and open spaces.

The Nurseries site is located within Princeton Forrestal Center, Princeton University's corporate office and research campus. This quintessential master planned multi-use development consists of 2,200 acres within Plainsboro and South Brunswick Township. The Plainsboro lands within Princeton Forrestal Center include 1,804 acres and represent roughly one-quarter of Plainsboro's land area.

Today, the Plainsboro lands within the Princeton Forrestal Center are an economic powerhouse in the region, with approximately 10 million square feet of built development effectuating an annual $7.3-billion-dollar economic impact. These Plainsboro lands feature over 500 acres of managed open space and recreation lands intertwined with academic, research, office, residential, hotel, conference center and retail uses. Currently these Plainsboro lands are home to over 225 for-profit and not-for-profit corporations and attracts some of the most prestigious companies in the world, many of which have chosen to locate their North American corporate headquarters in Plainsboro. The appeal of the Plainsboro lands within Princeton Forrestal Center is the result of the collective energy and wisdom of developer Princeton University and the leadership of host community Plainsboro.

Princeton University is looking to maintain and strengthen Princeton Forrestal Center's appeal by leveraging the yet-to-be realized development potential of the Nurseries site. The project, once developed, is envisioned as a catalyst for Princeton Forrestal Center's continued success by creating a neighborhood that offers a sense of place fueled by shopping, dining and entertainment options; integrated and activated open space; new and varied housing choices; and vibrant gathering places for events, while providing an ongoing contribution to Plainsboro's fiscal health.

More specifically, the retail component is envisioned as an "experiential" entertainment-oriented outdoor retail center of significant scale, to include a variety of dining opportunities, specialty food stores, unique retail shops, a hotel and similar elements. This retail, dining and entertainment element will be a unique destination shopping experience offering desirable community amenities

while drawing guests from the larger region. The office component is envisioned as a combination of small "creative" office spaces and larger office structures capable of accommodating a continuum of corporate, innovation and professional office requirements. Some office space will be stacked directly over the street level retail, offering immediate access to the commercial main street amenities. Residential diversity is envisioned as achievable through compact neighborhoods with flexible lot dimensions, offering a mixture of rental and for-sale residential opportunities such as single-family homes, townhomes, manor homes, and apartment structures. Some multi-family residences will be stacked directly over the street level retail, offering direct access to the commercial main street. Residences will be offered at a number of price points and will include an age-restricted element and an affordable housing element.

Approvals Requested

Per the definitions set forth in the MLUL at N.J.S.A. 40:55D-4 and the Township Code at §85-4, a GDP provides a comprehensive plan for the development of a "planned development" as defined by the MLUL, including planned unit development, planned unit residential development, contiguous cluster or noncontiguous cluster, planned commercial development or planned industrial development. The Nurseries site is located in Plainsboro's PMUD Planned Unit Development Zone and measures over 100 acres; as such, it is eligible as the subject of an application for GDP approval.

In accordance with §85-70.5 of the Township Code and N.J.S.A. 40:55D-45.1b, the University requests that the term of the effect of this GDP approval be 20 years. Due to the complex nature of the proposed integrated mixed-use neighborhood development, the University requests a waiver from the time requirements of §85 70.9(C) of the Township Code, where the first preliminary site plan approval under this GDP may be permitted to be subsequent to the five (5) year period following a GDP approval (see *Appendix D, Developer's Agreement)*.

The following report and its exhibits and appendices provide background information related to the proposed development, in accordance with material required by Plainsboro's ordinance as part of the submission of a GDP application.

II. Land Use History

The Nurseries site is comprised of a ±109-acre portion of Princeton Forrestal Center. The Nurseries site is generally bounded by U.S. Route 1 to the east; College Road West and Seminary Drive to the south; Barclay Square at Princeton Forrestal to the west; and Plainsboro Township's municipal boundary with South Brunswick to the north. The future development of the Nurseries site as set forth in this document is part of a larger development tract that also includes ±162 acres of contiguous properties in South Brunswick Township, all of which are presently owned by the Applicant. The total larger development tract area within both municipalities encompasses ±271 acres.

General Development Plan History

In 1951, Princeton University acquired the 825-acre former Rockefeller Institute for Medical Research facility and renamed the property Forrestal Campus in honor of James Forrestal, the first United States Secretary of Defense and member of the Princeton Class of 1915. Between 1957 and 1972, the University acquired additional lands in the vicinity, and in 1973, Princeton University announced further expansion of their operations beyond the boundaries of the Forrestal Campus through the creation of Princeton Forrestal Center. Through the remainder of the 1970s and 1980s, Princeton Forrestal Center continued to expand its land base until its final acquisition in 1986 of 488 acres of property from Princeton Nurseries in Plainsboro and South Brunswick. Today, Princeton Forrestal Center encompasses ±2,200 acres in area, of which 1,804 acres are located within Plainsboro's PMUD Zone.

The Princeton Forrestal Center initially received "tentative approval" from the Township of Plainsboro Planning Board in 1975 as a "Planned Multi-Use Development." The overall development area consisted of ±1,600 acres of land within Plainsboro, on either side of U.S. Route 1. The ordinance adopting the present-day PMUD Zone was enacted by the Township pursuant to the Municipal Planned Unit Development Act of 1967 (N.J.S.A. 40:55-54), a precursor to development of the MLUL. This "tentative approval" laid out the framework for development of Princeton Forrestal Center through the 1980s and 1990s. The tentative Planned Multi-Use Development Approval, which extended until December 31, 1999, was later translated into the GDP approval per a 1987 amendment to the MLUL.

Development on the former Princeton Nurseries lands was initially approved as part of the overall Princeton Forrestal Center development in 1987 following the University's acquisition of the properties. In anticipation of the initial vesting period's 1999 expiration, a GDP application was submitted and approved in 1999 (hereafter "1999 GDP") to focus on seven specific sites within Princeton Forrestal Center that either had not received or not acted upon the vested rights of the prior approvals, including the former Princeton Nurseries lands.

The property identified as "Princeton Nurseries" in the 1999 GDP consisted of ±169 acres and included the future Barclay Square at Princeton Forrestal development site and lands west of Mapleton Road in addition to the ±109 acres that are part of this application. The development program for "Princeton Nurseries" in the 1999 GDP contemplated up to 2.0 million square feet of office/research uses, including up to 100,000 square feet of retail/commercial uses, and up to

221 dwelling units. Additionally, all land west of Mapleton Road except for one single-family dwelling was preserved as permanent open space as part of the development program. The vested rights granted by the 1999 GDP expired on August 15, 2019.

At the time of the expiration of the 1999 GDP, the Nurseries site, Forrestal Campus, and undeveloped lots along College Road East and Research Way remained the only sites included in the 1999 GDP that had not yet been developed per their vested rights. Under this GDP application, the Applicant is proposing a new development program for the Nurseries site under the recently adopted amendment to the PMUD Zone that permits an integrated mixed-use neighborhood development. In light of the new, unique development envisioned for the Nurseries site, this GDP is proposed independently from the GDP for Forrestal Campus, which was approved by the Township Planning Board by Resolution Number P19-13 on October 21, 2019 and extends the same vested development rights per the 1999 GDP for the Forrestal Campus and undeveloped lots along College Road East and Research Way.

At present, the construction of 221 dwelling units contemplated for the Nurseries site by the 1999 GDP has been fulfilled through the construction of the 220-unit Barclay Square at Princeton Forrestal multi-family residential development and the retention of one existing single-family residential dwelling on the west side of Mapleton Road. The remaining land west of Mapleton Road has been preserved as open space in conjunction with the State of New Jersey's Green Acres program. As such, these properties are not considered as part of this GDP application, reducing the size of the present Nurseries site to ±109 acres.

Master Plan and Ordinance Amendments

Since its original adoption in the 1970s, the use and bulk requirements of the PMUD Zone have been periodically amended to facilitate the continuing success of development within the district by permitting new principal and accessory uses or amending the bulk standards of the zone, while retaining the overall holistic balance of land uses and open space within Princeton Forrestal Center. On December 16, 2019, the Township Planning Board adopted a new Master Plan Amendment recommending amending the Township Zoning Ordinance to permit an integrated mixed-use neighborhood development on the Princeton Nurseries site in the PMUD Zone, which would contain residential and nonresidential uses within a walkable, amenity-rich environment that includes an abundance of open space, pedestrian amenities (e.g., walkways and streetscape improvements), and building and site improvements that create a distinctive, pedestrian-oriented environment. In accordance with this recommendation, amendments to Chapters 85 and 101 of the Township Code were adopted on March 11, 2020.

Chapter 101-137Q of the Township Zoning Ordinance (Article XII, PMUD Planned Unit Development Regulations) permits an integrated mixed-use neighborhood development on a tract measuring at least 100 acres and located west of U.S. Route 1. An integrated mixed-use neighborhood development will contain open space areas (including common open space, plazas or squares, and public areas); recreational uses (indoor and/or outdoor); retail sales and services; a mix of residential uses (including single-family and townhouse dwellings, multi-family dwellings, affordable housing units, and age-restricted housing providing living accommodations for adults

55 years of age or older or for couples, one of whom is at least 55 years of age, or as otherwise permitted by state and federal laws for age-restricted housing); and a mix of non-residential uses such as personal services, banks and financial service establishments, restaurants, eating and drinking establishments, theaters, performance and arts facilities, entertainment, hotel, offices, health and fitness facilities, educational and research uses, and other complementary business or commercial uses. Integrated mixed-use neighborhood developments may also include child-care centers pursuant to §101-65.F, §101-13.4, and §101-25F of the Township Code, as applicable; family day-care homes; home occupations and professional offices pursuant to §101-13.5 of the Township Code; and accessory uses and buildings customary and incidental to any and all of the permitted principal uses referenced herein.

Permitted uses may be located in vertical mixed-use buildings (combining different residential and/or non-residential uses in the same building), single-use buildings, horizontal mixed-use buildings (combining vertical mixed-use buildings and single-use buildings on distinct parcels in a range of residential and/or non-residential uses), or any combination thereof. The utilization of outdoor space(s) as places of assembly, dining, shopping and/or special events shall be specifically permitted. The overall tract comprising the integrated mixed-use development may be subdivided into multiple parcels under separate ownerships, the entirety of which shall be referred to and function as an "integrated mixed-use neighborhood development."

In order to accommodate the unique nature of an integrated mixed-use neighborhood development within the overall context of Princeton Forrestal Center, certain other requirements of Chapter 101, Article XII were amended as adopted on March 11, 2020. Due to the planned nature of the integrated mixed-use neighborhood development, it offers a comprehensive use program and open space plan that will complement the existing and proposed surrounding development within Princeton Forrestal Center and the overall PMUD Zone without disturbing the balance of uses and open space that are set forth in the Township Code.

In light of these amendments, this GDP application is submitted as a proposal for an integrated mixed-use neighborhood development that meets all requirements for this use.

III. Existing Conditions

The Nurseries site is an undeveloped parcel, though significant infrastructure improvements have been installed to facilitate future development. Existing physical conditions on the Nurseries site and surrounding areas are depicted in *Exhibit A: Orientation Plan* and *Exhibit B: Reference Plan*. The lands comprising the Nurseries site have generally level topography, ranging in elevation from 78 feet to 122 feet. Wetlands are present and delineated in the northeastern portion of the Nurseries site adjacent to a tributary of the Heathcote Brook, locally known as Harry's Brook.

Utility and transportation infrastructure comprise the majority of the existing man-made features on the Nurseries site. The Applicant has constructed complete utility infrastructure along College Road West and Seminary Drive, including utility stubs that extend into the Nurseries site in anticipation of future development. The College Road West and Seminary Drive intersection has been realigned and widened, including the construction of a fourth roadway leg extending into the Nurseries site. Infrastructure completed in the vicinity of Harry's Brook include a roadway crossing and associated approaches to allow for a future connection to U.S. Route 1 at Independence Way.

There is existing storm sewer infrastructure in place, including conveyance piping, stormwater outfalls into the Harry's Brook stream corridor, stormwater management facilities associated with the adjacent roadways. Further, a sanitary sewer line known as the Harry's Brook Trunk Sewer has been installed on the east side of Harry's Brook to serve the Nurseries site. A sanitary sewer pumping station and associated force main are existing in the northwest corner of the Nurseries site, adjacent to Barclay Square at Princeton Forrestal, which serve that property and the Nurseries site and connect into the Harry's Brook Trunk Sewer.

Land uses in the vicinity of the Nurseries site are diverse in nature and include office, research, commercial, residential and open space tracts. Office and research uses within Princeton Forrestal Center are predominately located to the east across U.S. Route 1; however roughly 650,000 square feet of existing Class A office product is located within Princeton Forrestal Village, a mixed-commercial development, and Village South (100 and 150 College Road West) to the south of the Nurseries site across College Road West. Atrium Senior Living of Princeton, Atrium Post-Acute Care of Princeton and the Princeton Windrows retirement community are also located to the south. Barclay Square at Princeton Forrestal, a multi-family residential development, is located to the west. The Wilberforce School, the French-American School of Princeton, and Princeton Abbey and Cemetery are located further west, south of Seminary Drive and east of Mapleton Road. Open space associated with Princeton Forrestal Center is located adjacent to Delaware and Raritan Canal State Park to the west of the Nurseries site across Mapleton Road and to the north in South Brunswick Township. Additional publicly owned open space areas and developable lands owned by the Applicant are also located to the north. Corporate office and research uses are located across U.S. Route 1 to the east and southeast on College Road West and within South Brunswick to the northeast on Independence Way.

IV. Proposed Development for the Princeton Nurseries Site

The properties that comprise the Nurseries site are located within Plainsboro's PMUD Zone. The Plainsboro Zoning Ordinance at Chapter 101, Article XII, permits a variety of uses in this district, including offices, research and development, educational, commercial, residential dwellings, public facilities, and open space. The proposed development and all uses contemplated therein are specifically permitted in the PMUD Zone as an integrated mixed-use neighborhood development. This Chapter will set forth the proposed Vision for the Nurseries Site and the General Land Use Plan proposed as part of this GDP application, as well as provide the context for the development of the Nurseries site in relation to existing planning documents.

Vision

The Princeton Nurseries neighborhood will be a walkable and pedestrian friendly integrated mixed-use neighborhood development. It will be curated through thoughtful planning and design to create a high-quality environment that benefits site patrons, residents, and visitors from the surrounding area. The neighborhood will embody live, work, stay and play elements that foster a sense of place including vibrant gathering places for events together with active open spaces and streetscapes that collectively are intertwined with dining and entertainment, destination shopping, modern offices supporting creative and collaborative work environments, and new and varied housing choices. Ultimately, the development of Princeton Nurseries will further cultivate Princeton Forrestal Center's vibrancy and ongoing contribution to the Township's fiscal health.

Guiding Core Principles

In order to realize this Vision, development shall be in accordance with the following seven Guiding Core Principles that have been established as central to the Vision for the Princeton Nurseries Site. Any development of the Nurseries site shall be in accordance with these Guiding Core Principles in order to be considered in compliance with a General Development Plan approval.

- **Main Street**: The Mixed-Use Area of the development should have a distinct "Main Street"-inspired environment, promoting diverse, pedestrian- scale, and continuous ground-level active uses, and organizing back-of-house uses off the street or behind the buildings. Parking may include on-street as well as surface lots, or structured parking behind buildings.
- **Civic Space**: Within the Mixed-Use Area's "Main Street"-inspired environment shall be a central civic space that functions as the heart of the community. It is important to adequately size this civic space to accommodate both informal gatherings and programmed events, as well as to promote the viability of an active downtown shopping and entertainment experience for families, shoppers, diners, workers, visitors, and residents.
- **Street Walls/Public Realm:** The "Street Wall" is a fundamental concept that describes a sense of enclosure in an urban environment. Design guidelines, attached hereto as *Appendix E*, address street and frontage designs to provide a mechanism to ensure buildings work together to reinforce streets, intersections, and define open spaces. Streets are the underlying circulation framework of the public realm, balancing the need for vehicular access and the encouragement of pedestrian-oriented movement. Establishing "street walls" is

important to create a hierarchy of experiences, define areas, reinforce signature spaces, frame views, and make gateways to the surrounding neighborhoods. Together, these experiences should establish a memorable public realm, a sense of place.

- **Residential Neighborhood Orientation**: The residential areas within the development should be oriented to take advantage of civic spaces, open spaces, and surrounding natural resources, and provide convenient and interesting pedestrian access to the Mixed-Use Area. Houses should reinforce and activate the streets and neighborhood parks and where necessary, shield the backs of commercial buildings, alleys, garages, and parking fields to the extent possible. This will maximize quality of life, value, and a sense of community.
- **Strategic Open Spaces**: The Princeton Nurseries neighborhood should provide a legible network of open spaces throughout the site in a meaningful and logical way that protects conservation areas, provides a sense of orientation, and maximizes the value to residents, workers, and visitors.
- **Parking Zones:** In addition to the on-street parking within Princeton Nurseries, Parking Zones should be established in a clear and logical manner to support the commercial environment and be buffered from adjacent residential neighborhoods. Parking should be planned to allow for future buildings and structured parking utilizing "liner" buildings and/or landscape elements to "screen" the parking, as practical.
- **Two Crossings**: It is essential that circulation in the Princeton Nurseries neighborhood be planned around and make use of two existing routes across the Harry's Brook corridor, to serve as primary and secondary crossings to make vital vehicular, bicycle, and pedestrian connections to future development in neighboring South Brunswick. Coordination of compatible uses must be pursued with Plainsboro and South Brunswick as the nature of the secondary (southern) crossing evolves.

General Land Use Plan

The General Land Use Plan proposed herein provides the framework for an integrated mixed-use neighborhood development on the Princeton Nurseries site that meets the Vision and Guiding Core Principles, in accordance with the Township's Master Plan and as permitted under the Township Zoning Ordinance. The Land Use Plan proposed as part of this GDP application represents a continuation of the high-quality planned development that has occurred within Princeton Forrestal Center over the past 45 years, which includes significant research and development entities and academic and support uses connected to both the University and the overall community. The proposed development will continue this focus on a mix of uses that will continue to provide a stable economic base for Plainsboro and provide rich amenities and attractions for the community, while preserving open space and environmentally sensitive areas.

This GDP proposes the following land uses for the Nurseries site:

Non-Residential Uses

The Township Code at §101-140C sets forth the requirements for maximum permitted non-residential floor area within an integrated mixed-use neighborhood development. The baseline

development for the Nurseries site shall consist of 605,000 square feet of total non-residential floor area, including retail space (inclusive of restaurant, entertainment, and personal service uses); office space; and hotel space. This baseline development program is proposed in accordance with §101-140C(1) of the Township Code.

In accordance with §101-140C(2) of the Township Code, an applicant may request an increase in the maximum allowable non-residential floor area for the Nurseries site at the time of site plan approval. In this case, the Planning Board may increase the allowable total to a maximum of 745,000 square feet, including retail space (inclusive of restaurant, entertainment, and personal service uses); office space; and hotel space, provided it first finds that any adverse fiscal, parking or traffic impacts to the Township resulting from the increase can be adequately mitigated by site plan design and/or improvements. The Planning Board must also find that the increase in floor area will have a demonstrated contribution to the economic vitality of the overall development project. Additional supporting documents shall be submitted at the time of site plan approval in order to demonstrate how these criteria would be met.

Office/Research

A baseline maximum of 220,000 square feet of office and/or research space shall be allowed on the Nurseries site under this GDP. If the Planning Board increases the allowable total non-residential floor area at the time of site plan approval, an increased maximum of 300,000 square feet of office and/or research space shall be allowed. The specific forms and locations of office and/or research uses will be provided during the site plan approval process.

Retail

A baseline maximum of 310,000 square feet of retail floor area (encompassing a variety of retail sales and service, restaurant, and/or entertainment uses) will be constructed on the Nurseries site under this GDP. If the Planning Board increases the allowable total non-residential floor area at the time of site plan approval, an increased maximum of 370,000 square feet of retail space shall be allowed. The specific forms and locations of retail, restaurant, and/or entertainment uses will be provided during the site plan approval process. "Retail space" shall be deemed to include all commercial uses except for the permitted office and hotel uses.

Hotel

A maximum of 75,000 square feet of hotel space with up to 125 rooms will be constructed on the Nurseries site. The specific forms and locations of hotel uses will be provided during the site plan approval process. Any retail, restaurant, and personal services portions of the hotel may be considered part of the permitted retail floor area for the development.

Residential Uses

A maximum of 950 residential units can be constructed on the Nurseries site. Any residential construction in excess of 750 units will consist of age-restricted units built in accordance with state and federal regulations. No more than 200 age-restricted units may be constructed on the site. Of the 200 age-restricted units, a minimum of 50 units will be for-sale units. For all

non-age-restricted units (up to 750 units), a minimum of 350 units will be available for purchase. A healthy mix of residential typologies is expected and may include various types of townhouses, apartments, manor homes or single-family detached residences. No more than 31 single-family detached residences are permitted to be constructed, which will be limited to a maximum of 3 bedrooms. Affordable housing units shall be set aside at a number equal to 12.7% of the non-age restricted component (e.g., at full buildout of 750 non-age restricted units, 96 affordable housing units will be provided). Affordable housing will be provided in accordance with the regulations of the New Jersey Fair Housing Act and the Uniform Housing Affordability Controls as set forth under N.J.A.C. 5:80-26.1 et seq. In accordance with §101-139C of the Township Code, non-age restricted units shall not exceed a gross density of 7 dwelling units per acre or 750 units, whichever is lower, and age-restricted units shall not exceed a gross density of 2.0 units per acre or 200 units, whichever is lower.

Land Use Areas

In order to realize the Vision for the Nurseries site – while sensitively and respectfully integrating the development with existing land uses and infrastructure in the vicinity of the Nurseries site – the Applicant is proposing a land use concept based on three (3) types of Land Use Areas that will be differentiated by their location, allowable uses, and physical form.

The Land Use Areas are conceptually depicted on *Exhibit C: Land Use Plan*. The Land Use Areas proposed are as follows:

- **Residential Area**

  There shall be two Residential Areas, one adjacent to the western boundary of the Nurseries site and one in the eastern portion of the property adjacent to U.S. Route 1. All types of residential uses are permitted in the Residential Area. Non-residential uses, including retail, hotel, and office, shall not be allowed in the Residential Area. Portions of the Residential Areas may also consist of open space, including environmentally constrained lands.

- **Mixed-Use Area**

  There shall be a single Mixed-Use Area that is centrally located within the Nurseries site. The Mixed-Use Area shall allow all uses permitted in the integrated mixed-use neighborhood development, including open space, but does not permit single-family detached residences or manor houses.

- **Flex Area**

  There shall be two Flex Areas, each located between the Mixed-Use Area and a Residential Area. The Flex Areas shall allow all uses permitted in the integrated mixed-use neighborhood development, including open space, but does not permit single-family detached residences. The Flex Areas are intended to provide transitions of building mass, height, density and land uses between the Residential Areas and the Mixed-Use Area.

The exact boundaries of the Land Use Areas will be determined at the time of site plan approval. A table of permitted uses in each of the Land Use Areas is included as Exhibit B within *Appendix D, Draft Developer's Agreement*.

The three Illustrative Examples depicted in *Exhibit I* provide layouts that represent how a variety of design alternatives may be conceptualized for the Nurseries site in accordance with the Township Zoning Ordinance and the Vision and Guiding Core Principles set forth in this Application and in the Design Guidelines. These concepts are intended to be illustrative examples only and not final master plans. Other planning alternatives are acceptable provided they are in accordance with the design principles articulated in the Design Guidelines, which may consider variations to the location, orientation, layout, and design of the development blocks, street network and hierarchy, land uses, parking, and stormwater management.

All development on the Nurseries site will be subject to Design Guidelines attached hereto as *Appendix E*. The Design Guidelines are intended to serve as a framework for the development of the Nurseries site by encouraging creativity in maintaining the desired level of aesthetic and functional quality within the physical environment. The Design Guidelines will address the design, layout, and planning of Nurseries site features, including but not limited to building typologies, architecture, circulation, open space & landscaping, and public art and signage. The Design Guidelines are not a regulatory document, but are intended to provide guidance and context for the development of the site in accordance with the Nurseries site Vision, outside the requirements contained in the Township Zoning and Subdivision and Site Plan Review regulations.

The U.S. Route 1 and College Road West right-of-way frontages are strategically important for site visibility to achieve the shared project Vision for the Nurseries site. The placement of attractive viewsheds and signage adjacent to these frontages will allow for site identification and provide wayfinding from major roadways. Details such as exact size, location, design, color, texture, lighting and materials of signage located in this area will be considered by the Planning Board on a case-by-case basis in association with a site plan, pursuant to the evaluation standards and criteria in §101-142 of the Township Zoning Ordinance.

Relationship to State and Local Planning Goals

Per the Plainsboro Master Plan, adopted in January 2009 and amended through December 16, 2019, the Township has sought to "promote policies that support smart growth and compact development patterns," aligning with the goals of the State Development and Redevelopment Plan ("State Plan") and the State Plan Policy Map ("State Plan Map"). Plainsboro has actively participated in the State planning process and was granted Initial Plan Endorsement in 2006. Through this process, the Township confirmed that their planning goals and existing land use patterns were reflected in the State Plan and State Plan Map. As it had previously been targeted for development under the 1999 GDP, the Nurseries site is located within the Suburban Planning Area ("PA2") as designed on the State Plan Map. The intent of PA2 is to serve as the location for much of the state's future development in a manner that promotes compact development and reverses the trend towards further sprawl. As a result, PA2 is one of the State Plan's designated Smart Growth Areas, or areas in which such development is encouraged to be directed.

The principles of smart growth serve to balance growth in communities by promoting development that provides a clustered mix of land uses in a compact environment; creates a range of housing choices, including age-restricted and affordable housing opportunities; fosters communities with a strong sense of place; directs development towards sites with existing infrastructure; and preserves critical environmental areas. The proposed integrated mixed-use neighborhood development envisioned for the Nurseries site incorporates these principles to create a true walkable, mixed-use development on a site that is fully tied into existing infrastructure, while preserving environmentally sensitive areas. The designation of the Nurseries site within PA2 further demonstrates its specific suitability for development utilizing a smart growth-guided approach.

Following the principles of smart growth, the integrated mixed-use neighborhood development proposed for the Nurseries site includes a unique commercial-residential environment with civic elements, a number of employment opportunities, the ability to leverage the benefits of shared parking and diverse housing typologies that will provide market, affordable and age-restricted housing and offer options for renters and homeowners. The Nurseries site will connect to Princeton Forrestal Center and existing communities within Plainsboro via the utility and roadway infrastructure that is already in place in the vicinity of the Nurseries site. New transportation opportunities and connections will also be provided via proposed shuttle service, bike sharing, and connections to existing trails and walkways. Existing stream corridors and wetlands within the Nurseries site will be sensitively preserved away from the concentrated development elsewhere on the Nurseries site. All of these features align with the principles of smart growth, and are inherent to the proposed plan for the Nurseries site, resulting in a development that will provide the economic, community, and environmental benefits associated with smart growth-guided development, and specifically supports Plainsboro's land use goals and objectives within the framework of the State Plan.

V. Circulation Plan

Access to the Nurseries site will be via two entrances at signalized intersections along College Road West/Seminary Drive. The eastern entrance will be located at College Road West and Seminary Drive at the northern leg of a four-way signalized intersection that has been recently constructed by the Applicant. Presently, the intersection's fourth roadway leg is built and extended into the Nurseries Site. The western entrance will be located at a newly signalized intersection at Seminary Drive and Evergreen Drive. It should be noted that when development occurs on the adjacent lands in South Brunswick, additional access to the Nurseries site will be provided at the existing intersection of Independence Way with U.S. Route 1, where such access and off-site roadway improvements were constructed in accordance with permits that were issued by New Jersey Department of Transportation (NJDOT) in 2002 to accommodate a General Development Plan related to Princeton Forrestal Center lands in South Brunswick Township. On-site circulation is visually depicted in *Exhibit D: Circulation Plan*.

The Applicant has completed a variety of improvements to existing public roadways in Plainsboro in accordance with the requirements of the 1999 GDP for Princeton Forrestal Center, most notably the construction of the College Road overpass over U.S. Route 1; the new four-way signalized intersection at College Road West; and the roadway realignment and signalization at the intersection of Seminary Drive, Mapleton Road and Barclay Boulevard. Additional off-site roadway capacity improvements have been completed along U.S. Route 1, College Road East, Scudders Mill Road, Campus Road, Sayre Drive and Research Way in anticipation of full build-out of the 1999 GDP, including the Nurseries site. Existing and proposed on- and off-site improvements, as well as traffic impacts of the proposed development, are discussed in *Appendix A*, Traffic Impact Study.

Parking for the Nurseries site shall be in accordance with §101-143 of the Township Code, as amended March 11, 2020. In accordance with this section, the number of required parking spaces may be reduced at the time of site plan approval if demonstrated to the satisfaction of the Planning Board through the use of a Shared Parking Analysis that an adequate amount of parking will be provided on the Nurseries site for all proposed uses. The methodology used to calculate the reduced number of parking spaces may take into account the methods recommended in "Shared Parking," published by the Urban Land Institute, or other recognized standards acceptable to the Planning Board.

VI. Open Space Plan

Open space will be provided in accordance with §101-141F of the Township Code. No less than 30% of the overall development tract area for the Nurseries site shall be set aside as open space, including various active, passive and environmentally sensitive uses. This open space program shall consist of conservation areas (e.g. the preservation of environmentally sensitive open space areas) and civic spaces (e.g. neighborhood parks, pocket parks, linear parks, and/or plazas) designed to serve the projected social, recreational, and cultural needs of the community. The general locations of conservation areas, and the requirements for the location for civic spaces, are shown on *Exhibit E: Open Space Plan*. The exact locations and details of open space areas shall be determined at the time of site plan approval.

The proposed plan devotes a minimum of 30% of the overall area of the Nurseries Site to open space. This commitment to providing diverse open spaces opportunities throughout the larger development is in keeping with Princeton Forrestal Center's historic provision of significant tracts of common open space. To date, over 500 acres of the 1,804-acre Princeton Forrestal Center area within Plainsboro Township is devoted to common open space, representing nearly 28% of its land area. The additional acreage proposed within the Nurseries site will raise the total open space area within Princeton Forrestal Center to approximately 30% of its total land area within the Township.

Only individual open space features measuring 1,000 square feet or greater in area shall be included when calculating the required percentage of common open space for the overall tract area. Further, the following types of Conservation Areas and Civic Space areas are proposed:

Conservation Areas

Environmental features of the existing landscape will be protected by providing conservation areas, including special use areas to be used for stormwater management or conservation purposes. Stormwater facilities will be designed as an integral element of the overall landscape design in order to be included as "open space," in accordance with §101-141F(2).

Civic Spaces

The plan for the Nurseries site proposes a series of Civic Spaces, including neighborhood parks, pocket parks, and plazas. At least one Civic Space, measuring at least 1 acre, shall be centrally located to retail uses and function as a major activity area to the surrounding uses. Neighborhood parks shall contain no less than 2 acres in aggregate and will serve the Residential Areas.

Ownership and maintenance of all open space areas will be coordinated by the Applicant throughout the development process, with further details regarding ongoing ownership and maintenance to be determined during the site plan approval process. The Township of Plainsboro will not be responsible for the ownership or maintenance of any open space areas on the Nurseries site.

VII. Utility and Local Service Plan

This Utility and Local Service Plan has been prepared to provide a broad overview of the available infrastructure in the area immediately surrounding, adjacent to and within the Nurseries site. This Plan also outlines potential future infrastructure improvements that will be required to support the build-out of the proposed Nurseries site development. Detailed designs, including exact locations, capacity requirements and sizing of all infrastructure, will be provided as part of the site plan review process. Further information related to utilities and local services is depicted on *Exhibit F: Utility Plan*.

Water System

The Princeton Nurseries site is located in the water franchise area of New Jersey American Water (hereafter "NJAW"). A 24" and an 8" water main run from the South Brunswick/Plainsboro municipal boundary in the southerly direction along Mapleton Road to Seminary Drive and then adjacent to the Nurseries site, where the 2 mains connect. A 12" water main stub for future connection has been established and the 24" water main extends in the northerly direction from the intersection of Seminary Drive and College Road West. The Nurseries site will receive water service through anticipated interconnections to the existing 24" water main in Mapleton Road and College Road West.

The existing water main configuration surrounding the undeveloped Nurseries site exhibits the potential for future connection points to the existing water distribution system. As the Nurseries site is developed, NJAW will be requested to provide adequate potable water and fire protection service in conformance with applicable regulatory requirements.

The exact location, network, capacity and sizing of future water lines will be determined during the site plan approval process. Per current NJAW rules, all future water main extensions will be constructed by NJAW, with costs paid by Princeton Forrestal Center and/or the Nurseries site developer; there will be no cost to the current water customers/residents of Plainsboro.

Water Demand

Subject to confirmation of building use, at the time of consideration, the annual average daily water demand is anticipated at approximately 383,000 gallons per day (GPD) based on the estimated 950 dwelling units and 605,000 square feet of nonresidential floor area. If the maximum allowable nonresidential floor area is increased to 745,000 square feet in accordance with §101-140C(2) of the Township Code and as described in the *General Land Use Plan* section of this application, the annual average daily water demand is anticipated at approximately 400,000 GPD. Daily water demand calculations are shown in Table 1. Per our understanding, adequate capacity is currently available in the NJAW system to support the domestic and fire demands.

Table 1 – Anticipated Average Annual Daily Water Demand for Princeton Nurseries GDP

Baseline Maximum Development

	Quantity	Units	GPD/ Unit	Total Demand (GPD)
Residential	950	Dwellings	320	304,000
Nonresidential	605,000	S.F.		
Office/Research/Retail/Commercial	530,000	S.F.	0.125	66,250
75,000 S.F./125 Room Hotel @ 2 persons/bedroom	250	Persons	50	12,500
			Total	**382,750 GPD**

Increased Maximum Development per §101-140C(2)

	Quantity	Units	GPD/ Unit	Total Demand (GPD)
Residential	950	Dwellings	320	304,000
Nonresidential	745,000	S.F.		
Office/Research/Retail/Commercial	670,000	S.F.	0.125	83,750
75,000 S.F./125 Room Hotel @ 2 persons/bedroom	250	Persons	50	12,500
			Total	**400,250 GPD**

Further information related to water service is depicted on *Exhibit F: Utility Plan*.

Sanitary Sewer

The Nurseries site is within a designated sewer service area. According to Plainsboro's Utility Service Plan, areas in Plainsboro west of U.S. Route 1 are served by the Stony Brook Regional Sewerage Authority (hereafter "SBRSA") via sewer lines through South Brunswick Township. South Brunswick is responsible for the conveyance of the wastewater generated from the Princeton Forrestal Center.

Sewage from the area is conveyed to SBRSA's South Brunswick Sewage Pump Station, located off Basin Street, approximately 450 linear feet west of Mapleton Road. The Pump Station further conveys the sewage to SBRSA's River Road Treatment Plant, located in Princeton Township, for treatment and disposal.

There is an existing pumping station located in the northwest corner of the Nurseries site. This pumping station currently serves the Barclay Square at Princeton Forrestal multi-family residential complex. Future development of the Nurseries site may be able to tie into this pumping station, though the pumping station capacity will need to be confirmed.

The Harry's Brook Trunk Sewer runs approximately parallel with the Harry's Brook, and is located on the northeast side of Harry's Brook. Constructed in 1996 by the Applicant, the Harry's Brook Trunk Sewer eliminated South Brunswick Pumping Station No. 6, which was located in Plainsboro

on the east side of U.S. Route 1, just north of the College Road interchange. The trunk sewer was sized to carry the wastewater flows from the following properties in Plainsboro: Princeton Forrestal Village, the Princeton Nurseries site, properties along College Road East (from the Robert Wood Johnson Foundation through the 300 series of buildings), and the Princeton Plasma Physics Laboratory.

The Harry's Brook Trunk Sewer was additionally sized to carry the wastewater flows from Independence Way and the entire developable area of Princeton Forrestal Center in South Brunswick. Note that sewage flows from South Brunswick's Pumping Station No. 11 also discharge into the College Road Collection System. Wastewater flows from the US Homes development (a.k.a. Princeton Collection) located on Parker Road off Schalks Crossing Road in Plainsboro were later rerouted into Station 11 and then ultimately through the Harry's Brook Trunk Sewer. Approximately 500 LF of the southernmost portion of the Harry's Brook Trunk Sewer is located on the Nurseries site and is 24" in diameter. The remainder of the Trunk is located on the Applicant's lands in South Brunswick and is 30" in diameter, and discharges into the existing collection system located in Ridge Road.

Appleton Inn Trunk Sewer is located adjacent to the northeastern portion of the Princeton Nurseries lands in South Brunswick Township. Properties currently served by this 8" trunk include the existing hotel sites located on the southbound side of U.S. Route 1. This trunk is approximately 8' deep. Similar to the Harry's Brook Trunk, Appleton Inn Trunk drains into the South Brunswick conveyance system located along Ridge Road. The Ridge Road conveyance system ultimately discharges into SBRSA's South Brunswick Pump Station. This pump station conveys the wastewater to the SBRSA's River Road Treatment Plant.

As the 30" diameter portion of the Harry's Brook Trunk Sewer is approximately 8 feet deep, and the natural grade rises away from the Trunk Sewer, initial research suggests the entire Nurseries site can be provided sewer service by gravity flow piped connections into the Trunk Sewer. It may additionally be possible to connect the northeastern portion of the Nurseries site into the Appleton Inn Trunk Sewer. This will be confirmed during the site plan approval process.

Post-development, assuming that all water projected for consumption at the Nurseries site is released as wastewater, the project will impose an average daily flow of approximately 383,000 of gallons per day at baseline. If the maximum allowable nonresidential floor area is increased in accordance with §101-140C(2) of the Township Code, an average daily flow of approximately 400,000 gallons per day is assumed.

As noted, the wastewater flows from the Nurseries site were included in the Harry's Brook Trunk Sewer design capacity. However, remaining capacities of the existing trunk sewers must be re-verified during the design and site plan approval process of each site.

As advised by SBRSA, both the associated pump station and treatment plant currently have capacity available for the anticipated Nurseries site flows. As proposed development on the Nurseries site is completed, detailed site plans will be prepared which will indicate the exact requirements, connection points and capacity. The necessary infrastructure for the development

will be paid for by the Nurseries site developers and maintained by South Brunswick, at no expense to Plainsboro.

Further information related to sanitary sewer is depicted on *Exhibit F: Utility Plan*.

Electric Power, Gas, and Telecommunications

Public Service Electric and Gas Company (hereafter "PSE&G") currently provides electrical power and natural gas services to Princeton Forrestal Center, inclusive of the Nurseries site. Currently, PSE&G has two operational electrical substations within the vicinity of the Nurseries site which may be used to power future developments. The Penns Neck Substation is located along U.S. Route 1 in West Windsor Township, and the Ridge Road Substation is located adjacent to the Applicant's Princeton Nurseries lands in South Brunswick Township. There are also existing gas main utilities adjacent to the Nurseries site running along Seminary Drive. As the Nurseries site is developed, PSE&G will extend their services to provide sufficient capacity for each site. The cost of the extensions to be installed by PSE&G will be borne by the Nurseries site developer.

Telephone service immediately adjacent to the Nurseries site and its surrounding properties is currently provided by Verizon Communications. In addition to Verizon Communications, Comcast Corporation and other major telecommunication carriers are present in the area and provide fiber optic services to various buildings throughout Princeton Forrestal Center. As each building within the Nurseries site develops, telephone and telecommunication services will be provided by the appropriate utility company. Installation of wireless telecommunication equipment or facilities will be subject to the Township regulations per Article XXII of the Township Code and prioritize use of fifth generation (5G) technology standard for cellular networks or other state-of-the-art wireless technology. Further information related to electric power, gas and telecommunications is depicted on *Exhibit F: Utility Plan*.

Solid Waste Disposal

The existing buildings at Princeton Forrestal Center operate under separate contracts with providers of solid waste disposal services. Future residential and non-residential buildings within the Nurseries site will be served in the same manner. Details of the solid waste disposal services for residential and non-residential buildings will be explained in further detail as appropriate during the site plan review process.

VIII. Stormwater Management Plan

Future development of the Nurseries site will aim to simulate the Nurseries site's natural hydrologic conditions through the implementation of comprehensive stormwater management planning. This integral part of the project will mitigate the impact of development in the vicinity of the Nurseries site and allow the development to comply with state and local stormwater management rules and regulations. All future stormwater management facilities will be consistent with New Jersey Department of Environmental Protection (NJDEP), Plainsboro Township, and Delaware and Raritan Canal Commission stormwater management regulations in effect at the time of the application for site plan approval. Further information related to stormwater management is depicted on *Exhibit G: Stormwater Management Plan*.

Existing Conditions

There are five existing stormwater outfalls within the Nurseries site that were previously constructed to accommodate future development. Three (3) outfalls discharge into Harry's Brook, while the remaining two (2) discharge through the Barclay Square at Princeton Forrestal multi-family residential development. The Nurseries site currently contains four watersheds, summarized below.

- Drainage Area 1 drains to the northwest and captured in the Barclay Square existing storm sewer system that drains off-site to the west of Mapleton Road.
- Drainage Area 2 sheet flows to the northeast and enters Harrys Brook.
- Drainage Area 3 sheet flows to the northeast and enters Harrys Brook.
- Drainage Area 4 sheet flows to the northeast and enters Harrys Brook.

Future Conditions

In addition to the existing outfalls present on the Nurseries site, development of the Nurseries site may require the implementation of additional stormwater management features to comply with regulatory requirements for stormwater quality and management. New stormwater management Best Management Practices (BMPs) such as green infrastructure may play an important role in addressing current stormwater management rules by mitigating impacts to groundwater recharge, water quality, and flood control. Smaller-scale stormwater BMPs may serve to address groundwater recharge and water quality impacts, while larger-scale stormwater BMPs may be utilized to address larger stormwater runoff volume impacts. Examples of smaller-scale BMPs include rain gardens, vegetated swales, dry wells, sand filters and infiltration trenches. Examples of larger-scale BMPs include bio-retention/infiltration basins, constructed wetlands, wet ponds and pervious pavement with subsurface detention.

Implementation of stormwater BMPs will effectively achieve regulatory goals of reducing stormwater runoff volume; reducing erosion; encouraging infiltration and groundwater recharge; reproducing, as closely as possible, the natural hydrologic cycle; and minimizing the discharge of stormwater-related pollutants, such as total suspended solids. Stormwater management measures will ultimately be designed in accordance with applicable regulatory requirements and

may include surface and/or subsurface stormwater BMPs, alone or in combination as may be required.

Stormwater management goals for future development are and will continue to be consistent with the Princeton Forrestal Center Stormwater Management Master Plan. Final designs, capacity requirements and other details for site-specific stormwater management systems will be verified during the site plan review process.

IX. Environmental Inventory

The Environmental Inventory Plan, which accompanies this application as *Exhibit H*, provides a general description of the vegetation, soils, topography, geology, surface hydrology and other relevant features as required by Section 85-70.4(f). Additionally, an Environmental Inventory Report, prepared by Van Note-Harvey Associates, dated February 20, 2020, is provided as *Appendix B*.

X. Community Facilities Plan

This section provides a summary of the proposed scope and type of supporting community facilities associated with the development of the proposed Nurseries site, both as a standalone integrated mixed-use neighborhood development and in its role within Princeton Forrestal Center. The Applicant has already undertaken a variety of community infrastructure and facility improvements in the vicinity of the Nurseries site in anticipation of the proposed development that have had a positive impact on Plainsboro and its residents. As the development on the Nurseries site progresses, the newly proposed facilities will continue to enrich community life within Plainsboro for existing and future residents and employees. Immediate positive impacts to the community will take the form of road improvements, opportunities for expanded and alternative transportation methods, additional amenity base including shopping, food and beverage offerings and a diverse open space network.

Road Improvements

Following the adoption of the 1999 GDP, which included the Nurseries site, the Applicant was required to meet certain conditions regarding off-site traffic and road improvements in order to facilitate development of the Nurseries site. In anticipation of full build-out, the Applicant undertook a major road realignment along College Road West adjacent to the southern perimeter of the Nurseries site, as well as the realignment of Seminary Drive southwest of the Nurseries site, resulting in a signalized intersection that will serve the approach to one of two gateways to the Nurseries site. Other existing and proposed improvements funded and constructed by the Applicant that directly benefit the Nurseries site and the surrounding area in Plainsboro include the existing grade separated interchange at U.S. Route 1 and College Road; improvements from Independence Way to College Road at U.S. Route 1; and the existing multi-purpose walking/biking paths along the length of Seminary Drive, which serve Princeton Forrestal Village and connect directly to trails within Delaware and Raritan Canal State Park west of Mapleton Road. Further, the existing and proposed bicycle and pedestrian improvements support the Township's Bikeways and Pedestrian Circulation Plans. These improvements currently serve employees and visitors to all of Princeton Forrestal Center, as well as local residents and users of the nearby roadways.

Transportation Opportunities

The Applicant will provide a trial shuttle service between the Nurseries site and the New Jersey Transit Princeton Junction Station at West Windsor with the potential to connect to other key locations in Princeton Forrestal Center and Plainsboro, with the desire that the Nurseries site's compact layout and central location along the U.S. Route 1 corridor will allow for the service to become self-sustainable and continue indefinitely. The terms of this shuttle service with be set forth in the approved Developer's Agreement between the applicant and the Township. In addition to such shuttle service, the applicant shall investigate the possibility of extending New Jersey Transit bus service to the Nurseries site. The Nurseries site will also seek to be included in local bike-sharing networks within Princeton Forrestal Center and Plainsboro, allowing visitors, residents, and employees to cycle throughout the Nurseries site and utilize nearby bike trails and

connect into ‘last mile’ destinations. Access to these facilities will be available to residents, visitors and business employees.

Open Space

The open space opportunities within the proposed Nurseries site development will increase the total amount of common open space within the Princeton Forrestal Center to over 560 acres, approximately 30% of the total land area of 1,804 acres. The new open spaces to be provided on the Nurseries site will provide additional opportunities to the public to complement existing common open space within Princeton Forrestal Center and natural areas and trails in the vicinity of the Nurseries site. As part of the initial Princeton Nurseries development approval, the Applicant has previously deeded 24.5 acres of land west of Mapleton Road to the State of New Jersey Green Acres program to serve as permanent open space in accordance with the 1999 GDP. This land is adjacent to the Delaware and Raritan Canal State Park and serves as part of the “greenbelt” along the canal area. The existing trails and access points to Delaware and Raritan Canal State Park and Mapleton Preserve will connect to proposed open space areas within the Nurseries site for the benefit of residents and visitors alike.

The overall open space program for the Nurseries site will include a minimum of 30% of the property to be reserved as open space, comprised of both environmentally sensitive areas preserved for passive open space and thoughtfully designed interior parks and plazas to serve as hubs of enjoyment and activities for residents and visitors to the Nurseries site. Environmentally constrained areas located within the eastern portion of the Nurseries site adjacent to Harry’s Brook will be maintained within a conservation area as a potential passive recreation area. A variety of walking trails throughout the Nurseries site will reinforce the pedestrian-oriented nature of the development and provide connections to existing open space areas.

There will also be civic components to the open space plan such as a centrally located civic space that will provide social and entertainment benefits to Township residents. While specific programming for the civic spaces is dependent on the final mix of uses and tenants on the Nurseries site, the central civic space will have the potential to be utilized for a variety of day and evening programmed events and activities that serve the Nurseries site, Princeton Forrestal Center and the wider Plainsboro community.

XI. Housing Plan

There are no existing housing units on the Nurseries site. As part of the proposed development, a maximum of 950 residential units will be constructed. Any units in excess of 750 – up to 200 units – will be age-restricted as permitted by state and federal laws for age-restricted housing. Affordable housing units shall be set aside at a number equal to 12.7% of the non-age restricted component (e.g., at full buildout of 750 non-age restricted units, 96 affordable housing units will be provided). Affordable housing will be provided in accordance with the regulations of the New Jersey Fair Housing Act and the Uniform Housing Affordability Controls as set forth under N.J.A.C. 5:80-26.1 et seq. Further details regarding housing are provided in the General Land Use Plan in Section IV of this document.

The proposed diverse housing typologies to be developed on the Nurseries site may include, but are not limited to, various configurations of the following housing types: stand-alone multi-family apartment buildings, multi-family apartments in a mixed-use building over commercial space, manor homes, townhouses, semi-detached single-family dwellings, and/or detached single-family dwellings. None of the residential units will exceed three-bedrooms. The exact location of residential units will be provided during the site plan approval process. Additional information regarding housing can be found in Chapter III of this report and *Exhibit C: Land Use Plan*.

XII. Fiscal Impact Report

The Fiscal Impact Analysis, prepared by Phillips Preiss Grygiel Leheny Hughes LLC, dated July 2020 and containing the information required by Section 85-70.4[j] is attached to this report as *Appendix C.*

XIII. Timing Schedule

A forecasted phasing and estimated timing schedule for the development on the Nurseries site over the requested vesting period of this GDP approval has been prepared and is attached to this report as *Appendix F*.

XIV. Required Findings for Planned Development

Per §85-57 of the Township of Plainsboro Subdivision and Site Plan Review Ordinance, prior to approval of any planned development, the Planning Board shall conduct a study as required by N.J.S.A. 40:55D-45, *Findings for planned developments*. We offer the following findings as related to the GDP application for the Nurseries site:

Conformance to Zoning Regulations

The Nurseries site is located in the Township's PMUD Zone. The Township Code provides for a wide variety of permitted uses in that district, including the proposed use as an integrated mixed-use neighborhood development. The development program proposed herein meets all of the use, density and floor area requirements for an integrated mixed-use neighborhood development as set forth in §101-137Q, §101-139C and §101-140C of the Township Code, respectively. The proposed development's compliance with other regulations of the PMUD Zone will be further enumerated during the site plan approval process.

Adequacy, Maintenance, and Conservation of Common Open Space

The overall development plan for the Nurseries site will include a minimum of 30% of the total land area to be reserved as open space for various active, passive and environmentally-sensitive uses Ownership and maintenance of all open space areas will be coordinated by the Applicant throughout the development process, with further details regarding ongoing ownership and maintenance to be provided at the time of site plan approval.

Adequacy of Physical Design

Public water service is available to the property from New Jersey American Water Company and public sewer service is provided via South Brunswick's collection system for treatment at the facilities of the Stony Brook Regional Sewerage Authority.

As is the case throughout Princeton Forrestal Center, individual buildings will be designed to provide adequate light and air for occupants and visitors, as will proposed Open Spaces and Civic Spaces throughout the Nurseries site. The Applicant has completed various roadway construction and improvement projects as part of its prior approvals to accommodate the full build-out of Princeton Forrestal Center as well as future regional growth, such as:

- Construction and limited ongoing maintenance of the grade separated intersections of U.S. Route 1 with College Road (which then allowed a NJDOT commitment to construct a grade-separated intersection of U.S. Route 1 and Scudders Mill Road);
- Widening of U.S. Route 1;
- Improvements to the intersection of U.S. Route 1, Sayre Drive and Stellarator Road;
- Construction of College Road East/West, and Research Way;
- Various improvements and limited ongoing maintenance to College Road East and West, Research Way, Schalks Crossing and Scudders Mill Road;
- Improvements to Mapleton Road and Seminary Drive;
- Construction and maintenance of Campus Road; and

- Construction and maintenance of Forrestal Road and Forrestal Road South.

The Traffic Impact Analysis, provided in *Appendix A,* further discusses the measures taken to maintain or improve existing levels of service following the development of the Nurseries site.

Thus, the existing infrastructure in combination with the innovative integrated mixed-use development planned for the Nurseries site will allow for the superior physical design of public services and vehicular and pedestrian traffic, while providing adequate light and air through building design, recreational space and visual enjoyment of the site.

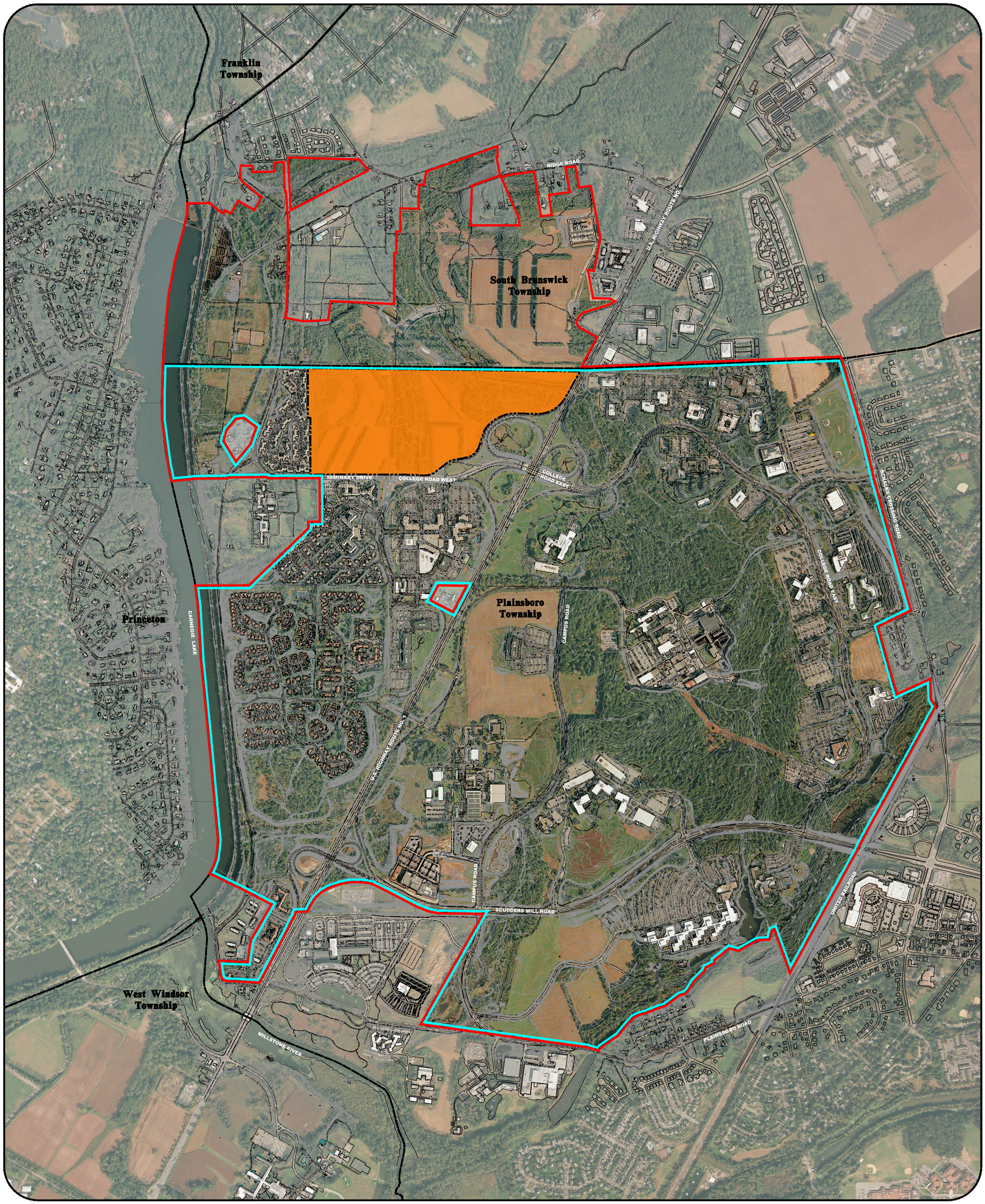
Impact of Proposed Development

In reviewing the various modifications to the original planned development approval of 1975 and the 1999 GDP Approval for Princeton Forrestal Center over the course of the last 45 years, the Planning Board has consistently found that Princeton Forrestal Center will not have an unreasonably adverse impact upon the area in which it is located. This same finding is justified in connection with this GDP application. The Nurseries site is proposed to be developed as an integrated mixed-use neighborhood development, as permitted under the regulations for the PMUD Zone, representing a continuation of the high-quality planned development that has occurred within Princeton Forrestal Center over the past 45 years, focusing on a mix of uses that can continue to provide a stable economic base for Plainsboro, while preserving open space and environmentally sensitive areas.

Timing Schedule to Protect the Public Interest

A forecasted phasing and estimated timing schedule for the development of the Nurseries site has been prepared and attached hereto as *Appendix F*. There are no existing residents on the Nurseries site and the timing schedule will mitigate impact on the general public over the course of the development.

Exhibit A: Orientation Plan



Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

LEGEND

- PRINCETON FORRESTAL BOUNDARY
- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARIES
- PMUD PLANNED UNIT DEVELOPMENT BOUNDARY PER TOWNSHIP OF PLAINSBORO ORDINANCE AS AMENDED 03-11-2020

APPLICANT:	THE TRUSTEES OF PRINCETON UNIVERSITY
PROJECT MANAGER:	PRINCETON FORRESTAL CENTER
ATTORNEY:	FAEGRE DRINKER BIDDLE & REATH, LLP
PLANNER:	PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC
ARCHITECT:	ELKUS MANFREDI ARCHITECTS
CIVIL ENGINEER:	VAN NOTE-HARVEY ASSOCIATES, INC.
TRAFFIC ENGINEER:	LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
DATE:	JULY 24, 2020

GRAPHIC SCALE

500 0 250 500 1000 2000

(IN FEET)

1 inch = 500 feet

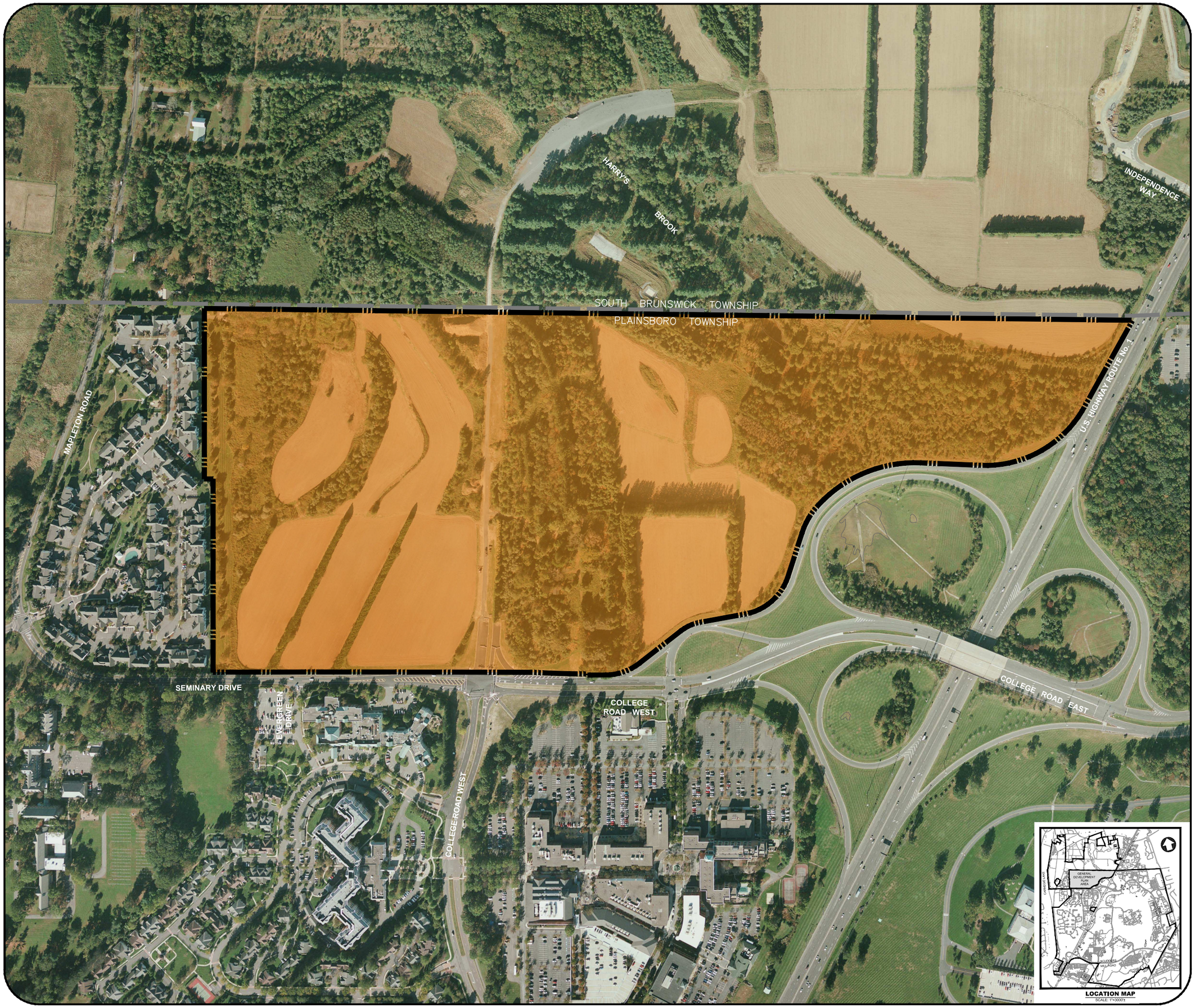
Princeton Nurseries - Plainsboro

General Development Plan Exhibit A

Orientation Plan

N:\P4265\Data\GIS\P PLANS\4265-2V0-GDP-PL1.dwg, DVI, IEE, 7/20/2020 2:44:02 PM, cvanallen

Exhibit B: Reference Plan



Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit B

Reference Plan

LEGEND

GENERAL DEVELOPMENT PLAN BOUNDARY

MUNICIPAL BOUNDARY

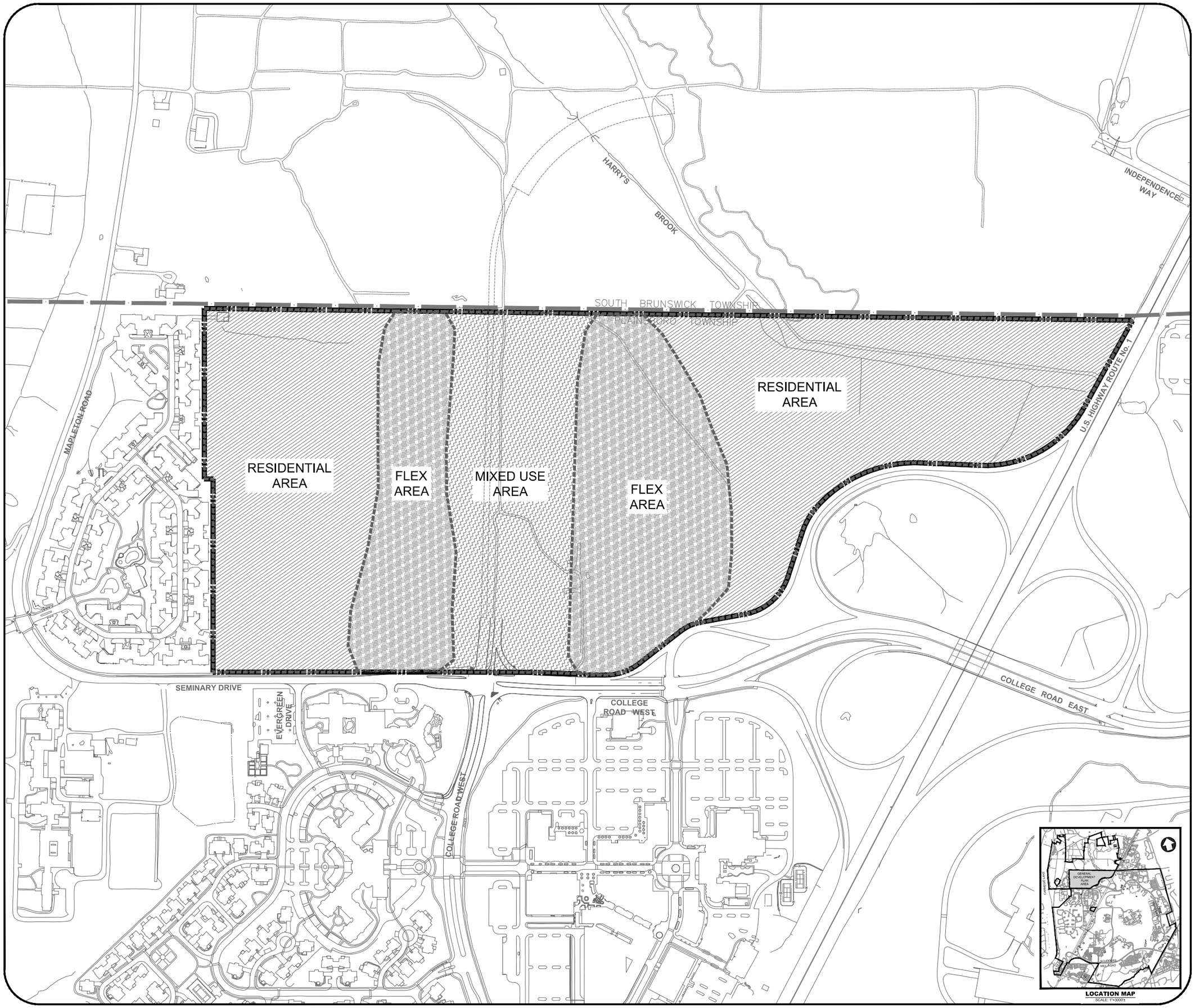
APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 feet

Exhibit C: Land Use Plan



Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit C

Land Use Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- MIXED USE AREA (SEE NOTE 1)
- FLEX AREA (SEE NOTE 1)
- RESIDENTIAL AREA (SEE NOTE 1)

NOTES:

1. WITHIN THE PRINCETON NURSERIES THERE ARE FOUR TYPES OF LAND USE "AREAS" EACH WITH SPECIFIC CHARACTER INTENT THAT TOGETHER ARE CALIBRATED TO CREATE THE ENVISIONED MIXED-USE URBAN-STYLE ENVIRONMENT SUITABLE FOR PEDESTRIAN ACTIVITY AND INCREASED BUSINESS OPPORTUNITIES, THERE SHALL BE TWO RESIDENTIAL AREAS, ONE ADJACENT TO THE PRINCETON NURSERIES WESTERN BOUNDARY AND ONE ADJACENT TO U.S. HIGHWAY ROUTE NO.1. THESE RESIDENTIAL AREAS DO NOT PERMIT NON-RESIDENTIAL USES SUCH AS RETAIL, OFFICE AND HOTEL. THERE SHALL BE A SINGLE MIXED USE AREA THAT IS CENTRALLY LOCATED AND PERMITS ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS OR MANOR HOMES. THERE SHALL BE TWO FLEX AREAS, EACH LOCATED BETWEEN THE MIXED USE AREA AND A RESIDENTIAL AREA. THE FLEX AREAS PERMIT ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS. THESE FLEX AREAS ARE UNIQUE IN THAT THEY SHALL ALSO ADDRESS TRANSITIONS OF BUILDING MASS, BUILDING HEIGHT, DENSITY AND LAND USES BETWEEN THE RESIDENTIAL AREAS AND THE MIXED USE AREA. EXACT BOUNDARIES TO EACH OF THE AREAS WILL BE DETERMINED AT SITE PLAN.
2. REFER TO EXHIBIT I FOR A SET OF ILLUSTRATIVE EXAMPLES OF POSSIBLE LAND USE LAYOUTS.

APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)

1 inch = 150 feet

K:\P4205\Dwg\GDP PLANS\4205GDP-P1.dwg, GDP (LANDUSE), 7/20/2020 1:29:43 PM, cstrahm

Exhibit D: Circulation Plan

Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit D

Circulation Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- BR — BUS ROUTE
- EXISTING BUS STOP
- BP — EXISTING BIKE PATH
- PATH — EXISTING PEDESTRIAN PATHWAY
- ROADWAY ALIGNMENT AND DIRECTIONAL CONE
- TRAIL

KNOWN CONNECTIONS:

1. PRIMARY (MAIN COMMERCIAL ROADWAY) TOWNSHIP ROADWAY CONNECTION (SEE NOTES 1 & 2)
2. SECONDARY TOWNSHIP ROADWAY CONNECTION (SEE NOTE 2)
3. PRIMARY (MAIN COMMERCIAL ROADWAY) SOUTH BRUNSWICK TOWNSHIP ROADWAY CONNECTION (SEE NOTE 2)
4. SOUTH BRUNSWICK - PRIMARY CROSSING OF HARRY'S BROOK (SEE NOTE 1)
5. SECONDARY SOUTH BRUNSWICK TOWNSHIP CONNECTION (SEE NOTE 2)
6. SOUTH BRUNSWICK - SECONDARY CROSSING OF HARRY'S BROOK
7. SOUTH BRUNSWICK CONNECTION TO U.S. ROUTE 1 (SEE NOTE 1)

NOTES:

1. BUILT.
2. REFER TO § 10I-142.S.(3) OF THE PLAINSBORO TOWNSHIP ORDINANCE AS AMENDED 03-11-2020 FOR ROADWAY AND PEDESTRIAN CIRCULATION REQUIREMENTS.
3. REFER TO THE DESIGN GUIDELINES ATTACHED AS EXHIBIT F OF THIS GDP APPLICATION FOR ADDITIONAL GUIDANCE AND CONTEXT PERTAINING TO THE DEVELOPMENT OF THE STREET NETWORKS AND A STREET HIERARCHY.
4. REFER TO § 85-22 OF THE PLAINSBORO TOWNSHIP ORDINANCE AS AMENDED 03-11-2020 FOR SIDEWALK, WALKWAY, AND MULTI-USE PATHWAY REQUIREMENTS.
5. REFER TO THE DESIGN GUIDELINES ATTACHED AS EXHIBIT F OF THIS GDP APPLICATION FOR ADDITIONAL GUIDANCE AND CONTEXT PERTAINING TO THE DEVELOPMENT OF SIDEWALKS, WALKWAYS, AND MULTI-USE PATHWAYS.
6. REFER TO EXHIBIT I FOR A SET OF ILLUSTRATIVE EXAMPLES OF POSSIBLE CIRCULATION NETWORK LAYOUTS.

APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

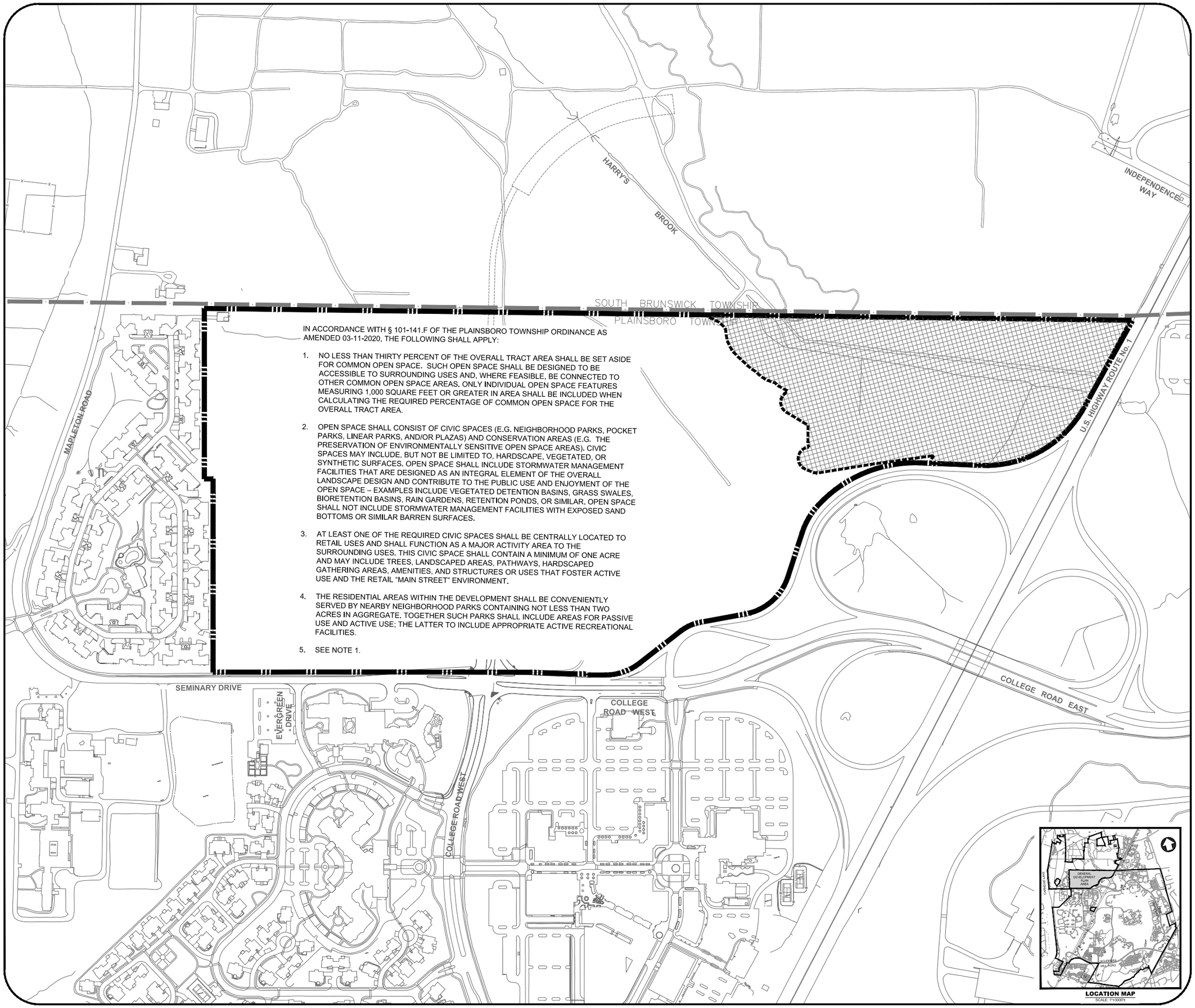
GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 feet

LOCATION MAP
SCALE: 1"=3000'±

Exhibit E: Open Space Plan



IN ACCORDANCE WITH § 101-141.F OF THE PLAINSBORO TOWNSHIP ORDINANCE AS AMENDED 03-11-2020, THE FOLLOWING SHALL APPLY:

1. NO LESS THAN THIRTY PERCENT OF THE OVERALL TRACT AREA SHALL BE SET ASIDE FOR COMMON OPEN SPACE. SUCH OPEN SPACE SHALL BE DESIGNED TO BE ACCESSIBLE TO SURROUNDING USES AND, WHERE FEASIBLE, BE CONNECTED TO OTHER COMMON OPEN SPACE AREAS. ONLY INDIVIDUAL OPEN SPACE FEATURES MEASURING 1,000 SQUARE FEET OR GREATER IN AREA SHALL BE INCLUDED WHEN CALCULATING THE REQUIRED PERCENTAGE OF COMMON OPEN SPACE FOR THE OVERALL TRACT AREA.

2. OPEN SPACE SHALL CONSIST OF CIVIC SPACES (E.G. NEIGHBORHOOD PARKS, POCKET PARKS, LINEAR PARKS, AND/OR PLAZAS) AND CONSERVATION AREAS (E.G. THE PRESERVATION OF ENVIRONMENTALLY SENSITIVE OPEN SPACE AREAS). CIVIC SPACES MAY INCLUDE, BUT NOT BE LIMITED TO, HARDSCAPE, VEGETATED, OR SYNTHETIC SURFACES. OPEN SPACE SHALL INCLUDE STORMWATER MANAGEMENT FACILITIES THAT ARE DESIGNED AS AN INTEGRAL ELEMENT OF THE OVERALL LANDSCAPE DESIGN AND CONTRIBUTE TO THE PUBLIC USE AND ENJOYMENT OF THE OPEN SPACE – EXAMPLES INCLUDE VEGETATED DETENTION BASINS, GRASS SWALES, BIORETENTION BASINS, RAIN GARDENS, RETENTION PONDS, OR SIMILAR. OPEN SPACE SHALL NOT INCLUDE STORMWATER MANAGEMENT FACILITIES WITH EXPOSED SAND BOTTOMS OR SIMILAR BARREN SURFACES.

3. AT LEAST ONE OF THE REQUIRED CIVIC SPACES SHALL BE CENTRALLY LOCATED TO RETAIL USES AND SHALL FUNCTION AS A MAJOR ACTIVITY AREA TO THE SURROUNDING USES. THIS CIVIC SPACE SHALL CONTAIN A MINIMUM OF ONE ACRE AND MAY INCLUDE TREES, LANDSCAPED AREAS, PATHWAYS, HARDSCAPED GATHERING AREAS, AMENITIES, AND STRUCTURES OR USES THAT FOSTER ACTIVE USE AND THE RETAIL "MAIN STREET" ENVIRONMENT.

4. THE RESIDENTIAL AREAS WITHIN THE DEVELOPMENT SHALL BE CONVENIENTLY SERVED BY NEARBY NEIGHBORHOOD PARKS CONTAINING NOT LESS THAN TWO ACRES IN AGGREGATE. TOGETHER SUCH PARKS SHALL INCLUDE AREAS FOR PASSIVE USE AND ACTIVE USE; THE LATTER TO INCLUDE APPROPRIATE ACTIVE RECREATIONAL FACILITIES.

5. SEE NOTE 1.

LOCATION MAP
SCALE: 1"=3000'±

Princeton Forrestal Center
Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit E

Open Space Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- ENVIRONMENTAL CONSTRAINTS BOUNDARY (SEE NOTE 2)

NOTES:

1. **REFER TO EXHIBIT I, FOR A SET OF ILLUSTRATIVE EXAMPLES OF POSSIBLE OPEN SPACE LAYOUTS.**
2. **ENVIRONMENTAL CONSTRAINTS BOUNDARY IS INCLUSIVE OF FRESHWATER WETLANDS, WETLAND TRANSITION AREAS, RIPARIAN ZONE, FEMA FLOOD HAZARD AREAS AND FLOODWAYS, AND D&R CANAL COMMISSION STREAM CORRIDOR BOUNDARIES. ENVIRONMENTAL CONSTRAINTS BOUNDARIES ARE SUBJECT TO VERIFICATION DURING SITE PLAN OR REGULATORY REVIEW.**

APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 feet

Exhibit F: Utility Plan

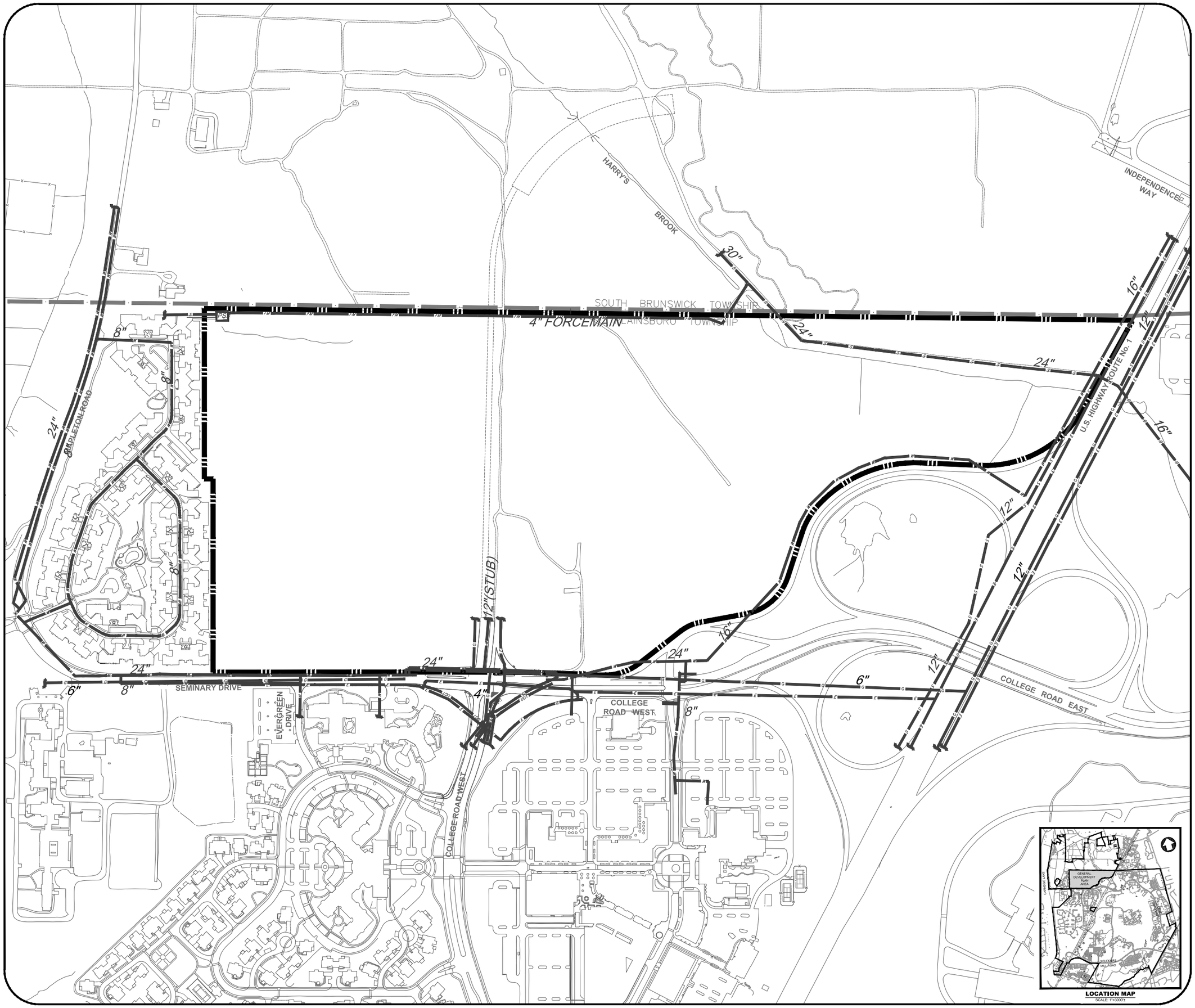
Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit F

Utility Plan



LOCATION MAP
SCALE: 1"=3000'±

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- EXISTING TELEPHONE
- EXISTING WATER MAIN
- EXISTING GAS
- EXISTING ELECTRIC
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER FORCE MAIN
- EXISTING SANITARY SEWER PUMP STATION
- PIPE CONTINUATION

NOTE:
ALL PIPE SIZES SHOWN HEREON FOR UTILITIES ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF THE GDP APPLICATION. ALL UTILITY MAIN/CONVEYANCE SYSTEM SIZES AND CAPACITIES SHALL BE VERIFIED AT TIME OF APPLICATION FOR INDIVIDUAL SITE PLAN APPROVAL.

APPLICANT:	THE TRUSTEES OF PRINCETON UNIVERSITY
PROJECT MANAGER:	PICUS ASSOCIATES, INC.
ATTORNEY:	FAEGRE DRINKER BIDDLE & REATH, LLP
PLANNER:	PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC
ARCHITECT:	ELKUS MANFREDI ARCHITECTS
CIVIL ENGINEER:	VAN NOTE-HARVEY ASSOCIATES, INC.
TRAFFIC ENGINEER:	LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
DATE:	JULY 24, 2020

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 feet

Exhibit G: Stormwater Management Plan

Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit G

Stormwater Management Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- **DRAINAGE AREA 1** - CONNECTED TO A SURFACE / SUBSURFACE BASIN(S) LOCATED WITHIN THE AREA.
- **DRAINAGE AREA 2** - CONNECTED TO A SURFACE / SUBSURFACE BASIN(S) WITHIN THE AREA.
- **DRAINAGE AREA 3** - CONNECTED TO A SURFACE / SUBSURFACE BASIN(S) LOCATED IN SOUTH BRUNSWICK TOWNSHIP.
- **DRAINAGE AREA 4** - SURFACE / SUBSURFACE BASIN CONNECTED TO DEVELOPMENT WITHIN SOUTH BRUNSWICK TOWNSHIP.
- OF — EXISTING STORMWATER OUTFALL LOCATION
- EXISTING STORM SEWER TO BE REROUTED AS REQUIRED
- EXISTING DRAINAGE DIVIDE

NOTE: LOCATION(S) AND ENGINEERING DETAILS FOR ALL STORMWATER MANAGEMENT FEATURES TO BE PROVIDED AT SITE PLAN.

APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

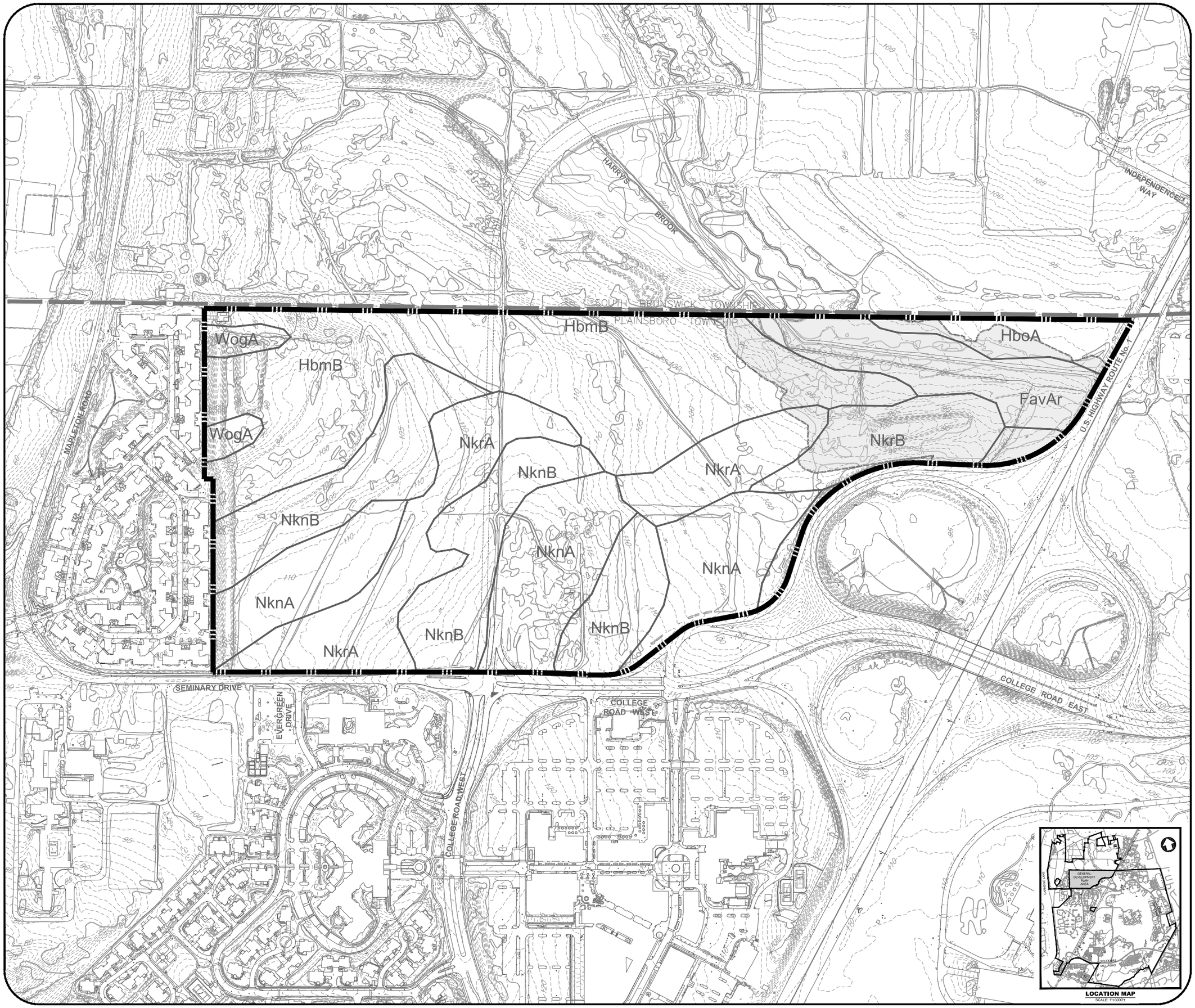
GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 feet

LOCATION MAP
SCALE: 1"=3000'±

Exhibit H: Environmental Inventory Plan



Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit H

Environmental Inventory Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- ENVIRONMENTAL CONSTRAINTS BOUNDARY (SEE NOTE 1)
- MUNICIPAL BOUNDARY
- SOILS BOUNDARY
- HboA — SOILS TYPE

SOILS LEGEND:

SOIL SYMBOL	SOIL NAME
FavAr	FALLSINGTON BEDROCK SUBSTRATUM VARIANT LOAM, 0 TO 2 PERCENT SLOPES
HbmB	HAMMONTON LOAMY SAND, 0 TO 5 PERCENT SLOPES
NknA	NIXON LOAM, 0 TO 2 PERCENT SLOPES
NknB	NIXON LOAM, 2 TO 5 PERCENT SLOPES
NkrA	NIXON MODERATELY WELL DRAINED VARIANT LOAM, 0 TO 2 PERCENT SLOPES
WogA	WOODSTOWN LOAM, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN

NOTES:

1. ENVIRONMENTAL CONSTRAINTS BOUNDARY INCLUSIVE OF FRESHWATER WETLANDS, WETLAND TRANSITION AREAS, RIPARIAN ZONE, 100-YR FLOODPLAIN, NEW JERSEY FLOOD HAZARD AREA AND DELAWARE & RARITAN CANAL COMMISSION STREAM CORRIDOR BOUNDARIES.
2. ENVIRONMENTAL CONSTRAINTS BOUNDARIES ARE SUBJECT TO VERIFICATION DURING SITE PLAN OR REGULATORY REVIEW.

APPLICANT:	**THE TRUSTEES OF PRINCETON UNIVERSITY**
PROJECT MANAGER:	**PICUS ASSOCIATES, INC.**
ATTORNEY:	**FAEGRE DRINKER BIDDLE & REATH, LLP**
PLANNER:	**PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC**
ARCHITECT:	**ELKUS MANFREDI ARCHITECTS**
CIVIL ENGINEER:	**VAN NOTE-HARVEY ASSOCIATES, INC.**
TRAFFIC ENGINEER:	**LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**
DATE:	**JULY 24, 2020**

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)

1 inch = 150 feet

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Exhibit I: Illustrative Examples

EXAMPLE 'A'

EXAMPLE 'B'

EXAMPLE 'C'

NOTES:

1. THE THREE ADJACENT ILLUSTRATIVE EXAMPLES DEPICT HOW A VARIETY OF DESIGN ALTERNATIVES MAY BE CONCEPTUALIZED FOR THE NURSERIES SITE IN ACCORDANCE WITH THE TOWNSHIP ZONING ORDINANCE AND THE VISION AND GUIDING CORE PRINCIPLES SET FORTH IN THIS APPLICATION AND IN THE DESIGN GUIDELINES. THESE CONCEPTS ARE INTENDED TO BE ILLUSTRATIVE EXAMPLES ONLY AND NOT FINAL MASTER PLANS. OTHER PLANNING ALTERNATIVES ARE ACCEPTABLE PROVIDED THEY ARE IN ACCORDANCE WITH THE DESIGN PRINCIPLES ARTICULATED IN THE DESIGN GUIDELINES, WHICH MAY CONSIDER VARIATIONS TO THE LOCATION, ORIENTATION, LAYOUT, AND DESIGN OF THE DEVELOPMENT BLOCKS, STREET NETWORK AND HIERARCHY, LAND USES, PARKING, AND STORMWATER MANAGEMENT.

2. WITHIN THE PRINCETON NURSERIES THERE ARE FOUR TYPES OF LAND USE "AREAS" EACH WITH SPECIFIC CHARACTER INTENT THAT TOGETHER ARE CALIBRATED TO CREATE THE ENVISIONED MIXED-USE URBAN-STYLE ENVIRONMENT SUITABLE FOR PEDESTRIAN ACTIVITY AND INCREASED BUSINESS OPPORTUNITIES. THERE SHALL BE TWO RESIDENTIAL AREAS, ONE ADJACENT TO THE PRINCETON NURSERIES WESTERN BOUNDARY AND ONE ADJACENT TO U.S. HIGHWAY ROUTE NO.1. THESE RESIDENTIAL AREAS DO NOT PERMIT NON-RESIDENTIAL USES SUCH AS RETAIL, OFFICE AND HOTEL. THERE SHALL BE A SINGLE MIXED USE AREA THAT IS CENTRALLY LOCATED AND PERMITS ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS OR MANOR HOMES. THERE SHALL BE TWO FLEX AREAS, EACH LOCATED BETWEEN THE MIXED USE AREA AND A RESIDENTIAL AREA. THE FLEX AREAS PERMIT ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS. THESE FLEX AREAS ARE UNIQUE IN THAT THEY SHALL ALSO ADDRESS TRANSITIONS OF BUILDING MASS, BUILDING HEIGHT, DENSITY AND LAND USES BETWEEN THE RESIDENTIAL AREAS AND THE MIXED USE AREA. EXACT BOUNDARIES TO EACH OF THE AREAS WILL BE DETERMINED AT SITE PLAN.

Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit I Illustrative Examples

APPLICANT:	THE TRUSTEES OF PRINCETON UNIVERSITY
PROJECT MANAGER:	PICUS ASSOCIATES, INC.
ATTORNEY:	FAEGRE DRINKER BIDDLE & REATH, LLP
PLANNER:	PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC
ARCHITECT:	ELKUS MANFREDI ARCHITECTS
CIVIL ENGINEER:	VAN NOTE-HARVEY ASSOCIATES, INC.
TRAFFIC ENGINEER:	LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
DATE:	JULY 24, 2020

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 feet

Appendix A: Traffic Impact Study

Prepared by Langan Engineering, dated May 12, 2020

TRAFFIC IMPACT STUDY

For

Princeton Nurseries (Plainsboro Tract)
Township of Plainsboro
Middlesex County, New Jersey

Prepared For:

Princeton Forrestal Center
105 College Road East
Princeton, NJ 08540

Prepared By:

Langan Engineering & Environmental Services, Inc.
989 Lenox Drive
Suite 124
Lawrenceville, NJ 08648
NJ Certificate of Authorization No: 24GA27996400

Karl A. Pehnke, P.E., PTOE
P.E. License No. 36434

Kerry A. Pehnke, P.E.
P.E. License No. 53686

LANGAN

12 May 2020
130091503

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EXECUTIVE SUMMARY

Langan Engineering and Environmental Services has been retained by Princeton Forrestal Center to prepare a traffic impact study for the proposed development of the Princeton Nurseries lands located in Plainsboro, New Jersey. The entire Princeton Nurseries site includes lands located in the Townships of Plainsboro and South Brunswick, Middlesex County, New Jersey and is bisected by the town line. The main focus of this traffic study evaluates the impact of the full development of the Princeton Nurseries project located in Plainsboro Township. Additionally, to understand the overall project's potential impact on the roadway network we also evaluated Princeton Nurseries with development of the entire property spanning both Plainsboro and South Brunswick. Princeton Nurseries in Plainsboro, upon completion, is proposed to consist of a mixed-use development with approximately 310,000 square feet (sf) of retail space, 220,000 sf of office space, a 125 room hotel and 950 residential units (31 single family homes, 200 senior adult attached homes and 719 multi-family homes). The South Brunswick portion of Princeton Nurseries is currently entitled for office/commercial uses that could include up to 1,800,000 sf of office space. The prior Plainsboro GDP approval and current South Brunswick GDP approval for the Princeton Nurseries property envisions a suburban office campus that would generate significant weekday peak hour traffic and in comparison, the proposed development as a mixed-use development will generate less weekday peak hour traffic and moderated directional peak flows on the regional roadway network.

The overall Princeton Nurseries development is bounded by U.S. Route 1 on the east, College Road West / Seminary Drive on the south, Mapleton Road on the west, and Ridge Road to the north. The South Brunswick/ Plainsboro Township town line bisects the property from east to west. Access to the Plainsboro Princeton Nurseries development will be via two access streets located along College Road West / Seminary Drive. The first access street, referred to as Nursery Road, is located at a signalized intersection which has already been constructed that intersects College Road West to create the northern leg of a four-leg intersection with Seminary Drive / College Road West. The second access street is a proposed signalized intersection that intersects Seminary Drive to the west of Nursery Road opposite Evergreen Drive. It should be noted that with future completion of Princeton Nurseries in South Brunswick, additional access to Princeton Nurseries will be provided at the existing intersection of Independence Way with U.S. Route 1, where such access and off site roadway improvements were previously constructed to accommodate the prior Princeton Nurseries South Brunswick Township General Development Plan (GDP) in accordance with permits that were issued by NJDOT in 2002.

Langan has estimated the number of trips the proposed Plainsboro development will generate based on data compiled for Land Use Code 252 (Senior Adult Housing Attached), Land Use Code

210 (Single-Family Detached Housing), Land Use Code 220 (Multifamily Housing (Low-Rise)), Land Use Code 310 (Hotel), Land Use Code 710 (General Office Building), and Land Use Code 820 (Shopping Center) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition. Accordingly, Langan estimated that the Plainsboro proposed development will generate approximately 982 new trips (563 enter, 419 exit) during the weekday morning peak hour, 1,178 new trips (521 enter, 657 exit) during the weekday evening peak hour, and 1,587 new trips (848 enter, 739 exit) during the Saturday midday peak hour. Additionally, the overall Princeton Nurseries development, with buildout of the anticipated South Brunswick portion in accordance with current zoning, is estimated to generate approximately 2,829 new trips (2,249 enter, 580 exit) during the weekday morning peak hour, 3,146 new trips (872 enter, 2,274 exit) during the weekday evening peak hour, and 2,506 new trips (1,348 enter, 1,158 exit) during the Saturday midday peak hour.

Under the prior Plainsboro and current South Brunswick General Development Plans (GDP) the overall Princeton Nurseries site, inclusive of Plainsboro and South Brunswick lands, permits up to 2,900,000 sf of development. Within the Plainsboro portion of the Princeton Nurseries site, the prior Plainsboro GDP permits up to 2,000,000 sf of nonresidential uses, of which 100,000 sf may be commercial with the balance devoted to office / research uses. In general, the proposed mixed-use development program in Plainsboro Township will generate approximately 1,312 less (57% less) weekday morning peak hour trips and 1,290 less (52% less) weekday evening peak hour trips on the regional roadways as compared to the prior entitled GDP development program in Plainsboro Township. During the Saturday midday peak hour, the proposed mixed-use development program will generate approximately 160 additional (11% additional) peak hour trips on the regional roadway system as compared to the prior entitled GDP development program in Plainsboro Township.

For the overall development, the proposed mixed-use development program will generate approximately 237 less (8% less) weekday morning peak hour trips and 282 less (8% less) weekday evening peak hour trips on the regional roadways as compared to the prior Plainsboro and current South Brunswick GDP approvals. During the Saturday midday peak hour, the anticipated mixed-use development program will generate approximately 486 additional (24% additional) peak hour trips on the regional roadway system as compared to the prior Plainsboro and current South Brunswick GDP development programs. However, it should be noted that the regional roadways experience less peak hour traffic on Saturdays then during the weekdays.

We determined the directional distribution of the site-generated trips based on existing and expected travel patterns in the study area, demographic journey-to-work data, and census gravity

model data. We conducted capacity analyses at the following intersections to determine level of service operating conditions for the No-Build and Build conditions, and based upon the analyses we have identified geometric and signal improvements with recommendations for implementation:

- U.S. Route 1 and Ridge Road (located in South Brunswick)
- U.S. Route 1 and Independence Way (located in South Brunswick)
- College Road East and U.S. Route 1 Northbound Ramps
- College Road West and Village Boulevard / Westbound Jughandle
- College Road West and Seminary Drive and Nursery Road
- NJ Route 27 and Academy Street / Church Street (located in South Brunswick)
- NJ Route 27 and Heathcote Road / Laurel Avenue (located in South Brunswick)
- Seminary Drive and Mapleton Road and Barclay Boulevard
- College Road East and Scudders Mill Road (County Road 614)
- College Road East and Research Way
- Seminary Drive and Western Access Street / Evergreen Drive

Langan concludes that the proposed mixed-use development program of the Plainsboro Princeton Nurseries generally results in less traffic impacts and better roadway levels of service as compared to the predominantly office campus use of the Princeton Nurseries envisioned by the prior approved Plainsboro GDP. Moreover, the above remains true for the overall Plainsboro and South Brunswick Princeton Nurseries proposed developments compared to the development programs of the prior approved GDPs. Based on our analyses for both Plainsboro only development and overall development, we determined that less traffic will be generated during the weekday peak hours as compared to the prior GDPs. The development's access points from College Road West and Seminary Drive are expected to operate safely and efficiently during peak traffic hours.

The analyses contained herein considers the NJDOT (New Jersey Department of Transportation) U.S. Route 1 congestion relief program which permits vehicles to use the shoulder as a travel lane from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM between Raymond Road and Independence Way in South Brunswick Township.

Additional improvements to U.S. Route 1 are currently in construction and include widening U.S. Route 1 near Nassau Park and Quakerbridge Road. It is anticipated the U.S. Route 1 widening project will be completed in summer 2020. Lastly, NJDOT is currently progressing preliminary engineering for widening of U.S. Route 1 between Washington Road and Harrison Street in West Windsor, NJ. That project is anticipated to be awarded for construction by the fall of 2022 and is anticipated to have a three year construction duration. The project, when completed will reduce existing traffic delays caused by the existing traffic signals along this section of U.S. Route 1.

INTRODUCTION

Langan Engineering and Environmental Services has been retained by Princeton Forrestal Center to prepare a traffic impact study for the proposed development of the Princeton Nurseries lands located in Plainsboro, New Jersey. The entire Princeton Nurseries site includes lands located in the Townships of Plainsboro and South Brunswick, Middlesex County, New Jersey and is bisected by the town line. The main focus of this traffic study evaluates the impact of the full development of the Princeton Nurseries project located in Plainsboro Township. Additionally, to understand the overall project's impact on the roadway network we evaluated Princeton Nurseries with development of the entire site spanning both Plainsboro and South Brunswick.

Project Description

The Plainsboro portion of the proposed Princeton Nurseries development includes a mix of uses with up to 310,000 square feet (sf) of retail space, 220,000 sf of office space, a 125 room hotel and 950 residential units (31 single family homes, 200 senior adult attached homes and 719 multi-family homes). The Plainsboro Township development site is designated as Block 102, Lots 5 and 6; and Block 106, Lot 1 according to the Township of Plainsboro tax maps. Under the prior General Development Plans (GDP) the overall Princeton Nurseries site, inclusive of Plainsboro and South Brunswick lands, permits up to 2,900,000 sf of development. Within the Plainsboro portion of the Princeton Nurseries site, the prior Plainsboro GDP permitted up to 2,000,000 sf of nonresidential uses, of which 100,000 sf may be commercial with the balance devoted to office / research uses. The site location is shown in Figure 1.

The overall Princeton Nurseries development is bounded by U.S. Route 1 on the east, College Road West / Seminary Drive on the south, Mapleton Road on the west, and Ridge Road to the north. The South Brunswick/ Plainsboro Township town line bisects the property from east to west. Access to the Plainsboro Princeton Nurseries development will be via two access streets located along College Road West / Seminary Drive. The first access street, referred to as Nursery Road, is located at a signalized intersection which has already been constructed, that intersects College Road West to create the northern leg of a four-leg intersection with Seminary Drive / College Road West. The second access street is a proposed signalized intersection that intersects Seminary Drive to the west of Nursery Road opposite Evergreen Drive. It should be noted that with future completion of Princeton Nurseries in South Brunswick, additional access to Princeton Nurseries will be provided at the existing intersection of Independence Way with U.S. Route 1, where such access and off site roadway improvements were previously constructed to accommodate the prior Princeton Nurseries South Brunswick Township General Development Plan (GDP) in accordance with permits that were issued by NJDOT in 2002.

Study Area

We conducted capacity analyses at the following intersections:

- U.S. Route 1 and Ridge Road (located in South Brunswick)
- U.S. Route 1 and Independence Way (located in South Brunswick)
- College Road East and U.S. Route 1 Northbound Ramps
- College Road West and Village Boulevard / Westbound Jughandle
- College Road West and Seminary Drive and Nursery Road
- NJ Route 27 and Academy Street / Church Street (located in South Brunswick)
- NJ Route 27 and Heathcote Road / Laurel Avenue (located in South Brunswick)
- Seminary Drive and Mapleton Road and Barclay Boulevard
- College Road East and Scudders Mill Road (County Road 614)
- College Road East and Research Way
- Seminary Drive and Western Access Street / Evergreen Drive

An inventory of the physical road conditions is presented in the section "Description of Existing Conditions."

Scope of Study

Langan undertook the following steps to prepare this study in accordance with standard traffic engineering methodologies:

1. Conducted a field examination of the development property and surrounding road network to inventory physical and regulatory conditions including the number of lanes, lane assignments, channelization, traffic-control devices, lateral clearances and other factors that limit traffic capacity.
2. Conducted a series of manual turning movement traffic counts at the intersections identified in the previous section. We conducted counts on a typical weekdays from 6:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM; and on a typical Saturday from 10:00 AM to 3:00 PM. We then identified the existing weekday morning and evening, and Saturday midday peak hour traffic volumes based on the manual traffic count data.
3. Established "Existing" traffic volumes using the obtained turning movement counts.
4. Established projected traffic volumes by applying the applicable New Jersey Department of Transportation (NJDOT) Middlesex County annual growth factor of 1.0 percent to the existing traffic volumes.
5. Identified other developments and vacancies in the study area and established base traffic volumes.
6. Established No-Build traffic volumes by adding the Plainsboro entitled GDP traffic and separately the overall entitled Plainsboro and South Brunswick GDPs traffic to the base traffic volumes.
7. Prepared trip generation estimates for both the proposed Plainsboro Princeton Nurseries development and overall Princeton Nurseries development based on data documented by the Institute of Transportation Engineers (ITE).
8. Evaluated the mix of uses for internal interaction and pass-by traffic capture opportunities from existing traffic on the adjacent roadways utilizing data documented by the ITE.
9. Developed trip distribution for the development based on existing and expected travel patterns, demographic journey-to-work data, and census gravity model data.
10. Assigned site-generated trips to the development's access streets and the surrounding road network based on the likely travel routes motorists will use to travel to and from the development.
11. Established future Build traffic volumes by adding site-generated trips to the base traffic volumes.
12. Performed intersection capacity analyses for the weekday morning and evening, and Saturday midday peak hours using Synchro Software.

DESCRIPTION OF EXISTING CONDITIONS

This section describes the roads, intersections and traffic volumes in the area of the Princeton Nurseries site located in the Townships of Plainsboro and South Brunswick, Middlesex County, New Jersey.

Roads

U.S. Route 1

U.S. Route 1 is classified as an urban principal arterial and is under NJDOT (New Jersey Department of Transportation) jurisdiction. The roadway has a general north-south orientation and provides between two and three travel lanes in each direction. The posted speed limit is 55 mph.

NJ Route 27

NJ Route 27 is classified as an urban principal arterial and is under NJDOT (New Jersey Department of Transportation) jurisdiction. The roadway has a general north-south orientation and provides one travel lane in each direction. The posted speed limit varies between 25 and 45 mph.

College Road

College Road is classified as an urban major collector and is under municipal jurisdiction (Plainsboro). A portion of College Road West and the southern slip ramp to U.S. Route 1 southbound are under private jurisdiction and are posted with a 30 mph speed limit. College Road has a general east-west orientation and generally provides two lanes in each direction. The posted speed limit is 40 mph.

Ridge Road

Ridge Road is classified as an urban minor arterial and is under municipal jurisdiction (South Brunswick). The roadway has a general east-west orientation and provides one travel lane in each direction. The posted speed limit varies between 40 and 50 mph.

Mapleton Road

Mapleton Road is classified as a local road and has a general north-south orientation. The roadway provides one travel lane in each direction and has a posted speed limit of 40 mph.

Seminary Drive

Seminary Drive is classified as a local road and has a general east-west orientation. The roadway provides one travel lane in each direction and has a posted speed limit of 35 mph.

Heathcote Road

Heathcote Road is classified as an urban major collector and is under municipal jurisdiction (South Brunswick). The roadway has a general north-south orientation and provides one travel lane in each direction. The posted speed limit is 25 mph.

Academy Street

Academy Street is classified as an urban minor arterial and is under municipal jurisdiction (South Brunswick). The roadway has a general east-west orientation and provides one travel lane in each direction. The posted speed limit is 30 mph.

Laurel Avenue (County Road 603)

Laurel Avenue is classified as an urban major collector and is under Somerset County jurisdiction. The roadway has a general north-south orientation and provides one travel lane in each direction. The posted speed limit is 25 mph.

Scudders Mill Road (County Road 614)

Scudders Mill Road is classified as an urban minor arterial and is under Middlesex County jurisdiction. The roadway has a general east-west orientation and provides two travel lanes in each direction. The posted speed limit is 50 mph in the study area.

Research Way

Research Way is classified as an urban minor collector and is under municipal jurisdiction (Plainsboro). The roadway has a general east-west orientation and provides two travel lanes in each direction. The posted speed limit is 35 mph.

Intersections

U.S. Route 1 and Ridge Road

Ridge Road intersects U.S. Route 1 to form the east and west legs of a four-leg intersection under signal control. The eastbound Ridge Road approach provides one left-turn lane, one thru lane and one right-turn lane. The westbound Ridge Road approach provides one left-turn lane and one shared thru/right-turn lane. The northbound and southbound U.S. Route 1 approaches are striped to provide two thru lanes, however the NJDOT implemented a U.S. Route 1 congestion relief program in June 2017. The program allows commuters to use the shoulder as

an extra thru travel lane during the peak commuting times. Cars are allowed to use the shoulder from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00PM. The program converts the shoulder to a travel lane between Raymond Road and Independence Way in both the northbound and southbound directions. The Ridge Road intersection is located along this stretch of road, so during the weekday morning and evening the intersection was analyzed with three northbound and southbound thru lanes. On both the northbound and southbound U.S. Route 1 approaches left-turns and right-turns are made via nearside jughandles. The signal operates as part of the U.S. Route 1 signal adaptive system with a maximum cycle length of 240 seconds and three phases.

U.S. Route 1 and Independence Way

Independence Way intersects U.S. Route 1 to form the east and west legs of a four-leg intersection under signal control. The eastbound Independence Way approach provides two left-turn lanes and one shared thru/right-turn lane. The westbound Independence Way approach provides one left-turn lane and one channelized right-turn lane, which is stop-controlled. The northbound U.S. Route 1 approach provides two exclusive thru lanes and one shared thru/right-turn lane. The southbound U.S. Route 1 approach provides three thru lanes and all left-turns/U-turns/right-turns are made via a nearside jughandle. The signal operates as part of the U.S. Route 1 signal adaptive system with a maximum cycle length of 240 seconds and three phases. The third northbound and southbound lanes provided at the Independence Way intersection are picked up, to the north, by the NJDOT congestion relief shoulder use program allowing all three lanes in both directions to be used through Raymond Road.

College Road East and U.S. Route 1 Northbound Ramps

The U.S. Route 1 northbound ramps intersect College Road to form a four-leg intersection under signal control. The eastbound College Road approach provides two left-turn lanes and two thru lanes. The westbound College Road approach provides two thru lanes and a channelized right-turn lane, which is yield controlled. The northbound and southbound off-ramp approaches are free movement legs under yield control. The signal operates under three phases, including an all stop pedestrian phase, with a variable cycle length between 36 – 87 seconds.

College Road West and Village Boulevard / Jughandle

Village Boulevard and the jughandle intersect College Road to form the south and north legs, respectively, of a four-leg intersection under signal control. The eastbound College Road approach provides one exclusive thru lane and one shared thru/right-turn lane. The westbound College Road approach provides two thru lanes and all left-turns/U-turns are made via a nearside jughandle. The northbound Village Boulevard approach provides one left-turn lane and one right-

turn lane. The southbound jughandle/ramp approach provides one shared left-turn/thru lane, one exclusive thru lane and a channelized right turn lane, which is yield controlled. The signal operates under two phases with a variable cycle length between 34 – 91 seconds.

College Road West and Nursery Road and Seminary Drive

Nursery Road (north leg), College Road West (east and south legs) and Seminary Drive (west leg) intersect to form a four-leg intersection under signal control. The eastbound Seminary Drive approach has been built to accommodate one left-turn lane, one exclusive thru lane and one shared thru/right-turn lane. The westbound College Road West approach provides one left-turn lane, one thru lane and one channelized right-turn lane, which is a free movement. The northbound College Road West approach provides one left-turn lane and one shared thru/channelized right-turn lane, which is stop controlled. The southbound Nursery Road approach has been built to provide one exclusive left-turn lane, one shared left-turn/thru lane and one shared thru/right-turn lane. The signal operates under four phases with a variable cycle length and different time of day programs.

NJ Route 27 and Academy Street / Church Street

Academy Street and Church Street intersect NJ Route 27 to form the south and north legs, respectively, of a four-leg intersection under signal control. The eastbound NJ Route 27 approach provides one shared left-turn/thru lane and one right-turn lane. The westbound NJ Route 27 approach is striped to provide one shared left-turn/thru/right-turn lane, however the approach is wide enough to accommodate two approach lanes and based on observations it is operating as one exclusive left-turn lane and one shared thru/right-turn lane. The northbound Academy Street approach provides one shared left-turn/thru/right-turn lane. The southbound Church Street approach is one-way northbound and provides only a receiving lane. The signal operates under three phases with a 100 second background cycle length.

NJ Route 27 and Heathcote Road / Laurel Avenue

Heathcote Road and Laurel Avenue intersect NJ Route 27 to form the south and north legs, respectively, of a four-leg intersection under signal control. The eastbound NJ Route 27 approach provides one shared left-turn/thru/right-turn lane. The westbound NJ Route 27 approach provides one shared left-turn/thru/right-turn lane. The northbound Heathcote Road approach provides one shared left-turn/thru/right-turn lane. The southbound Laurel Avenue approach provides one shared left-turn/thru/right-turn lane. The signal operates under two phases with a 100 second background cycle length.

Seminary Drive and Mapleton Road and Barclay Boulevard

Barclay Boulevard (east leg), Mapleton Road (west and north legs) and Seminary Drive (south leg) intersect to form a four-leg intersection under signal control. The eastbound Mapleton Road approach provides one shared left-turn/thru/right-turn lane. The westbound Barclay Boulevard approach provides one shared left-turn/thru/right-turn lane. The northbound Seminary Drive approach provides one left-turn lane and one shared thru/right-turn lane. The southbound Mapleton Road approach provides one left-turn lane and one shared thru/right-turn lane. The signal operates under three phases with a variable cycle length between 74 – 95 seconds.

Scudders Mill Road (CR 614) and College Road East and Crowne Plaza Driveway

College Road East and the Crowne Plaza driveway intersect Scudders Mill Road to form the north and south legs, respectively, of a four-leg intersection under signal control. The eastbound CR 614 approach provides one left-turn lane, two thru lanes and one channelized right-turn lane, which is yield controlled. The westbound CR 614 approach provides one left-turn lane, two thru lanes and one right-turn lane. The northbound driveway approach provides one shared left-turn/thru/right-turn lane. The southbound College Road East approach provides one exclusive left-turn lane, one shared left-turn/thru lane and one right-turn lane. The signal operates under four phases with a variable cycle length between 71 – 111 seconds.

College Road East and Research Way

Research Way intersects College Road East to form the east leg of a T-shaped intersection under stop control. The westbound Research Way approach provides one left-turn lane and one right-turn lane and is "stop" controlled. The northbound College Road East approach provides one exclusive thru lane and one shared thru/right-turn lane. The southbound College Road East approach provides one left-turn lane and two thru lanes.

Traffic Volumes

We arranged for traffic counts to be conducted during the morning and evening peak hours on a typical weekday and during the midday peak hours on a typical Saturday at the study intersections to examine traffic conditions near the development. Specifically, turning movement counts were conducted on the following days:

- Tuesday, 25 October 2016, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM;
- Saturday, 22 October 2016 from 11:00 AM to 3:00 PM;
- Saturday, 20 May 2017 from 10:00 AM to 3:00 PM;
- Tuesday, 23 May 2017 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM;
- Tuesday, 20 October 2018 from 6:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM;

- Tuesday, 30 October 2018 from 6:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM; and
- Saturday, 27 October 2018 from 11:00 AM to 3:00 PM.

The counts for College Road East and Scudders Mill Road were obtained from BFJ Planning and collected on the following days:

- Wednesday, 14 November 2018 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM; and
- Tuesday, 24 September 2019 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM.

Additionally, ATR (Automatic Traffic Recorder) counts were conducted on all the ramps at the College Road and U.S. Route 1 interchange ranging from 12:00 AM on Friday, 21 October 2016, to 12:00 PM on Sunday, 13 November 2016. ATR data was also collected on Mapleton Road to the north of Seminary Drive from 12:00 AM on Saturday, 20 May 2017, to 12:00 AM on Saturday, 27 May 2017. ATR data was also collected on U.S. Route 1 south of College Road from 10:00 PM on Friday, 26 October 2018 to 1:00 PM on Friday, 2 November 2018.

The traffic counts identify distinct times during the weekday morning and evening, and Saturday midday periods when traffic experienced its highest levels. According to the traffic count data collected, the weekday morning peak hours generally occurs from 8:00 AM to 9:00 AM, the weekday evening peak hour generally occurs from 4:45 PM to 5:45 PM and the Saturday midday peak hour generally occurs from 11:45 AM to 12:45 PM. Note that the counted traffic volumes were reviewed and adjusted to balance traffic flow gains/ losses between intersections to create a representative base flow condition. Figure 2 illustrates the existing weekday morning and evening, and Saturday midday peak hour traffic volumes. Summaries of the traffic counts are contained in Appendix B.

Additionally, we reviewed the available traffic studies prepared by others over the years for the Princeton Forrestal Village, College Road East and Princeton Nurseries developments and created a table of the traffic counts performed in the study area. The historical counts show the traffic patterns of the roadway network from 1984 to 2019. Note that data made available by NJDOT was also utilized in the historical traffic count review. The table summarizes the historical traffic data and the current traffic data for intersections and roadway segments in the site area and is included in Appendix B.

The following observations were made from our review of the historical count data.

- Northbound and southbound traffic on U.S. Route 1 has increased modestly, but are similar in magnitude and pattern to data collected in 2003.

- On College Road West the weekday morning peak hour saw a larger increase of traffic volumes than the weekday evening peak hour.
- On NJ Route 27, the 10-month bridge replacement project, which resulted in the closure of Route 518 over the Delaware and Raritan (D&R) Canal in Rocky Hill, influenced the traffic patterns in this area that were observed in the 2016 traffic counts. As a result, we observed that the northbound and southbound traffic on NJ Route 27 had appeared to increase significantly in 2016 as compared to data collected in 2003. However, the additional count conducted in 2017, collected when the bridge was opened again, showed that the current, non-detoured, traffic patterns are similar to those observed in the 2003 traffic counts.

ESTIMATE OF FUTURE CONDITIONS - PLAINSBORO

This section of the report covers background traffic growth, other developments, site-generated trips, trip generation comparison, trip distribution, and future traffic volumes. We projected traffic volumes to include existing traffic and new traffic created by background growth to derive the projected traffic volumes. We accounted for trips generated by adjacent developments to derive the base traffic volumes. We then added site-generated trips based on the prior GDP for the Plainsboro development to derive the No-Build traffic volumes. To derive the Build traffic volumes, we then added the proposed Plainsboro amended development program site-generated trips to the base traffic volumes.

Background Traffic Growth

We increased the existing peak hour traffic volumes by a compounded annual growth rate of 1.0 percent, established by the New Jersey Department of Transportation (NJDOT) for Middlesex County for short term growth projections, to derive the projected traffic volumes. It should be noted that NJDOT growth rates are meant for short term projections, so we applied a background growth of 6 years to the existing traffic. The 6 year background growth is not the intended buildout year of the development but a limitation of the NJDOT growth rates. We accounted for additional long term growth on the roadway network by adding traffic associated with numerous adjacent developments in the project area. The projected traffic volumes are shown in Figure 3.

Other Developments

In addition to the background growth rate, the base condition also includes the addition of adjacent developments in the project area. Potential developments includes buildout of the 394 residential units that are part of the Forrestal Village located to the west of U.S. Route 1 (west side developments).

Using data contained in the Institute to Transportation Engineers (ITE) publication Trip Generation, 10th edition, we estimated the traffic generation of the above for Princeton Forrestal Village and summarized the generation in Table 1.

Table 1 – Trip Generation Estimates – Princeton Forrestal Center Undeveloped

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
394 Multi-Family Units	40	135	175	126	74	200	111	94	205

We then added the additional adjacent developments using information from prepared studies and shared data from others. The remaining adjacent developments include the following:

- Princeton Forrestal Campus (east side of U.S. Route 1)
- University Medical Center at Princeton (UMCP)
    - 105 bed Assisted Living – Medical Residential Facility
    - 24,550 sf Daycare Facility
    - 305 Senior Adult Housing Attached Units
- Former Bristol-Myers Squibb (BMS) reoccupancy of 646,156 sf and the conversion of the 24,872 sf daycare to office – 671,028 sf total
- 1100 Campus Road reoccupancy – 167,000 sf
- 8 Forrestal Road South (Princeton Forrestal Center South Campus) – 40,380 sf

We then added the traffic generation, Figure 4, of the total adjacent developments to the projected traffic volumes to derive the base traffic volumes. The base traffic volumes are shown in Figure 5.

Trip Distribution

We determined the directional distributions of the site-generated trips based on demographic journey-to-work data, census gravity model data, existing and expected travel patterns in the study area, and surrounding population locations. The retail distributions were based on a gravity model (5 miles) and the office and residential distributions were determined by using journey-to-work data. Table 2 summarizes the arrival and departure distributions.

Table 2 – Arrival & Departure Trip Distributions

Route (To/From)	Retail	Office	Residential
U.S. Route 1 (North)	7%	20%	28%
U.S. Route 1 (South)	39%	35%	24%
Ridge Road (East)	8%	2%	-
NJ Route 27 (North)	7%	2%	2%
NJ Route 27 (South)	8%	7%	9%
Laurel Avenue (West)	-	4%	5%
Scudders Mill Road (West)	-	-	2%
Dey Road (East)	5%	10%	12%
Plainsboro Road (East)	6%	14%	8%
Schalks Crossing Road (North)	8%	-	-
Schalks Crossing Road (South)	-	4%	8%
College Rd W (South)	6%	1%	2%
Barclay Boulevard	6%	1%	-
Total	**100%**	**100%**	**100%**

No-Build Traffic Volumes

We reviewed the prior GDP (General Development Plan) and supporting documents and based on the prior development program, in Plainsboro, have prepared trip generation estimates for the prior GDP using data compiled for Land Use Code 820 (Shopping Center) and Land Use Code 710 (General Office Building) by the ITE as contained in the publication Trip Generation, 10th edition.

The development of a site with a mix of uses will result in an interaction of traffic between the different uses. ITE has established a methodology for calculating the internal capture between various uses. Using this methodology as documented in the ITE's Trip Generation Handbook estimates of the internal capture adjustments were determined.

Additionally, a certain percentage of traffic attracted to retail land uses generally relates to the volume of traffic passing by a site. These trips are diverted into a site from the adjacent passing travel stream and continue along their original trip path when exiting a site. These specified trips are known as "pass-by" trips and are not new to an area or the immediate adjacent roadway system. We used the pass-by percentages in accordance with data contained in the ITE's Trip Generation Handbook, 3rd edition. Pass-by credits were applied to the external site-generated trips to determine the new trips the development would have generated. We used the pass-by percentages of 0% for the weekday morning peak hour (no data available), 34% for the weekday evening peak hour and 26% for the Saturday midday peak hour for the retail use.

The trip generation estimates for the prior Plainsboro GDP program is summarized in Table 3.

Table 3 – Trip Generation Estimates – Prior Plainsboro GDP

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
100,000sf Retail	125	77	202	261	282	543	322	297	619
1,900,000sf Office	1,950	266	2,216	388	1,767	2,155	544	463	1,007
Total	**2,075**	**343**	**2,418**	**649**	**2,049**	**2,698**	**866**	**760**	**1,626**
Internal Capture Reduction (approx. 5% AM; 2% PM; 3% SAT)									
100,000sf Retail	- 40	- 22	- 62	- 21	- 6	- 27	- 13	- 9	- 22
1,900,000sf Office	- 22	- 40	- 62	- 6	- 21	- 27	- 9	- 13	- 22
Total	**- 62**	**- 62**	**- 124**	**- 27**	**- 27**	**- 54**	**- 22**	**- 22**	**- 44**
Pass-By (0% AM; 34% PM; 26% SAT)									
100,000sf Retail	0	0	0	- 82	- 94	- 176	- 80	- 75	- 155
Total New Trips									
100,000sf Retail	85	55	140	158	182	340	229	213	442
1,900,000sf Office	1,928	226	2,154	382	1,746	2,128	535	450	985
Total	**2,013**	**281**	**2,294**	**540**	**1,928**	**2,468**	**764**	**663**	**1,427**

We assigned the trip generation estimates for the prior GDP shown in Table 3 to the adjacent roadway network using the trip distributions shown in Table 2. The arrival and departure distributions for the Plainsboro prior GDP are shown in Figures 6 – 8, respectively, for the office, retail and pass-by uses. The total site-generated trips (pass-by and new trips) for the Plainsboro prior GDP development are shown on Figure 9. We then added those assigned trips, Figure 9, to the base traffic volumes to derive the No-Build traffic volumes. Figure 10 illustrates the No-Build traffic volumes for the prior Plainsboro GDP.

Build Traffic Volumes

We have prepared an estimate of site-generated trips for the proposed new development program that is located in the Plainsboro section of the site. The estimates were prepared using data compiled for Land Use Code 820 (Shopping Center), Land Use Code 710 (General Office Building), Land Use Code 310 (Hotel), Land Use Code 252 (Senior Adult Housing Attached), Land Use Code 210 (Single Family Home) and Land Use Code 220 (Multifamily Housing (Low-Rise)) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition.

Since the proposed Plainsboro GDP also contains a mix of uses we used the ITE methodology, discussed in the No-Build condition section, to determine the internal interaction estimates, pass-by trips and new trips. Based upon ITE, we used the pass-by percentages of 0% for the weekday morning peak hour, 34% for the weekday evening peak hour and 26% for the Saturday midday peak hour.

Table 4 summarizes the trip generation estimates for the proposed Plainsboro development program for the weekday morning and evening, and Saturday midday peak hours.

Table 4 – Trip Generation Estimates – Proposed Plainsboro GDP

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
310,000sf Retail	190	117	307	602	653	1,255	787	726	1,513
220,000sf Office	292	40	332	55	252	307	63	54	117
125 room Hotel	34	23	57	35	33	68	51	40	91
Total Residential	***93***	***285***	***378***	***263***	***162***	***425***	***261***	***212***	***473***
200 Senior Adult	14	26	40	27	23	50	42	26	68
31 Single Family	7	20	27	21	12	33	24	20	44
719 Multi-Family	72	239	311	215	127	342	195	166	361
Total	**609**	**465**	**1,074**	**955**	**1,100**	**2,055**	**1,162**	**1,032**	**2,194**
Internal Capture Reduction (approx. 9% AM; 26% PM; 11% SAT)									
310,000sf Retail	- 17	- 14	- 31	- 113	- 140	- 253	- 50	- 73	- 123
220,000sf Office	- 27	- 11	- 38	- 19	- 53	- 72	- 22	- 11	- 33
125 room Hotel	0	- 12	- 12	- 10	- 5	- 15	0	0	0
Total Residential	- 2	- 9	- 11	- 126	- 70	- 196	- 51	- 39	- 90
Total	**- 46**	**- 46**	**- 92**	**- 268**	**- 268**	**- 536**	**- 123**	**- 123**	**- 246**
Pass-By (0% AM; 34% PM; 26% SAT)									
310,000sf Retail	0	0	0	- 166	- 175	- 341	- 191	- 170	- 361
Total New Trips									
310,000sf Retail	173	103	276	323	338	661	546	483	1,029
220,000sf Office	256	29	294	36	199	235	41	43	84
125 room Hotel	34	11	45	25	28	53	51	40	91
Total Residential	91	276	367	137	92	229	210	173	383
Total	**563**	**419**	**982**	**521**	**657**	**1,178**	**848**	**739**	**1,587**
Comparison to Original GDP Approval New Trips									
Original GDP Trips	2,013	281	2,294	540	1,928	2,468	764	663	1,427
Difference	**- 1,450**	**+ 138**	**- 1,312**	**- 19**	**- 1,271**	**- 1,290**	**+ 84**	**+ 76**	**+ 160**

We assigned the trip generation estimates shown in Tables 4 for the proposed Plainsboro new development program to the adjacent roadway network using the trip distributions shown in Table 2. The arrival and departure distributions for the proposed Plainsboro only development are shown in Figures 11 – 15, respectively, for the hotel, office, residential, retail and pass-by uses. The total site-generated trips (pass-by and new trips) for the proposed Plainsboro development are shown on Figure 16. The Build traffic volumes were derived by adding the total site-generated trips, Figure 16, to the base traffic volumes. Figure 17 illustrates the Build weekday morning and evening, and Saturday midday peak hour traffic volumes for the proposed Plainsboro GDP.

ANALYSIS OF TRAFFIC OPERATIONS - PLAINSBORO

This section describes the capacity analysis we conducted to assess traffic operations for the No-Build and Build conditions for the Plainsboro only development. Capacity analysis provides an indication of the adequacy of road facilities to serve traffic demand.

Level of Service Criteria

Level of Service (LOS) is the term used to denote different operating conditions that occur on a given road segment under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed, travel delay and freedom to maneuver. LOS designations range from A to F and provide an index of operational qualities of a road segment or an intersection. LOS A represents the best operating conditions; LOS F represents the worst.

LOS designations are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection. For unsignalized intersections, the analysis considers the operation of all movements that conflict with other movements, such as main-line left turns and traffic exiting a side street. The evaluation criteria used to analyze the study area intersections are based on the Highway Capacity Manual, 6th edition, (HCM), published by the Transportation Research Board and the Synchro Software.

The HCM defines LOS for signalized intersections as follows:

LOS	Control Delay per Vehicle
A	≤10 sec
B	>10 and ≤20 sec
C	>20 and ≤35 sec
D	>35 and ≤55 sec
E	>55 and ≤80 sec
F	>80 sec

The HCM defines LOS for unsignalized intersections as follows:

LOS	Delay Range (sec/veh)
A	≤10 sec
B	>10 and ≤15 sec
C	>15 and ≤25 sec
D	>25 and ≤35 sec
E	>35 and ≤50 sec
F	>50 sec

Capacity Analysis

We conducted capacity analyses for the intersections in the study area and found that the proposed new development will generally have less of an impact on the study area during peak hours then the prior GDP for the Plainsboro section. Table 5 summarizes the No-Build and Build levels of service (LOS) at each relevant study intersection during the weekday morning and evening, and Saturday midday peak hours. The following are discussions pertaining to each of the intersections analyzed. It is noted that for the Plainsboro only development access to the site is provided via the College Road West and Seminary Drive intersections without access to the internal roadway connections to Independence Way / U.S. Route 1 intersection, which will be constructed with the buildout of the South Brunswick development.

Table 5 – Intersection Capacity Analysis Summary – Plainsboro

Intersection (Plainsboro Only)	LANE USE No-Build	LANE USE Build	LANE USE Build w/ Mit	2024 No-Build Condition						2024 Build Condition						2024 Build Condition With Mitigation					
				AM		PM		SAT		AM		PM		SAT		AM		PM		SAT	
				LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
SIGNALIZED INTERSECTIONS																					
U.S. Rt 1 and Ridge Rd	**Overall**	**Overall**	**Overall**	**F**	**85.0**	**E**	**55.1**	**C**	**28.4**	**E**	**61.8**	**D**	**41.7**	**C**	**28.6**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-L	EB-L	EB-L	F	81.6	F	123.1	D	44.0	E	70.7	F	122.1	D	43.9	-	-	-	-	-	-
	EB-T	EB-T	EB-T	F	182.5	F	80.8	E	62.3	F	172.6	F	80.8	E	67.3	-	-	-	-	-	-
	EB-R	EB-R	EB-R	F	85.8	C	22.9	B	19.5	E	75.5	B	14.6	B	12.2	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	187.4	F	114.6	D	50.7	F	178.9	F	83.8	D	51.9	-	-	-	-	-	-
	WB-TR	WB-TR	WB-TR	F	95.3	F	168.4	F	81.7	F	103.5	F	141.3	F	80.7	-	-	-	-	-	-
	NB-TTT*	NB-TTT*	NB-TTT*	B	15.6	E	55.5	B	18.5	B	14.6	C	34.0	B	18.5	-	-	-	-	-	-
	SB-TTT*	SB-TTT*	SB-TTT*	F	96.9	B	16.1	C	25.1	E	56.3	B	17.3	C	25.1	-	-	-	-	-	-
U.S. Rt 1 and Independence Way	**Overall**	**Overall**	**Overall**	**B**	**14.8**	**C**	**25.4**	**A**	**2.4**	**A**	**7.3**	**B**	**18.6**	**A**	**2.4**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-LL	EB-LL	EB-LL	D	53.9	D	43.7	D	49.8	D	48.8	D	41.6	D	50.1	-	-	-	-	-	-
	EB-TR	EB-TR	EB-TR	E	67.3	E	61.4	D	55.0	E	67.1	E	61.2	E	55.0	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	83.7	F	170.8	E	65.5	E	76.9	F	127.0	E	65.5	-	-	-	-	-	-
	WB-R	WB-R	WB-R	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	-	-	-	-	-	-
	NB-TTTR	NB-TTTR	NB-TTTR	A	5.0	C	30.1	A	2.4	A	4.9	C	20.7	A	2.4	-	-	-	-	-	-
	SB-TTT	SB-TTT	SB-TTT	B	18.1	A	5.6	A	1.9	A	6.4	A	6.2	A	1.9	-	-	-	-	-	-
U.S. Rt 1 NB Ramps and College Rd E	**Overall**	**Overall**	**Overall**	**A**	**3.2**	**A**	**6.1**	**A**	**2.2**	**A**	**2.7**	**A**	**4.5**	**A**	**2.2**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-LL	EB-LL	EB-LL	A	1.1	A	8.5	A	0.8	A	0.9	A	3.1	A	0.8	-	-	-	-	-	-
	EB-TT	EB-TT	EB-TT	A	0.2	A	0.2	A	0.1	A	0.2	A	0.1	A	0.1	-	-	-	-	-	-
	WB-TT	WB-TT	WB-TT	A	7.7	B	13.8	A	6.1	A	8.4	B	10.6	A	6.2	-	-	-	-	-	-
	WB-R	WB-R	WB-R	A	0.2	A	0.7	A	0.0	A	0.2	A	0.7	A	0.0	-	-	-	-	-	-
	NEB-R	NEB-R	NEB-R	A	0.6	A	0.3	A	0.0	A	0.6	A	0.3	A	0.0	-	-	-	-	-	-
Village Blvd / Jug and College Rd W	**Overall**	**Overall**	**Overall**	**B**	**13.5**	**D**	**35.5**	**A**	**7.7**	**B**	**11.5**	**B**	**14.0**	**A**	**9.0**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-TTR	EB-TTR	EB-TTR	A	7.0	D	51.2	A	7.5	B	11.3	B	11.3	A	9.1	-	-	-	-	-	-
	WB-TT	WB-TT	WB-TT	B	13.3	B	10.2	A	6.9	A	9.1	B	13.2	A	7.9	-	-	-	-	-	-
	NB-L	NB-L	NB-L	C	27.2	C	26.4	B	12.9	B	16.4	C	20.9	B	14.3	-	-	-	-	-	-
	NB-R	NB-R	NB-R	A	9.3	D	38.9	A	5.8	A	9.0	C	23.7	A	8.4	-	-	-	-	-	-
	SB-LTT	SB-LTT	SB-LTT	C	34.2	C	29.2	B	13.5	B	18.3	C	20.7	B	14.7	-	-	-	-	-	-
College Rd W and Seminary Dr and Nursey Rd	**Overall**	**Overall**	**Overall**	**D**	**49.8**	**F**	**201.8**	**C**	**31.1**	**C**	**24.4**	**C**	**23.8**	**C**	**20.3**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-L	EB-L	EB-L	C	25.2	C	27.0	B	12.1	A	8.3	B	17.1	B	14.2	-	-	-	-	-	-
	EB-TTR	EB-TTR	EB-TTR	C	20.7	C	20.0	B	15.3	C	28.2	B	18.7	B	19.5	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	171.1	B	16.5	B	11.7	D	41.7	B	19.2	B	14.7	-	-	-	-	-	-
	WB-T	WB-TT	WB-TT	C	23.4	F	110.8	C	20.1	B	14.1	C	28.8	C	21.5	-	-	-	-	-	-
	WB-R	WB-R	WB-R	E	59.7	A	0.6	A	1.2	A	0.4	A	0.6	A	1.5	-	-	-	-	-	-
	NB-L	NB-LL	NB-LL	D	38.3	F	164.8	D	42.3	D	43.8	D	47.0	D	40.7	-	-	-	-	-	-
	NB-TR	NB-T	NB-T	C	20.9	C	26.8	B	18.5	D	45.1	D	45.4	D	44.5	-	-	-	-	-	-
	-	NB-R	NB-R	-	-	-	-	-	-	B	19.1	B	16.2	B	14.0	-	-	-	-	-	-
	SB-L	SB-LL	SB-LL	D	41.8	F	534.9	F	122.4	D	46.8	D	39.7	D	42.0	-	-	-	-	-	-
	SB-LTTR	SB-T	SB-T	C	27.6	F	247.1	D	40.7	D	39.2	C	27.8	C	25.0	-	-	-	-	-	-
	-	SB-R	SB-R	-	-	-	-	-	-	A	0.4	A	4.9	A	4.3	-	-	-	-	-	-
Academy St / Church St and NJ Rt 27	**Overall**	**Overall**	**Overall**	**D**	**53.6**	**F**	**265.0**	**C**	**20.6**	**E**	**64.4**	**F**	**192.4**	**C**	**24.6**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-LT	EB-LT	EB-LT	B	13.3	C	22.7	B	12.7	B	13.3	C	22.7	B	12.7	-	-	-	-	-	-
	EB-R	EB-R	EB-R	A	7.8	A	2.5	A	1.7	A	4.6	A	2.5	A	1.7	-	-	-	-	-	-
	WB-L	WB-L	WB-L	A	6.9	A	9.9	A	4.8	A	5.6	B	10.6	A	4.9	-	-	-	-	-	-
	WB-TR	WB-TR	WB-TR	A	5.2	A	6.5	A	4.6	A	5.3	A	6.4	A	4.6	-	-	-	-	-	-
	NB-LTR	NB-LTR	NB-LTR	F	269.9	F	663.7	F	80.4	F	304.7	F	522.1	F	98.1	-	-	-	-	-	-
HeathcoteRd/ Laurel Ave and NJ Rt 27	**Overall**	**Overall**	**Overall**	**F**	**140.7**	**F**	**113.5**	**C**	**28.6**	**F**	**113.1**	**F**	**111.1**	**C**	**28.3**	**-**	**-**	**-**	**-**	**-**	**-**
	EB-LTR	EB-LTR	EB-LTR	A	7.4	A	9.3	A	8.2	A	7.5	A	9.1	A	8.4	-	-	-	-	-	-
	WB-LTR	WB-LTR	WB-LTR	C	23.7	B	18.0	B	15.8	C	22.6	B	18.0	B	16.1	-	-	-	-	-	-
	NB-LTR	NB-LTR	NB-LTR	F	275.3	F	166.9	D	36.4	F	222.3	F	164.5	D	36.6	-	-	-	-	-	-
	SB-LTR	SB-LTR	SB-LTR	F	303.2	F	338.8	E	73.3	F	246.8	F	331.4	E	73.0	-	-	-	-	-	-
Seminary Dr and Mapleton Rd/ Barclay Blvd	**Overall**	**Overall**	**Overall**	**F**	**87.3**	**B**	**17.9**	**A**	**8.3**	**D**	**43.5**	**B**	**13.7**	**A**	**9.3**	**B**	**19.2**	**B**	**13.0**	**A**	**7.8**
	EB-LTR	EB-LTR	EB-LTR	C	27.0	A	6.0	A	1.0	C	27.7	A	5.9	A	0.9	C	27.7	A	5.9	A	0.9
	WB-LTR	WB-LTR	WB-LTR	D	41.7	C	30.8	C	28.6	D	40.0	C	31.8	C	32.0	D	40.0	C	31.8	C	32.0
	NB-L	NB-L	NB-L	A	5.4	A	2.6	A	3.0	A	5.3	A	2.8	A	3.4	A	5.3	A	2.7	A	3.4
	NB-TR	NB-TR	NB-TR	A	8.8	C	23.2	A	6.5	A	8.8	B	16.9	A	7.1	A	8.8	B	16.9	A	7.1
	SB-L	SB-L	SB-L	A	4.0	A	3.3	A	3.1	A	3.8	A	3.4	A	3.4	A	3.8	A	3.4	A	3.4
	SB-TR	SB-TR	SB-T	F	126.1	A	8.1	A	7.6	E	61.7	A	8.4	A	8.3	C	25.6	A	7.5	A	7.1
	-	-	SB-R	-	-	-	-	-	-	-	-	-	-	-	-	A	2.5	A	1.8	A	1.7

**Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]
* Third thru land analyzed during the AM and PM peak hours based on NJDOT congestion relief program

Table 5 cont'd – Intersection Capacity Analysis Summary - Plainsboro

Intersection (Plainsboro Only)	LANE USE No-Build	LANE USE Build	LANE USE Build w/ Mit	2024 No-Build Condition						2024 Build Condition						2024 Build Condition With Mitigation					
				AM		PM		SAT		AM		PM		SAT		AM		PM		SAT	
				LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
SIGNALIZED INTERSECTIONS CONT'D																					
9Crowne Plaza/ College Rd E and Scudders Mill Rd	**Overall**	**Overall**	**Overall**	**F**	**204.3**	**F**	**98.5**	-	-	**F**	**176.4**	**D**	**46.5**	-	-	**D**	**35.3**	**D**	**40.8**	-	-
	EB-L	EB-L	EB-L	D	48.6	E	65.6	-	-	D	49.8	E	65.7	-	-	D	52.4	E	71.4	-	-
	EB-TT	EB-TT	EB-TT	C	21.4	D	45.0	-	-	C	22.1	D	44.4	-	-	B	19.8	D	39.1	-	-
	EB-R	EB-R	EB-R	A	0.1	A	0.0	-	-	A	0.1	A	0.0	-	-	A	0.1	A	0.0	-	-
	WB-L	WB-L	WB-L	D	45.9	D	46.0	-	-	D	46.9	D	46.0	-	-	D	52.0	E	56.4	-	-
	WB-TT	WB-TT	WB-TTT	F	317.5	C	34.2	-	-	F	327.7	C	34.3	-	-	E	58.8	C	31.9	-	-
	WB-R	WB-R	WB-R	F	247.8	A	5.3	-	-	F	129.8	A	5.3	-	-	A	2.8	A	5.3	-	-
	NB-LTR	NB-LTR	NB-LTR	C	34.2	D	42.3	-	-	C	34.8	D	42.4	-	-	D	46.2	E	63.8	-	-
	SB-L	SB-L	SB-L	D	45.4	F	260.7	-	-	D	46.0	E	79.7	-	-	D	50.7	E	62.3	-	-
	SB-LT	SB-LT	SB-LT	D	44.7	F	264.2	-	-	D	45.3	F	82.5	-	-	D	49.8	E	63.6	-	-
	SB-R	SB-R	SB-R	A	9.7	B	10.0	-	-	A	9.3	A	7.1	-	-	A	9.7	A	6.6	-	-
PROPOSED SIGNALIZED INTERSECTIONS																					
College Rd E and Research Way	**-**	**-**	**Overall**	-	-	-	-	-	-	-	-	-	-	-	-	**A**	**9.1**	**B**	**14.3**	**A**	**5.9**
	-	-	WB-LLR	-	-	-	-	-	-	-	-	-	-	-	-	A	9.3	B	11.7	A	6.6
	-	-	WB-R	-	-	-	-	-	-	-	-	-	-	-	-	A	8.0	B	13.3	A	6.6
	-	-	NB-U	-	-	-	-	-	-	-	-	-	-	-	-	A	0.0	A	0.0	A	0.0
	-	-	NB-TTR	-	-	-	-	-	-	-	-	-	-	-	-	B	13.1	B	17.6	A	8.6
	-	-	SB-L	-	-	-	-	-	-	-	-	-	-	-	-	A	4.8	C	20.7	A	3.0
	-	-	SB-TT	-	-	-	-	-	-	-	-	-	-	-	-	A	7.0	A	3.1	A	3.7
Evergreen Dr/ Western Dr and Seminary Dr	**-**	**-**	**Overall**	-	-	-	-	-	-	-	-	-	-	-	-	**B**	**10.6**	**A**	**7.2**	**A**	**5.4**
	-	-	EB-L	-	-	-	-	-	-	-	-	-	-	-	-	A	3.7	A	5.5	A	3.9
	-	-	EB-TR	-	-	-	-	-	-	-	-	-	-	-	-	B	12.6	A	3.1	A	4.0
	-	-	WB-L	-	-	-	-	-	-	-	-	-	-	-	-	A	5.2	A	2.7	A	3.4
	-	-	WB-T	-	-	-	-	-	-	-	-	-	-	-	-	A	5.2	A	8.4	A	4.0
	-	-	WB-R	-	-	-	-	-	-	-	-	-	-	-	-	A	1.0	A	0.9	A	1.1
	-	-	NB-LTR	-	-	-	-	-	-	-	-	-	-	-	-	A	8.6	A	9.9	A	8.3
	-	-	SB-LT	-	-	-	-	-	-	-	-	-	-	-	-	D	38.1	C	34.6	C	30.1
	-	-	SB-R	-	-	-	-	-	-	-	-	-	-	-	-	B	12.8	B	14.6	B	11.4
UNSIGNALIZED INTERSECTIONS																					
College Rd E and Research Way	WB-L	-	-	F	N/A	F	N/A	C	15.1	F	446.0	F	788.9	C	15.5	-	-	-	-	-	-
	WB-R	-	-	F	159.1	C	19.8	A	9.7	E	41.4	C	20.0	A	9.8	-	-	-	-	-	-
	SB-L	-	-	B	13.0	C	21.9	A	8.2	A	9.9	C	21.6	A	8.2	-	-	-	-	-	-
Evergreen Dr/ Western Dr and Seminary Dr	EB-L	-	-	-	-	-	-	-	-	A	8.8	B	11.6	A	8.4	-	-	-	-	-	-
	WB-L	-	-	-	-	-	-	-	-	B	11.0	A	8.3	A	8.0	-	-	-	-	-	-
	NB-LTR	-	-	-	-	-	-	-	-	F	60.7	E	49.3	C	16.3	-	-	-	-	-	-
	SB-LT	-	-	-	-	-	-	-	-	F	319.5	F	93.8	C	24.8	-	-	-	-	-	-
	SB-R	-	-	-	-	-	-	-	-	B	13.0	C	23.3	B	10.8	-	-	-	-	-	-

*Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]

U.S. Route 1 and Ridge Road

The signalized intersection is expected to operate at an overall LOS F during the weekday morning peak hour, an overall LOS E during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS E during the weekday morning peak hour, an overall LOS D during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour.

The intersection operates as an adaptive system and the coordinated U.S. Route 1 signal system can adapt cycle length and phase length depending on traffic demands through the network. To analyze the U.S. Route 1 intersection we used the phase minimums and maximum adaptive mode cycle length (240 second) specified on the timing directive for the Adaptive Mode plan and found the optimized peak hour cycle length for each time period and analysis condition. The above analyses provide for a reasonable representation of the operational characteristics of these traffic signals in the adaptive system. It is anticipated more of a benefit is realized in real-world applications of the adaptive mode then what the analysis suggests.

U.S. Route 1 and Independence Way

The signalized intersection is expected to operate at an overall LOS B during the weekday morning peak hour, LOS C during the weekday evening peak hour, and LOS A during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS A during both the weekday morning and Saturday midday peak hours and an overall LOS B during the weekday evening peak hour.

The intersection operates as an adaptive system and the coordinated U.S. Route 1 signal system can adapt cycle length and phase length depending on traffic demands through the network. To analyze the U.S. Route 1 intersection we used the phase minimums and maximum adaptive mode cycle length (240 second) specified on the timing directive for the Adaptive Mode plan and found the optimized peak hour cycle length for each time period and analysis condition. The above analyses provide for a reasonable representation of the operational characteristics of these traffic signals in the adaptive system. It is anticipated more of a benefit is realized in real-world applications of the adaptive mode then what the analysis suggests.

College Road East and U.S. Route 1 Northbound Ramps

The signalized intersection is expected to operate at an overall LOS A during the weekday morning and evening, and Saturday midday peak hours under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS A during the weekday morning and evening, and Saturday midday peak hours.

College Road West and Village Boulevard / Jughandle

The signalized intersection is expected to operate at an overall LOS B during the weekday morning peak hour, an overall LOS D during the weekday evening peak hour, and an overall LOS A during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours and an overall LOS A during the Saturday midday peak hour.

College Road West and Nursery Road and Seminary Drive

The signalized intersection is expected to operate at an overall LOS D during the weekday morning peak hour, an overall LOS F during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour under the No-Build condition based upon the intersection geometry and signal operation recently constructed in accordance with prior approvals. Under the Build condition adjustments to the intersection geometry will be required to be phased in as the project proceeds in order to accommodate the current traffic projections. These geometric and signal improvements at full development would include:

- Modify the southbound Nursery Road approach geometry
  - Current lane configuration – left, left/thru, thru/right
  - Proposed lane configuration – left, left, thru, right
  - The exclusive double left turn lanes would improve queuing and allow for more flexibility in reallocating green time to other movements such as the WB advance in the AM peak hours and to the NB phase in the PM peak hours.
- Modify the northbound College Road West approach geometry
  - Current lane configuration – left, thru/right
  - Proposed lane configuration – left, left, thru, right
- Modify the westbound College Road West approach geometry
  - Current lane configuration – left, thru, right
  - Proposed lane configuration – left, thru, thru, right
- AM peak hour – Add a third timing program for the AM peak hours. Timing adjustment to allocate more green time to the WB College Road West advance phase.
  - Additional 12 seconds to the WB/EB left advance phase.
    - 6 seconds from the NB College Road West R.O.W. phase.
    - 6 seconds from the EB/WB E College Road West/Seminary Drive R.O.W. phase.
- PM peak hour – Timing adjustment to allocate more green time to the NB College Road West phase.
  - Additional 3 seconds to the NB College Road West R.O.W. phase. Additional 5 seconds to EB/WB College Road West/Seminary Road R.O.W. phase.
    - 2 seconds from the SB Nursery Road R.O.W. phase.
    - 6 seconds from the EB/WB left advance phase.
- Saturday peak hour – Timing adjustment to allocate more green time to the SB Nursery Road phase.
  - Additional 8 seconds to the SB Nursery Road R.O.W. phase.
    - 2 seconds from the NB College Road West R.O.W. phase.
    - 6 seconds from the EB/WB College Road West/Seminary Road R.O.W. phase.

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS C during the weekday morning and evening, and Saturday midday peak hours under the Build condition.

The above intersection improvements can be phased as the project proceeds with implementation timeframes confirmed at the time of site plan applications. The intersection geometry should be designed in order to ensure that the development design accommodates full implementation of the future geometry. Initial development will be accommodated by the currently constructed intersection geometry and the proposed signal timing adjustments. We estimate that up to approximately 50% of the Princeton Nurseries Plainsboro development program traffic generation can be developed before geometric improvements would be required. At the time of each site plan application for development an updated traffic study should be

undertaken to determine when the overall intersection's Level of Service may decrease to Level of Service D, which would trigger the construction of the additional intersection geometry.

NJ Route 27 and Academy Street / Church Street

The signalized intersection is expected to operate at an overall LOS D during the weekday morning peak hour, an overall LOS F during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS E during the weekday morning peak hour and an overall LOS F during the weekday evening peak hour; however it should be noted that even though the intersection is an LOS F the overall delay between the No-Build and Build condition improves. During the Saturday midday peak hour, under the Build condition, the intersection is expected to operate at an overall LOS C.

NJ Route 27 and Heathcote Road / Laurel Avenue

The signalized intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours, and an overall LOS C during the Saturday midday peak hours; however it should be noted that even though the intersection is an LOS F the overall delay between the No-Build and Build condition improves.

Seminary Drive and Mapleton Road and Barclay Boulevard

The signalized intersection is expected to operate at an overall LOS F during the weekday morning peak hour, an overall LOS B during the weekday evening peak hour, and an overall LOS A during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS D during the weekday morning peak hour, an overall LOS B during the weekday evening, and an overall LOS A during the Saturday midday peak hour.

Based on the results of the analyses the following is recommended to improve operations at the intersection.

- Improve the southbound Mapleton Road approach geometry
  - Current lane configuration – left, thru/right
  - Proposed lane configuration – left, thru, right

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours, and an overall LOS A during the Saturday midday peak hour.

At the time of each site plan application for development an updated traffic study should be undertaken to determine when the intersection's southbound approach Level of Service may decrease to Level of Service E, which would trigger the construction of the exclusive southbound right-turn lane.

Scudders Mill Road (CR 614) and College Road East and Crowne Plaza Driveway

The signalized intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS F during the weekday morning peak hour and an overall LOS D during the weekday evening peak hour.

Based on the results of the analyses the following is recommended to improve operations at the intersection. The need for the proposed improvements results from regional growth, traffic associated with other area projects as well as the project development.

- Modify the westbound Scudders Mill Road approach geometry
  - Current lane configuration – left, thru, thru, right
  - Proposed lane configuration – left, thru, thru, thru, right (channelized free-flow)
- Lengthen the southbound, College Road East, left-turn storage lane.
- Timing mitigation
  - Increase the maximum cycle length to 120 seconds.
  - Additional 5 seconds to EB/WB Scudders Mill Road left advance phase.
  - Additional 7 seconds to EB/WB Scudders Mill Road R.O.W. phase.
  - Additional 11 seconds to SB College Road East R.O.W. phase.
  - 14 seconds from the NB Driveway R.O.W. phase.

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS D during both the weekday morning and evening peak hours.

The University shall participate in the improvements at this intersection in accordance with the projects fair share which has been calculated to be 17% of the increased traffic. The contribution or in-kind construction of a portion of the improvements equivalent to the fair share obligation is proposed when the following occurs:

1. Forrestal Campus exceeds 1,300 vehicle trips in the AM or PM peak; and
2. Princeton Nurseries traffic generation reaches 400 vehicle trip generation in the AM or PM peak.

College Road East and Research Way

All movements at the unsignalized intersection are expected to operate at LOS C or better during both the weekday morning and evening peak hours under the No-Build condition with the

exception of the westbound approach during the morning peak hour and the westbound left-turn during the evening peak hour, which are expected to operate at LOS F. During the Saturday midday peak hour, under the No-Build condition, all movements are expected to operate at LOS C or better. Under the Build condition, all movements are expected to operate at an LOS E or better during the weekday morning peak hour and an LOS C or better during the weekday evening peak hour with the exception of the westbound left-turn movement, which are expected to operate at LOS F. During the Saturday midday peak hour, under the Build condition, all movements are expected to operate at LOS C or better.

Based on the results of the Build condition analyses it is recommend to signalize the intersection. With signalization the intersection is expected to operate at an overall LOS A during both the weekday morning and Saturday midday peak hours, and an overall LOS B during the weekday evening peak hour. The improvement of this intersection should proceed in accordance with the requirements of the existing PFC Traffic Agreement, which with regards to Princeton Nurseries' development requires the submission of a Warrant Analysis "upon the submission of the first preliminary site plan application for a non-residential development in Princeton Nurseries".

Seminary Drive and Western Access Street / Evergreen Drive

Geometry

The western street is proposed to intersect the existing T-shaped intersection of Seminary Drive and Evergreen Drive to form the north leg of a four-leg intersection. The eastbound Seminary Drive approach will provide one left-turn lane and one shared thru/right-turn lane. The westbound Seminary Drive approach will provide one left-turn lane, one thru lane and one right-turn lane. The northbound Evergreen Drive approach will provide one shared left-turn/thru/right-turn lane. The southbound access street approach is recommended to provide one shared left-turn/thru lane and one right-turn lane. It is recommended that the intersection is signalized.

Analysis

Without signalization all movements at the intersection are expected to operate at LOS C or better during the weekday morning and Saturday midday peak hours and LOS E or better during the weekday evening peak hour under the Build condition with the exception of the southbound left-turn/thru movement and the northbound approach during the weekday morning peak hour and the southbound left-turn/thru movement during the weekday evening peak hour, which are expected to operate at an LOS F.

With signalization and the recommended geometric improvements the intersection is expected to operate at an overall LOS B during the weekday morning peak hour and an overall LOS A during both the weekday evening and Saturday midday peak hours.

The Plainsboro Princeton Nurseries can be developed up to approximately 50 percent of its projected peak hour traffic generation with access from the existing Nursery Road intersection. Construction of the Western Access Street and its associated recommended geometry should be constructed when the Princeton Nurseries Plainsboro development proposed traffic generation reaches 50 percent peak hour traffic generation as documented in this report. The traffic signal underground conduits and junction boxes should be installed when the intersection is constructed. When the intersection is projected to operate at the level of service D/E range, the intersection should be monitored for traffic signal installation in accordance with MUTCD (Manual on Uniform Traffic Control Devices) Traffic Signal Warrant criteria.

ESTIMATE OF FUTURE CONDITIONS – PLAINSBORO & SOUTH BRUNSWICK

For planning purposes we conducted a supplemental analysis assuming the approval of a permitted buildout of the existing commercial office zone on the South Brunswick portion of the property. Based on current zoning, up to 1,800,000 sf of office space could be developed in South Brunswick This section of the report covers background traffic growth, other developments, site-generated trips, trip generation comparison, trip distribution, and future traffic volumes. We projected traffic volumes to include existing traffic and new traffic created by background growth to derive the projected traffic volumes. We accounted for trips generated by adjacent developments to derive the base traffic volumes. We then added site-generated trips based on the two prior GDPs for the Plainsboro and South Brunswick Princeton Nurseries developments to derive the No-Build traffic volumes. To derive the Build traffic volumes we then added the proposed overall Plainsboro and South Brunswick proposed development program site-generated trips to the base traffic volumes.

Background Traffic Growth and Other Developments

The background traffic growth and adjacent developments are the same as discussed previously in the Plainsboro alone development section of Estimate of Future Conditions.

Trip Distribution

The arrival and departure distributions from Table 2 were used to assign the overall (Plainsboro and South Brunswick) development trip generation estimates to the adjacent roadway network.

No-Build Traffic Volumes

We reviewed the prior Plainsboro and current South Brunswick GDPs and supporting documents, and based on the development programs, for both Plainsboro and South Brunswick, have prepared trip generation estimates for the prior development GDPs using data compiled for Land Use Code 820 (Shopping Center), Land Use Code 710 (General Office Building) and Land Use Code 310 (Hotel) by the ITE as contained in the publication Trip Generation, 10th edition.

Additionally, we used the same internal capture methodology and pass-by credits for the overall development as we did for the Plainsboro only development discussed previously. We used the pass-by percentages of 0% for the weekday morning peak hour (no data available), 34% for the weekday evening peak hour and 26% for the Saturday midday peak hour for the retail use.

The trip generation estimates for the development programs of the prior Plainsboro and current South Brunswick GDPs are summarized in Table 6.

Table 6 – Trip Generation Estimates – Prior Plainsboro & Current South Brunswick GDPs

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
100,000sf Retail	125	77	202	261	282	543	322	297	619
2,620,000sf Office	2,588	353	2,941	530	2,417	2,947	750	639	1,389
300 Hotel Rooms	86	59	145	101	98	199	118	93	211
Total	**2,799**	**489**	**3,288**	**892**	**2,797**	**3,689**	**1,190**	**1,029**	**2,219**
Internal Capture Reduction (approx. 7% AM; 3% PM; 2% SAT)									
100,000sf Retail	- 45	- 22	- 67	- 26	- 20	- 46	- 13	- 9	- 22
2,620,000sf Office	- 66	- 40	- 106	- 6	- 21	- 27	- 9	- 13	- 22
300 Hotel Rooms	0	- 49	- 49	- 14	- 5	- 19	0	0	0
Total	**- 111**	**- 111**	**- 222**	**- 46**	**- 46**	**- 92**	**- 22**	**- 22**	**- 44**
Pass-By (0% AM; 34% PM; 26% SAT)									
100,000sf Retail	0	0	0	- 80	- 89	- 169	- 80	- 75	- 155
Total New Trips									
100,000sf Retail	80	55	135	155	173	328	229	213	442
2,620,000sf Office	2,522	313	2,835	524	2,396	2,920	741	626	1,367
300 Hotel Rooms	86	10	96	87	93	180	118	93	211
Total	**2,688**	**378**	**3,066**	**766**	**2,662**	**3,428**	**1,088**	**932**	**2,020**

We assigned the trip generation estimates for the prior Plainsboro and current South Brunswick GDPs shown in Table 6 to the adjacent roadway network using the trip distributions shown in Table 2. The arrival and departure distributions for the prior Plainsboro and current South Brunswick GDPs are shown in Figures 18 – 21, respectively, for the hotel, office, retail and pass-by uses. The total site-generated trips (pass-by and new trips) for the development associated with the prior Plainsboro and current South Brunswick GDPs is shown on Figure 22. We then added those assigned trips, Figure 22, to the base traffic volumes to derive the No-Build traffic volumes. Figure 23 illustrates the No-Build traffic volumes for the two prior GDPs.

Build Traffic Volumes

We have prepared an estimate of site-generated trips for the proposed development in both Plainsboro and South Brunswick assuming a full buildout of the South Brunswick tract in accordance with current entitlements (zoning + GDP) to provide up to 1,800,000 sf of office space. The estimates were prepared using data compiled for Land Use Code 820 (Shopping Center), Land Use Code 710 (General Office Building), Land Use Code 310 (Hotel), Land Use Code 252 (Senior Adult Housing Attached), Land Use Code 210 (Single Family Home) and Land Use Code 220 (Multifamily Housing (Low-Rise)) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition.

Since the proposed Plainsboro GDP and the entitlement for South Brunswick contain a mix of uses we used the ITE methodology, discussed in the Plainsboro only development section, to

determine the internal interaction estimates, pass-by trips and new trips. Based upon ITE, we used the pass-by percentages of 0% for the weekday morning peak hour, 34% for the weekday evening peak hour and 26% for the Saturday midday peak hour.

Table 7 summarizes the trip generation estimates for the development programs for the weekday morning and evening, and Saturday midday peak hours.

Table 7 – Trip Generation Estimates – Proposed Plainsboro & Entitled South Brunswick

Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
310,000sf Retail	190	117	307	602	653	1,255	787	726	1,513
2,020,000sf Office	2,058	281	2,339	412	1,875	2,287	578	493	1,071
125 Hotel Rooms	34	23	57	35	33	68	51	40	91
Total Residential	***93***	***285***	***378***	***263***	***162***	***425***	***261***	***212***	***473***
200 Senior Adult	14	26	40	27	23	50	42	26	68
31 Single Family	7	20	27	21	12	33	24	20	44
719 Multi-Family	72	239	311	215	127	342	195	166	361
Total	**2,375**	**706**	**3,081**	**1,312**	**3,723**	**4,035**	**1,677**	**1,471**	**3,148**
Internal Capture Reduction (approx. 8% AM; 14% PM; 9% SAT)									
310,000sf Retail	- 67	- 36	- 103	- 113	- 140	- 253	- 70	- 73	- 143
2,020,000sf Office	- 57	- 61	- 118	- 19	- 59	- 78	- 22	- 31	- 53
125 Hotel Rooms	0	- 20	- 20	- 10	- 5	- 15	0	0	0
Total Residential	- 2	- 9	- 11	- 132	- 70	- 202	- 51	- 39	- 90
Total	**- 126**	**- 126**	**- 252**	**- 274**	**- 274**	**- 548**	**- 143**	**- 143**	**- 286**
Pass-By (0% AM; 34% PM; 26% SAT)									
310,000sf Retail	0	0	0	- 166	- 175	- 341	- 186	- 170	- 356
Total New Trips									
310,000sf Retail	123	81	204	323	338	661	531	483	1,014
2,020,000sf Office	2,001	220	2,221	393	1,816	2,209	556	462	1,018
125 Hotel Rooms	34	3	37	25	28	53	51	40	91
Total Residential	91	276	367	131	92	223	210	173	383
Total	**2,249**	**580**	**2,829**	**872**	**2,274**	**3,146**	**1,348**	**1,158**	**2,506**
Comparison to Original GDP Approval New Trips									
Original GDP Trips	2,688	378	3,066	766	2,662	3,428	1,088	932	2,020
Difference	**- 439**	**+ 202**	**- 237**	**+ 106**	**- 388**	**- 282**	**+ 260**	**+ 226**	**+ 486**

We assigned the trip generation estimates shown in Tables 7 for the proposed development programs to the adjacent roadway network using the trip distributions shown in Table 2. The arrival and departure distributions for the proposed developments are shown in Figures 24 – 28, respectively, for the hotel, office, residential, retail and pass-by uses. The total site-generated trips (pass-by and new trips) for the proposed developments are shown on Figure 29. The Build traffic volumes were derived by adding the total site-generated trips, Figure 29, to the base traffic volumes. Figure 30 illustrates the Build weekday morning and evening, and Saturday midday

peak hour traffic volumes for the development programs of the proposed Plainsboro GDP and South Brunswick entitlement.

ANALYSIS OF TRAFFIC OPERATIONS – PLAINSBORO & SOUTH BRUNSWICK

This section describes the capacity analysis we conducted to assess traffic operations for the No-Build and Build conditions for both the Plainsboro and South Brunswick developments. Capacity analysis provides an indication of the adequacy of road facilities to serve traffic demand.

Level of Service Criteria

Level of Service (LOS) is the term used to denote different operating conditions that occur on a given road segment under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed, travel delay and freedom to maneuver. LOS designations range from A to F and provide an index of operational qualities of a road segment or an intersection. LOS A represents the best operating conditions; LOS F represents the worst.

LOS designations are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection. For unsignalized intersections, the analysis considers the operation of all movements that conflict with other movements, such as main-line left turns and traffic exiting a side street. The evaluation criteria used to analyze the study area intersections are based on the Highway Capacity Manual, 6th edition, (HCM), published by the Transportation Research Board and the Synchro Software.

The HCM defines LOS for signalized intersections as follows:

LOS	Control Delay per Vehicle
A	≤10 sec
B	>10 and ≤20 sec
C	>20 and ≤35 sec
D	>35 and ≤55 sec
E	>55 and ≤80 sec
F	>80 sec

The HCM defines LOS for unsignalized intersections as follows:

LOS	Delay Range (sec/veh)
A	≤10 sec
B	>10 and ≤15 sec
C	>15 and ≤25 sec
D	>25 and ≤35 sec
E	>35 and ≤50 sec
F	>50 sec

Capacity Analysis

We conducted capacity analyses for the intersections in the study area and found that the proposed development will generally have less of an impact on the study area during peak hours than the developments in accordance with the prior Plainsboro and current South Brunswick GDPs. Table 8 summarizes the No-Build and Build levels of service (LOS) at each relevant study intersection during the weekday morning and evening, and Saturday midday peak hours. The following are discussions pertaining to each of the intersections analyzed for the development. Note that all capacity analyses worksheets are contained in Appendix D.

Table 8 – Intersection Capacity Analysis Summary – Plainsboro & South Brunswick

Intersection (Plainsboro & South Brunswick)	LANE USE No-Build	LANE USE Build	LANE USE Build w/ Mit	2024 No-Build Condition						2024 Build Condition						2024 Build Condition with Mitigation					
				AM		PM		SAT		AM		PM		SAT		AM		PM		SAT	
				LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
SIGNALIZED INTERSECTIONS																					
1U.S. Rt 1 and Ridge Rd	**Overall**	**Overall**	**Overall**	**F**	**96.9**	**E**	**56.2**	**C**	**30.2**	**F**	**89.2**	**D**	**52.9**	**C**	**31.6**	-	-	-	-	-	-
	EB-L	EB-L	EB-L	F	126.3	F	280.5	D	44.0	F	126.3	F	231.3	D	48.1	-	-	-	-	-	-
	EB-T	EB-T	EB-T	F	180.4	F	120.4	E	63.7	F	180.4	F	109.1	E	72.6	-	-	-	-	-	-
	EB-R	EB-R	EB-R	F	108.8	C	32.2	B	19.2	F	108.8	C	31.3	B	13.2	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	229.6	F	133.4	D	53.5	F	220.9	F	128.5	E	60.8	-	-	-	-	-	-
	WB-TR	WB-TR	WB-TR	F	101.9	F	169.9	F	90.7	F	**102.0**	F	152.6	F	93.6	-	-	-	-	-	-
	NB-TTT*	NB-TTT*	NB-TTT*	B	16.8	D	46.8	C	20.6	B	16.8	D	44.2	C	22.2	-	-	-	-	-	-
	SB-TTT*	SB-TTT*	SB-TTT*	F	110.1	B	19.1	C	25.9	F	98.3	C	20.9	C	26.0	-	-	-	-	-	-
2U.S. Rt 1 and Independence Way	**Overall**	**Overall**	**Overall**	**B**	**14.4**	**F**	**178.1**	**B**	**14.3**	**C**	**21.4**	**F**	**162.8**	**B**	**16.7**	-	-	-	-	-	-
	EB-LL	EB-LL	EB-LL	E	67.1	D	38.7	D	40.9	E	64.7	D	37.5	D	39.6	-	-	-	-	-	-
	EB-TR	EB-TR	EB-TR	F	97.5	F	368.8	E	63.3	F	108.7	F	273.8	E	65.2	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	117.3	F	115.0	E	63.9	F	117.3	**F**	**115.0**	E	65.9	-	-	-	-	-	-
	WB-R	WB-R	WB-R	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	-	-	-	-	-	-
	NB-TTTR	NB-TTTR	NB-TTTR	A	8.6	F	238.6	B	11.8	B	10.8	F	231.9	B	14.7	-	-	-	-	-	-
	SB-TTT	SB-TTT	SB-TTT	B	11.5	C	33.9	A	8.5	C	20.3	C	32.9	A	9.0	-	-	-	-	-	-
U.S. Rt 1 NB Ramps and College Rd E	**Overall**	**Overall**	**Overall**	**A**	**3.8**	**A**	**3.9**	**A**	**2.5**	**A**	**3.4**	**A**	**4.0**	**A**	**2.7**	-	-	-	-	-	-
	EB-LL	EB-LL	EB-LL	A	1.1	A	3.9	A	0.7	A	1.2	A	4.0	A	0.8	-	-	-	-	-	-
	EB-TT	EB-TT	EB-TT	A	0.2	A	0.3	A	0.1	A	0.2	A	0.2	A	0.1	-	-	-	-	-	-
	WB-TT	WB-TT	WB-TT	A	8.5	B	10.1	A	6.3	A	8.0	A	9.9	A	6.6	-	-	-	-	-	-
	WB-R	WB-R	WB-R	A	0.2	A	0.7	A	0.0	A	0.2	A	0.7	A	0.0	-	-	-	-	-	-
	NEB-R	NEB-R	NEB-R	A	0.6	A	0.3	A	0.0	A	0.6	A	0.3	A	0.0	-	-	-	-	-	-
Village Blvd / Jug and College Rd W	**Overall**	**Overall**	**Overall**	**C**	**25.6**	**B**	**16.4**	**A**	**8.7**	**B**	**15.1**	**B**	**16.4**	**A**	**9.1**	-	-	-	-	-	-
	EB-TTR	EB-TTR	EB-TTR	A	6.6	B	15.5	A	7.3	A	7.0	B	14.1	A	7.4	-	-	-	-	-	-
	WB-TT	WB-TT	WB-TT	C	32.9	B	13.0	A	9.0	B	16.0	B	15.0	A	9.5	-	-	-	-	-	-
	NB-L	NB-L	NB-L	C	27.2	C	25.0	B	13.7	C	27.2	C	24.3	B	16.1	-	-	-	-	-	-
	NB-R	NB-R	NB-R	A	8.9	C	31.9	A	6.1	B	10.0	C	30.3	A	6.9	-	-	-	-	-	-
	SB-LTT	SB-LTT	SB-LTT	C	34.7	C	25.6	B	14.1	C	34.7	C	24.4	B	16.4	-	-	-	-	-	-
College Rd W and Seminary Dr and Nursey Rd	**Overall**	**Overall**	**Overall**	**E**	**70.7**	**F**	**99.6**	**B**	**16.8**	**C**	**25.1**	**C**	**30.8**	**B**	**16.4**	-	-	-	-	-	-
	EB-L	EB-L	EB-L	D	50.2	D	39.8	B	13.5	B	10.4	D	35.2	B	16.0	-	-	-	-	-	-
	EB-TTR	EB-TTR	EB-TTR	B	19.6	B	19.9	B	15.3	C	26.7	C	21.2	B	18.8	-	-	-	-	-	-
	WB-L	WB-L	WB-L	F	152.4	B	16.4	B	11.7	D	38.7	C	22.6	B	14.4	-	-	-	-	-	-
	WB-T	WB-TT	WB-TT	C	22.1	F	115.1	C	20.1	B	18.9	D	36.2	C	20.9	-	-	-	-	-	-
	WB-R	WB-R	WB-R	F	109.1	A	0.7	A	1.6	C	23.3	A	0.8	A	2.6	-	-	-	-	-	-
	NB-L	NB-LL	NB-LL	D	36.0	F	166.9	D	42.3	**D**	**42.8**	D	50.5	D	39.7	-	-	-	-	-	-
	NB-TR	NB-T	NB-T	C	22.2	C	27.6	B	19.4	D	45.9	D	48.1	D	44.3	-	-	-	-	-	-
-	NB-R	NB-R	-	-	-	-	-	-	-	B	18.5	B	17.0	B	13.4	-	-	-	-	-	-
	SB-L	SB-LL	SB-LL	D	39.5	F	222.5	D	47.5	D	44.3	D	53.2	D	35.3	-	-	-	-	-	-
	SB-LTTR	SB-T	SB-T	-	-	-	-	-	-	D	39.6	C	27.1	C	25.8	-	-	-	-	-	-
-	SB-R	SB-R	C	22.1	F	133.5	C	29.2	A	1.1	C	20.3	A	6.2	-	-	-	-	-	-	
6Academy St / Church St and NJ Rt 27	**Overall**	**Overall**	**Overall**	**E**	**57.1**	**F**	**311.7**	**C**	**27.3**	**E**	**68.0**	**F**	**287.4**	**D**	**36.5**	-	-	-	-	-	-
	EB-LT	EB-LT	EB-LT	B	13.3	C	22.7	B	12.7	B	13.3	C	22.7	B	12.7	-	-	-	-	-	-
	EB-R	EB-R	EB-R	B	10.3	A	2.5	A	1.8	A	8.7	A	2.6	A	1.8	-	-	-	-	-	-
	WB-L	WB-L	WB-L	A	9.1	B	11.1	A	5.0	A	7.6	B	12.3	A	5.2	-	-	-	-	-	-
	WB-TR	WB-TR	WB-TR	A	5.4	A	6.5	A	4.6	A	5.3	A	6.5	A	4.5	-	-	-	-	-	-
	NB-LTR	NB-LTR	NB-LTR	F	285.6	F	754.3	F	109.3	F	329.5	F	714.3	F	147.4	-	-	-	-	-	-
7HeathcoteRd/ Laurel Ave and NJ Rt 27	**Overall**	**Overall**	**Overall**	**F**	**150.8**	**F**	**116.5**	**C**	**30.8**	**F**	**143.9**	**F**	**115.6**	**C**	**30.7**	-	-	-	-	-	-
	EB-LTR	EB-LTR	EB-LTR	A	7.5	A	9.6	A	8.2	A	7.6	A	9.6	A	8.5	-	-	-	-	-	-
	WB-LTR	WB-LTR	WB-LTR	C	24.5	B	18.2	B	16.0	C	24.2	B	18.5	B	16.4	-	-	-	-	-	-
	NB-LTR	NB-LTR	NB-LTR	F	282.7	F	170.5	D	36.8	F	277.8	**F**	**169.3**	D	36.8	-	-	-	-	-	-
	SB-LTR	SB-LTR	SB-LTR	F	328.9	F	348.2	F	81.8	F	312.5	**F**	**347.0**	**F**	**81.8**	-	-	-	-	-	-
Seminary Dr and Mapleton Rd/ Barclay Blvd	**Overall**	**Overall**	**Overall**	**F**	**111.3**	**C**	**23.7**	**A**	**8.7**	**F**	**94.6**	**C**	**21.3**	**B**	**10.1**	**D**	**40.4**	**C**	**20.6**	**A**	**8.4**
	EB-LTR	EB-LTR	EB-LTR	C	26.7	A	6.0	A	1.0	C	26.8	A	5.8	A	0.9	C	26.8	A	5.8	A	0.9
	WB-LTR	WB-LTR	WB-LTR	D	42.8	C	31.0	C	29.3	D	42.4	C	32.3	C	33.1	D	42.4	C	32.3	C	33.1
	NB-L	NB-L	NB-L	A	5.5	A	2.7	A	3.1	A	5.5	A	2.8	A	3.6	A	5.5	A	2.8	A	3.6
	NB-TR	NB-TR	NB-TR	A	9.0	C	31.9	A	6.8	A	9.4	C	28.2	A	7.7	A	9.4	C	28.2	A	7.7
	SB-L	SB-L	SB-L	A	4.0	A	3.3	A	3.1	A	4.0	A	3.5	A	3.5	A	4.0	A	3.5	A	3.5
	SB-TR	SB-TR	SB-T	F	161.1	A	8.5	A	8.2	F	139.2	A	8.9	A	9.4	**E**	**62.6**	A	7.9	A	7.7
-	-	SB-R	-	-	-	-	-	-	-	-	-	-	-	-	-	A	3.5	A	1.9	A	1.7

**Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]
* Third thru land analyzed during the AM and PM peak hours based on NJDOT congestion relief program

Table 8 cont'd – Intersection Capacity Analysis Summary – Plainsboro & South Brunswick

Intersection (Plainsboro & South Brunswick)	LANE USE No-Build	LANE USE Build	LANE USE Build w/ Mit	2024 No-Build Condition						2024 Build Condition						2024 Build Condition with Mitigation					
				AM		PM		SAT		AM		PM		SAT		AM		PM		SAT	
				LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
SIGNALIZED INTERSECTIONS CONT'D																					
Crowne Plaza/ College Rd E and Scudders Mill Rd	**Overall**	**Overall**	**Overall**	**F**	**228.8**	**F**	**139.8**	-	-	**F**	**217.9**	**F**	**110.9**	-	-	**D**	**48.2**	**E**	**78.2**	-	-
	EB-L	EB-L	EB-L	D	49.7	E	65.9	-	-	D	51.2	**E**	**65.7**	-	-	D	54.1	E	74.6	-	-
	EB-TT	EB-TT	EB-TT	C	22.0	D	44.7	-	-	C	23.0	D	44.4	-	-	C	21.0	D	48.1	-	-
	EB-R	EB-R	EB-R	A	0.1	A	0.0	-	-	A	0.1	A	0.0	-	-	A	0.1	A	0.0	-	-
	WB-L	WB-L	WB-L	D	46.7	D	46.0	-	-	D	47.8	D	46.0	-	-	D	53.5	E	56.6	-	-
	WB-TT	WB-TT	WB-TTT	F	326.1	C	34.3	-	-	F	342.3	C	34.3	-	-	E	68.0	C	33.6	-	-
	WB-R	WB-R	WB-R	F	311.6	A	5.5	-	-	F	268.8	A	5.5	-	-	D	43.6	A	0.4	-	-
	NB-LTR	NB-LTR	NB-LTR	C	34.8	D	42.3	-	-	D	35.6	D	42.4	-	-	D	47.8	E	66.3	-	-
	SB-L	SB-L	SB-L	D	45.9	F	378.1	-	-	D	47.4	F	302.3	-	-	D	51.0	**F**	**179.0**	-	-
	SB-LT	SB-LT	SB-LT	D	45.4	F	382.5	-	-	D	46.3	F	305.5	-	-	D	49.9	**F**	**181.0**	-	-
	SB-R	SB-R	SB-R	A	9.3	B	10.3	-	-	A	8.6	B	10.4	-	-	A	8.8	B	11.0	-	-
PROPOSED SIGNALIZED INTERSECTIONS																					
College Rd E and Research Way	**-**	**-**	**Overall**	-	-	-	-	-	-	-	-	-	-	-	-	**B**	**13.0**	**B**	**13.6**	**A**	**5.9**
	-	-	WB-LLR	-	-	-	-	-	-	-	-	-	-	-	-	B	18.1	B	12.7	A	7.3
	-	-	WB-R	-	-	-	-	-	-	-	-	-	-	-	-	C	20.4	B	14.5	A	7.4
	-	-	NB-U	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	0.0	0.0
	-	-	NB-TTR	-	-	-	-	-	-	-	-	-	-	-	-	B	15.0	B	18.7	A	8.4
	-	-	SB-L	-	-	-	-	-	-	-	-	-	-	-	-	A	7.9	C	23.3	A	2.9
	-	-	SB-TT	-	-	-	-	-	-	-	-	-	-	-	-	A	6.7	A	3.8	A	3.6
Evergreen Dr/ Western Dr and Seminary Dr	**-**	**-**	**Overall**	-	-	-	-	-	-	-	-	-	-	-	-	**B**	**16.7**	**B**	**15.1**	**A**	**5.3**
	-	-	EB-L	-	-	-	-	-	-	-	-	-	-	-	-	A	3.2	D	42.3	A	4.0
	-	-	EB-TR	-	-	-	-	-	-	-	-	-	-	-	-	C	22.1	A	3.4	A	4.3
	-	-	WB-L	-	-	-	-	-	-	-	-	-	-	-	-	B	11.1	A	2.4	A	3.4
	-	-	WB-T	-	-	-	-	-	-	-	-	-	-	-	-	A	4.6	B	18.7	A	4.3
	-	-	WB-R	-	-	-	-	-	-	-	-	-	-	-	-	A	1.1	A	0.8	A	1.1
	-	-	NB-LTR	-	-	-	-	-	-	-	-	-	-	-	-	A	9.3	B	10.3	A	8.3
	-	-	SB-LT	-	-	-	-	-	-	-	-	-	-	-	-	D	42.9	D	41.3	C	29.2
	-	-	SB-R	-	-	-	-	-	-	-	-	-	-	-	-	B	13.9	B	16.0	B	11.4
UNSIGNALIZED INTERSECTIONS																					
College Rd E and Research Way	WB-L	-	-	F	N/A	F	N/A	C	17.9	F	N/A	F	N/A	C	20.4	-	-	-	-	-	-
	WB-R	-	-	F	252.6	C	21.4	B	10.1	F	189.5	C	22.7	B	10.5	-	-	-	-	-	-
	SB-L	-	-	C	15.3	D	25.1	A	8.5	B	13.7	D	27.0	A	8.7	-	-	-	-	-	-
Evergreen Dr/ Western Dr and Seminary Dr	EB-L	-	-	-	-	-	-	-	-	A	8.9	B	13.4	A	8.6	-	-	-	-	-	-
	WB-L	-	-	-	-	-	-	-	-	B	12.6	A	8.4	A	8.2	-	-	-	-	-	-
	NB-LTR	-	-	-	-	-	-	-	-	F	121.1	F	117.9	C	19.0	-	-	-	-	-	-
	SB-LT	-	-	-	-	-	-	-	-	F	598.1	F	186.1	D	30.4	-	-	-	-	-	-
	SB-R	-	-	-	-	-	-	-	-	B	13.2	D	33.4	B	11.4	-	-	-	-	-	-

*Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]

U.S. Route 1 and Ridge Road

The signalized intersection is expected to operate at an overall LOS F during the weekday morning peak hour, an overall LOS E during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS F during the weekday morning peak hour with a reduced overall delay from the No-Build condition, an overall LOS D during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour.

The intersection operates as an adaptive system and the coordinated U.S. Route 1 signal system can adapt cycle length and phase length depending on traffic demands through the network. To analyze the U.S. Route 1 intersection we used the phase minimums and maximum adaptive mode cycle length (240 second) specified on the timing directive for the Adaptive Mode plan and found the optimized peak hour cycle length for each time period and analysis condition. The above analyses provide for a reasonable representation of the operational characteristics of these traffic signals in the adaptive system. It is anticipated more of a benefit is realized in real-world applications of the adaptive mode then what the analysis suggests.

U.S. Route 1 and Independence Way

The signalized intersection is expected to operate at an overall LOS B during both the weekday morning and Saturday midday peak hours, and overall LOS F during the weekday evening peak hour, under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS C during the weekday morning peak hour, an overall LOS F during the weekday evening peak hour with a reduced overall delay from the No-Build condition, and an overall LOS B during the Saturday midday peak hour.

The intersection operates as an adaptive system and the coordinated U.S. Route 1 signal system can adapt cycle length and phase length depending on traffic demands through the network. To analyze the U.S. Route 1 intersection we used the phase minimums and maximum adaptive mode cycle length (240 second) specified on the timing directive for the Adaptive Mode plan and found the optimized peak hour cycle length for each time period and analysis condition. The above analyses provide for a reasonable representation of the operational characteristics of these traffic signals in the adaptive system. It is anticipated more of a benefit is realized in real-world applications of the adaptive mode then what the analysis suggests.

College Road East and U.S. Route 1 Northbound Ramps

The signalized intersection is expected to operate at an overall LOS A during the weekday morning and evening, and Saturday midday peak hours under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS A during the weekday morning and evening, and Saturday midday peak hours

College Road West and Village Boulevard / Jughandle

The signalized intersection is expected to operate at an overall LOS C during the weekday morning peak hour, an overall LOS B during the weekday evening peak hour, and an overall LOS A during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours, and an overall LOS A during the Saturday midday peak hour.

College Road West and Nursery Road and Seminary Drive

The signalized intersection is expected to operate at an overall LOS E during the weekday morning peak hour, an overall LOS F during the weekday evening peak hours, and an overall LOS B during the Saturday midday peak hour under the No-Build condition. Under the Build condition the same recommendations discussed in the Plainsboro only section of the report are also proposed for the overall Plainsboro and South Brunswick development. No additional

improvements are proposed and for convenience the proposed improvements are listed again below.

- Modify the southbound Nursery Road approach geometry
  - Current lane configuration – left, left/thru, thru/right
  - Proposed lane configuration – left, left, thru, right
  - The exclusive double left turn lanes would improve queuing and allow for more flexibility in reallocating green time to problematic movements such as the WB advance in the AM peak hours and to the NB phase in the PM peak hours.
- Modify the northbound College Road West approach geometry
  - Current lane configuration – left, thru/right
  - Proposed lane configuration – left, left, thru, right
- Modify the westbound College Road West approach geometry
  - Current lane configuration – left, thru, right
  - Proposed lane configuration – left, thru, thru, right
- AM peak hour – Add a third timing program for the AM peak hours. Timing mitigation to allocate more green time to the WB College Road West advance phase.
  - Additional 12 seconds to the WB/EB left advance phase.
    - 6 seconds from the NB College Road West R.O.W. phase.
    - 6 seconds from the EB/WB E College Road West/ Seminary Drive R.O.W. phase.
- PM peak hour – Timing mitigation to allocate more green time to the NB College Road West phase.
  - Additional 3 seconds to the NB College Road West R.O.W. phase. Additional 5 seconds to EB/WB College Road West/Seminary Road R.O.W. phase.
    - 2 seconds from the SB Nursery Road R.O.W. phase.
    - 6 seconds from the EB/WB left advance phase.
- Saturday peak hour – Timing mitigation to allocate more green time to the SB Nursery Road phase.
  - Additional 8 seconds to the SB Nursery Road R.O.W. phase.
    - 2 seconds from the NB College Road West R.O.W. phase.
    - 6 seconds from the EB/WB College Road West/Seminary Road R.O.W. phase.

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS C during both the weekday morning and evening peak hours, and an overall LOS B during the Saturday midday peak hour under the Build condition.

<u>NJ Route 27 and Academy Street / Church Street</u>

The signalized intersection is expected to operate at an overall LOS E during the weekday morning peak hour, an overall LOS F during the weekday evening peak hour, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS E during the weekday morning peak hour and an overall LOS F during the weekday evening peak hour; however it should be noted

that even though the intersection is an LOS F the overall delay in the evening peak hour between the No-Build and Build condition improves. During the Saturday midday peak hour, under the Build condition, the intersection is expected to operate at an overall LOS D.

NJ Route 27 and Heathcote Road / Laurel Avenue

The signalized intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours, and an overall LOS C during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours, and an overall LOS C during the Saturday midday peak hours; however it should be noted that even though the intersection is an LOS F the overall delay in the weekday morning and evening peak hours between the No-Build and Build condition improves.

Seminary Drive and Mapleton Road and Barclay Boulevard

The signalized intersection is expected to operate at an overall LOS F during the weekday morning peak hour, an overall LOS C during the weekday evening peak hour, and an overall LOS A during the Saturday midday peak hour under the No-Build condition. Under the Build condition, the intersection is expected to operate at an overall LOS F during the weekday morning peak hour, an overall LOS C during the weekday evening peak hour, and an overall LOS B during the Saturday midday peak hour.

Based on the results of the Build condition analyses the following is recommended to improve operations at the intersection. It should be noted the same recommendation discussed in the Plainsboro only section of the report is also proposed for the overall Plainsboro and South Brunswick development. No additional improvements are proposed and for convenience the proposed improvement is listed again below.

- Improve the southbound Mapleton Road approach geometry
  - Current lane configuration – left, thru/right
  - Proposed lane configuration – left, thru, right

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS D during the weekday morning peak hour, an overall LOS C during the weekday evening peak hour, and an overall LOS A during the Saturday midday peak hour.

Scudders Mill Road (CR 614) and College Road East and Crowne Plaza Driveway

The signalized intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours under the No-Build condition. Under the Build condition, the

intersection is expected to operate at an overall LOS F during both the weekday morning and evening peak hours.

Based on the results of the Build condition analyses the following is recommended to improve operations at the intersection. It should be noted the same recommendations discussed in the Plainsboro only section of the report is also proposed for the overall Plainsboro and South Brunswick development. No additional improvements are proposed and for convenience the proposed improvements are listed again below.

- Modify the westbound Scudders Mill Road approach geometry
  - Current lane configuration – left, thru, thru, right
  - Proposed lane configuration – left, thru, thru, thru, right (channelized free-flow)
- Lengthen the southbound, College Road East, left-turn storage lane to as far as a median cut will allow
- Timing mitigation
  - Increase the maximum cycle length to 120 seconds.
  - Additional 5 seconds to EB/WB Scudders Mill Road left advance phase.
  - Additional 7 seconds to EB/WB Scudders Mill Road R.O.W. phase.
  - Additional 11 seconds to SB College Road East R.O.W. phase.
  - 14 seconds from the NB Driveway R.O.W. phase.

With the above recommendations implemented, the signalized intersection is expected to operate at an overall LOS D during the weekday morning peak hour and an overall LOS E during the weekday evening peak hour.

College Road East and Research Way

All movements at the unsignalized intersection are expected to operate at LOS D or better during both the weekday morning and evening peak hours under the No-Build condition with the exception of the westbound approach during the morning peak hour and the westbound left-turn during the evening peak hour, which are expected to operate at LOS F. During the Saturday midday peak hour, under the No-Build condition, all movements are expected to operate at LOS C or better. Under the Build condition, all movements are expected to operate at an LOS D or better during both the weekday morning and evening peak hours with the exception of the westbound approach during the morning peak hour and the westbound left-turn during the evening peak hour, which are expected to operate at LOS F. During the Saturday midday peak hour, under the Build condition, all movements are expected to operate at LOS C or better.

As discussed previously, based on the results of the Build condition analyses it is recommend to signalize the intersection. With signalization the intersection is expected to operate at an overall

LOS B during both the weekday morning and evening peak hours, and an overall LOS A during the Saturday midday peak hour.

Seminary Drive and Western Access Street / Evergreen Drive

Geometry

The western street is proposed to intersect the existing T-shaped intersection of Seminary Drive and Evergreen Drive to form the north leg of a four-leg intersection. The eastbound Seminary Drive approach will provide one left-turn lane and one shared thru/right-turn lane. The westbound Seminary Drive approach will provide one left-turn lane, one thru lane and one right-turn lane. The northbound Evergreen Drive approach will provide one shared left-turn/thru/right-turn lane. The southbound access street approach is recommended to provide one shared left-turn/thru lane and one right-turn lane. It is recommended that the intersection is signalized.

Analysis

Without signalization all movements at the intersection are expected to operate at LOS D or better during the weekday morning and evening, and Saturday midday peak hours under the Build condition with the exception of the southbound left-turn/thru movement and the northbound approach during the weekday morning and evening peak hours, which are expected to operate at an LOS F.

With signalization and the recommended geometric improvements the intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours, and an overall LOS A during the Saturday midday peak hour.

CONCLUSIONS AND RECOMMENDATIONS

Langan finds that the proposed mixed-use development of the Princeton Nurseries in Plainsboro Township generally results in less traffic generation, moderated directional traffic flow, and better roadway levels of service as compared to the prior entitled predominantly office campus use of the Princeton Nurseries envisioned by the current Plainsboro GDP.

In general, the proposed mixed-use development program in Plainsboro Township will generate approximately 1,312 less (57% less) weekday morning peak hour trips and 1,290 less (52% less) weekday evening peak hour trips on the regional roadways as compared to the prior entitled GDP development program in Plainsboro Township. During the Saturday midday peak hour, the proposed mixed-use development program will generate approximately 160 additional (11% additional) peak hour trips on the regional roadway system as compared to the currently entitled GDP development program in Plainsboro Township; however, sufficient roadway capacity exists on Saturday to accommodate the change in traffic generation.

For the currently envisioned mixed use development of Princeton Nurseries in Plainsboro combined with the potential full development of the South Brunswick tract in accordance with existing entitlements, it is determined that the mixed-use development will generate approximately 237 less (8% less) weekday morning peak hour trips and 282 less (8% less) weekday evening peak hour trips on the regional roadways as compared to the two existing GDP approvals. During the Saturday midday peak hour, the anticipated mixed-use development program will generate approximately 486 additional (24% additional) peak hour trips on the regional roadway system as compared to the prior Plainsboro and current South Brunswick GDPs development programs in both Plainsboro and South Brunswick. However, it should be noted that the regional roadways experience less peak hour traffic on Saturdays then during the weekdays and can accommodate the additional traffic generation during the weekend peak periods.

The prior improvements privately funded and constructed by Princeton Forrestal Center, notably improvements to U.S. Route 1, construction of College Road and the construction of the College Road overpass were designed to accommodate the peak hour traffic demands associated with the prior GDP entitlements. These constructed improvements will continue to provide the capacity needed to accommodate the proposed mixed-use development program. The NJDOT U.S. Route 1 congestion relief program which permits vehicles to use the shoulder as a travel lane from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM between Raymond Road and Independence Way in South Brunswick Township has created additional capacity along U.S. Route 1 during the peak hours improving traffic flow along the corridor. Currently under design

improvements by NJDOT along Route 1 in West Windsor will provide additional capacity improvement through the signalized intersections with Harrison Street, Fisher Place and Washington Road reducing existing peak hour delays along this section of the U.S. Route 1 corridor.

Based upon the analysis documented herein, the following is recommended:

1. College Road West and Nursery Road and Seminary Drive
    a. Initial development will be accommodated by the currently constructed intersection geometry and the proposed signal timing adjustments contained herein, which includes the addition of a weekday morning timing program and signal timing adjustments to the weekday evening and Saturday peak hour timing programs.
    b. The intersection will be monitored at each site plan application to determine when the overall Level of Service may decrease to LOS D. This would trigger the construction of the below additional intersection geometry.
        i. Modify the southbound Nursery Road approach geometry
            1. Current lane configuration – left, left/thru, thru/right
            2. Proposed lane configuration – left, left, thru, right
        ii. Modify the northbound College Road West approach geometry
            1. Current lane configuration – left, thru/right
            2. Proposed lane configuration – left, left, thru, right
        iii. Modify the westbound College Road West approach geometry
            1. Current lane configuration – left, thru, right
            2. Proposed lane configuration – left, thru, thru, right

2. Seminary Drive and Mapleton Road and Barclay Boulevard
    a. The intersection will be monitored at each site plan application to determine when the southbound approach may decrease to LOS E. This would trigger the construction of an exclusive southbound right-turn lane on Mapleton Road.

3. Scudders Mill Road (CR 614) and College Road East and Crowne Plaza Driveway
    a. The University shall participate in the improvements at this intersection in accordance with the projects fair share which has been calculated to be 17% of the increased traffic.
    b. Identified improvements include the following.
        i. Modify the westbound Scudders Mill Road approach geometry
            1. Current lane configuration – left, thru, thru, right
            2. Proposed lane configuration – left, thru, thru, thru, right (channelized free-flow)
        ii. Lengthen the southbound, College Road East, left-turn storage lane.
        iii. Timing mitigation that would increase the maximum cycle length to 120 seconds.

c. A monetary contribution or in-kind construction of a portion of the improvements equivalent to the fair share obligation is proposed when the following occurs:

    i. Forrestal Campus exceeds 1,300 vehicle trips in the AM or PM peak; and
    ii. Princeton Nurseries traffic generation reaches 400 vehicle trip generation in the AM or PM peak.

4. College Road East and Research Way

    a. The intersection will be signalized in accordance with the requirements of the existing PFC Traffic Agreement, which with regards to Princeton Nurseries' development requires the submission of a Warrant Analysis "upon the submission of the first preliminary site plan application for a non-residential development in Princeton Nurseries".

5. Seminary Drive and Western Access Street / Evergreen Drive

    a. Up to approximately 50 percent of the initial development project peak hour traffic generation can be accommodated with access from the existing Nursery Road intersection.

    b. Construction of the Western Access Street and recommended geometry should be constructed when the Princeton Nurseries Plainsboro development proposed traffic generation reaches 50 percent peak hour traffic generation as documented in this report.

        i. Eastbound left, thru/right; westbound left, thru, right; northbound left/thru/right; southbound left/thru, right.

    c. The intersection should be monitored after initial completion for traffic signal installation in accordance with MUTCD Warrant criteria. If the criteria is not met at that time then the intersection should be monitored with subsequent site plan applications.

The development's access points from College Road West plus Seminary Drive, with the recommended roadway and traffic control discussed herein, are expected to operate safely and efficiently during peak traffic hours.

This report is intended to evaluate future traffic operations resulting from the proposed Forrestal Nurseries project and continued regional growth in traffic. We do not provide an opinion on the responsible parties to make recommended improvements or the impact on these obligations as a result of the existing 1999 Traffic Agreement, as amended, which we understand remains in full force and effect.

Appendix B: Environmental Inventory Report

Prepared by Van Note Harvey Associates, dated February 24, 2020

van note-harvey associates

- Since 1894 -

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PRINCETON NURSERIES - PLAINSBORO GENERAL DEVELOPMENT PLAN ENVIRONMENTAL INVENTORY

Princeton Forrestal Center
Plainsboro Township
Middlesex County, New Jersey

Prepared For:
Princeton Forrestal Center
105 College Road East
Princeton, NJ 08540

VNHA #42953-430-21
February 20, 2020

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Environmental Inventory Summary
Princeton Nurseries – Plainsboro
General Development Plan
VNHA #42953-430-21

The information presented herein is listed in order of the Township of Plainsboro, Department of Planning and Zoning, Development Application Guide, for an Environmental Inventory. For a depiction of Environmental Inventory items please refer to the accompanying Exhibit H graphic that is entitled, "Princeton Nurseries – Plainsboro, General Development Plan, Environmental Inventory Plan."

A. Vegetation

Vegetation within the boundary of the General Development Plan includes areas of cultivated agricultural fields, tree "windrows" and forested areas interspersed throughout the General Development Plan Boundary and along Heathcote Brook Tributary (locally known as Harry's Brook). Both deciduous and coniferous tree species occupy the wooded tracts and tree rows. Woody vegetation includes, but is not limited to, American elm (*Ulmus Americana*), black cherry (*Prunus serotina*), eastern redcedar (*Juniperus virginiana*), callery pear (*Pyrus calleryana*), pin oak (*Quercus palustris*), red maple (*Acer rubrum*), Russian olive (*Elaeagnus angustifolia*), sweet pepperbush (*Clethra alnifolia*), and southern arrowwood (*Viburnum dentatum*).

Windrows are comprised of multiple species such as eastern arborvitae (*Thuja occidentalis*), Japanese cedar (*Cryptomeria japonica*), rocky mountain juniper (*Juniperus scopulorum*) and Norway spruce (*Picea abies*). There are limited areas of native vegetation and former nurseries stock. There are extensive areas of invasive species including but not limited to: Japanese honeysuckle (*Lonicera japonica*), callery pear, multiflora rose (*Rosa multiflora*) and Russian olive.

The cultivated agricultural fields are annually planted with #2 soft red wheat and subsequently harvested.

B. Soils

According to the United States Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS) for Middlesex County, New Jersey, the General Development Plan Boundary is comprised of the following soils:

a) Fallsington bedrock substratum variant loam, 0-2 percent slopes, rarely flooded (FavAr)

   The depth to a restrictive layer is more than 80 inches. The soils are poorly drained with a depth to water table of about 0 to 12 inches. Flooding and ponding are rare and available water storage is moderate.

b) Hammonton loamy sand, 0 to 5 percent slopes (HbmB)

   The depth to a restrictive layer is more than 80 inches of this moderately well drained soil. Runoff class is considered very high. Depth to the water table is about 18 to 42 inches. Available water storage is considered moderate.

c) Hammonton sandy loam, 0 to 2 percent slopes (HboA)

A restrictive layer is more than 80 inches and is considered a moderately well drained soil. The runoff class is very high, with the depth to water table about 18 to 42 inches. Available water storage is considered moderate.

d) Nixon loam, 0 to 2 percent slopes (NknA)

The depth to a restrictive layer of this well drained soil complex is more than 80 inches. The runoff class is low. The depth to water table is more than 80 inches. Available water storage is moderate.

e) Nixon loam, 2 to 5 percent slopes (NknB)

Depth to a restrictive layer is over 80 inches. The natural drainage class is listed as well drained with a low runoff class. The water table depth is more than 80 inches, with moderate available water storage.

f) Nixon moderately well drained variant loam, 0 to 2 percent slopes (NkrA)

The depth to a restrictive layer is more than 80 inches. The soil's natural drainage class is moderately well drained. The runoff class is low and the depth to the water table is about 12 to 48 inches. Available water storage is moderate.

g) Nixon moderately well drained variant loam, 2 to 5 percent slopes (NkrB)

These moderately well drained soils have a depth to restrictive layer of more than 80 inches. The runoff class is low, with a depth to water table about 12 to 48 inches. The available water storage in the profile is moderate.

h) Woodstown loam, 0 to 2 percent slopes, Northern Coastal Plain (WogA)

These soils are considered moderately well drained with a depth to a restrictive layer of more than 80 inches. The depth to the water table is about 20 to 40 inches. These soils are listed as non-saline to very slightly saline. The available water storage in this profile is moderate.

C. Topography

The topography is flat to gently rolling with slopes generally in the range of 3 to 5 percent. The approximate elevation range within the General Development Plan Boundary is from 78 to 122 feet.

D. Surface Hydrology

Surface water features include Heathcote Brook Tributary that generally transects the central to eastern portion of the General Development Plan Boundary. The section of the Heathcote Brook Tributary stream corridor within Plainsboro is degraded due to channelization and erosion. This section includes a small in-stream nurseries irrigation pond. Freshwater wetlands exist along the Heathcote Brook Tributary and are adjacent to Route 1/ Route 1 interchange with College Road.

A New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetlands Letter of Interpretation (LOI) was issued under NJDEP File No. 1200-03-0004.4, FWW16001 and is valid until May 23, 2022, for the General Development Plan Boundary within Plainsboro Township. See Exhibit H for the GDP environmental constraints boundary, inclusive of the freshwater wetlands and wetlands transition areas.

The general flow pattern within the General Development Plan Boundary is approximately one third of the area flowing naturally to the northwest, and the remainder flowing northeast towards Heathcote Brook Tributary. See Exhibit G for the general flow patterns.

E. Climate

New Jersey is considered to possess a moderate climate. Warm, humid summers and generally cold winters are typical of a moderate climate. In New Jersey, climatic features include prevailing westerlies, as well as the State's proximity to the Atlantic Ocean. Ocean proximity moderates temperature and provides adequate moisture for storm systems. Throughout the State, there is the potential for weather variability based on geography. The average precipitation in New Jersey is approximately 46 inches per year (NOAA).

F. Cultural Resources

The Van Dyke-Gulick House is listed as a resource per the Master Plan for the Township of Plainsboro, Middlesex County, New Jersey, adopted January 20, 2009, last amended August 20, 2018, Historic Preservation Plan.

G. Existing Man-Made Features

Existing man-made infrastructure within the General Development Plan Boundary includes:

a) Utility infrastructure that extends along Seminary Road and the College Road West intersection, with stubs provided into the General Development Plan Boundary for future use. Utility extension and/or service connections are situated in South Brunswick Township.

b) A stone access road used to construct the North Crossing at Heathcote Brook Tributary within South Brunswick Township.

c) Existing storm sewer outfalls and associated infrastructure.

d) The recently constructed intersection (circa 2016) that drains to an existing stormwater basin in South Brunswick Township with discharge to a stormwater outfall along the Heathcote Brook Tributary.

e) Various dirt roads which were originally constructed for Nursery operations and are currently utilized for farming operations.

f) The Harry's Brook sanitary sewer trunk line which runs parallel to Heathcote Brook, outside of its eastern floodplain boundary.

H. Probable Impact of Development

Future development will be designed to minimize impact to the environmental attributes within the General Development Plan Boundary to the greatest extent possible. Local, State and Federal approvals, as required, will be secured for any proposed development within the appropriate jurisdictional areas. As deemed necessary, suitable mitigation will be provided for any future disturbance, as prescribed by the regulatory authority and its associated permit or approval.

Appendix C: Fiscal Impact Analysis and Supplement

Prepared by Phillips Preiss Grygiel Leheny Hughes LLC, dated July 2020

FISCAL IMPACT ANALYSIS OF THE PROPOSED PRINCETON NURSERIES DEVELOPMENT

PLAINSBORO TOWNSHIP, MIDDLESEX COUNTY, NJ

PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC

Planning & Real Estate Consultants Hoboken, NJ

July 2020

Executive Summary

This fiscal impact report evaluates the impacts of the proposed Princeton Nurseries development on the budgetary finances of the Township of Plainsboro ("Township") and the West Windsor-Plainsboro Regional School District ("School District"). The proposed development program evaluated in this report includes 950 residential units, including 96 affordable units, and 605,000 square feet of non-residential space constituting retail, office, and hotel uses.

The major findings of the fiscal impact analysis are as follows:

- The proposed development will add approximately $573 million to the Township's tax base at full build-out.

- The proposed 950 units will generate approximately 2,041 new residents and the 605,000 square feet of non-residential space will generate approximately 2,099 new jobs.

- Fiscal impacts to the Township will be positive during all phases of the development. At full-build-out, the cumulative net fiscal impact to Plainsboro would total $736,816.

- Approximately 221 new public school students will be generated under the "low" student yield assumptions, while a more conservative estimate utilizing the "average" range of student yield multipliers is 311 new public school students.

- The proposed development would result in net positive fiscal impacts to the school district, whether based on "low" or "average" student yield assumptions, during each phase of the project. At full build-out, the cumulative fiscal impact results to the school district would total $5.2 million under the "low" student yield scenario and $3.9 million under the "average" student yield scenario.

- At full build-out, the combined cumulative local net fiscal impact to the Township and the School District is $6 million based on "low" student yield and $4.6 million based on "average" student yield assumptions.

In short, the revenues generated by the project will far outweigh the costs of serving the new population, resulting in a substantial net annual fiscal impact to both the Township and the School District.

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1 Introduction

This fiscal impact analysis was prepared on behalf of Picus Associates, Inc in support of its General Development Plan (GDP) for the proposed Princeton Nurseries development located within Plainsboro Township. The development program evaluated in this analysis consists of 950 residential units with 96 units set-aside as affordable for low- and moderate-income households, and 605,000 square feet of non-residential space including retail, office, and hotel uses. This report considered the tax revenues and budgetary costs generated by the proposed development during each proposed phase of the project detailed in Exhibit 4 Princeton Nurseries Phasing Schedule of the GDP, as well as the cumulative impacts at full build-out of the project.

As part of the preparation of this report, we reviewed the 2019 municipal budget, property tax rates, equalization ratio, and breakdown of the property tax base of the Township of Plainsboro. In addition, the March 2018 Demographic Study Update for the West Windsor-Plainsboro Regional School District, prepared by Statistical Forecasting LLC, was utilized for the purposes of estimating the anticipated public school children population in the development. Anticipated rents and market values for the various project components were based on market studies commissioned by the applicant and research conducted by Phillips Preiss Grygiel Leheny Hughes LLC.

The fiscal impact analysis is based on an average cost approach, also called the "per capita multiplier method," which attributes costs of new development according to the average cost per unit of existing services, multiplied by the number of units the development is estimated to create, based on multipliers derived from the Census and other similar sources. It assumes that current per capita service costs serve as a reasonable estimate of future costs. Per pupil costs were calculated using The State of New Jersey's Taxpayer's Guide to Education Spending for 2019. The estimates of the anticipated tax revenues as well as the per capita costs to serve the new residential, public school children and employee populations were developed in accordance with the methodology set forth in the Development Impact Assessment Handbook, by Burchell, Listokin, et al.

The following chapter describes in detail the proposed project and breaks down the various components of the development. Chapter 3 provides a summary of the housing and demographic characteristics of Plainsboro, including its regional school district. Chapter 4 shows the net fiscal impact of the overall project by analyzing the costs and revenues generated by each component. The overall conclusions of the analysis are set forth in Chapter 5.

2 Project Description

The overall Princeton Nurseries development spans both Plainsboro and South Brunswick Townships. The site is bounded by U.S. Route 1 to the east, College Road/Seminary Drive to the south, Mapleton Road to the west and Ridge Road to the north. The municipal boundary line between **Plainsboro** and South Brunswick, running east-west, bisects the site almost in half. The southern portion of the site located in Plainsboro is approximately 108 acres.

In Plainsboro Township, a mixed-use development consisting of 950 residential units and 605,000 square feet of non-residential space is proposed. The residential program includes single-family homes, townhouses, condominiums, and age-restricted condominiums for sale, as well as multifamily and age-restricted multifamily apartment units for rent. A total of 96 multifamily rental units would be set aside as affordable to low- and moderate-income households. The non-residential program includes a mix of retail, office, and hotel uses. The project will be constructed in three phases as detailed in the aforementioned Phasing Schedule. Table 1 shows the detailed breakdown of the proposed residential program, and Table 2 shows the breakdown of the non-residential program in each phase and at full-build-out.

Table 1: Proposed Residential Program (Units)

	Unit Type	First Phase	Second Phase	Final Phase	Full Build-out
FOR SALE	Single-family Detached				
	3 BR	0	31	0	31
	Townhouses				
	2 BR	38	44	8	90
	3 BR	38	41	0	79
	Sub-total	*76*	*85*	*8*	*169*
	Condo				
	2 BR	0	0	80	80
	3 BR	0	0	20	20
	Sub-total	*0*	*0*	*100*	*100*
	Age-Restricted Condo				
	1 BR	0	0	8	8
	2 BR	0	0	42	42
	Sub-total	*0*	*0*	*50*	*50*
	TOTAL FOR SALE	**76**	**116**	**158**	**350**
RENTAL	Age-Restricted Rental				
	1 BR	0	0	75	75
	2 BR	0	0	75	75
	Sub-total	*0*	*0*	*150*	*150*
	Multifamily Market Rate				
	Studio	24	12	5	41
	1 BR	66	26	34	126
	2 BR	100	36	43	179
	3 BR	4	2	2	8
	Sub-total	*194*	*76*	*84*	*354*

	Multifamily Affordable				
	Studio	2	1	2	5
	1 BR	4	4	6	14
	2 BR	18	17	22	57
	3 BR	6	6	8	20
	Sub-total	*30*	*28*	*38*	*96*
	TOTAL RENTAL	**224**	**104**	**272**	**600**
	TOTAL UNITS	**300**	**220**	**430**	**950**

Source: Picus Associates, Inc.

Table 2: Proposed Non-Residential Program (Square Footage)

Component	First Phase	Second Phase	Final Phase	Full Build-out
Retail	70,000	45,000	195,000	310,000
15% Restaurant	10,500	6,750	29,250	46,500
85% General Retail	59,500	38,250	165,750	263,500
Office	30,000	30,000	160,000	220,000
Hotel	0	75,000	0	75,000
TOTAL	**100,000**	**150,000**	**355,000**	**605,000**

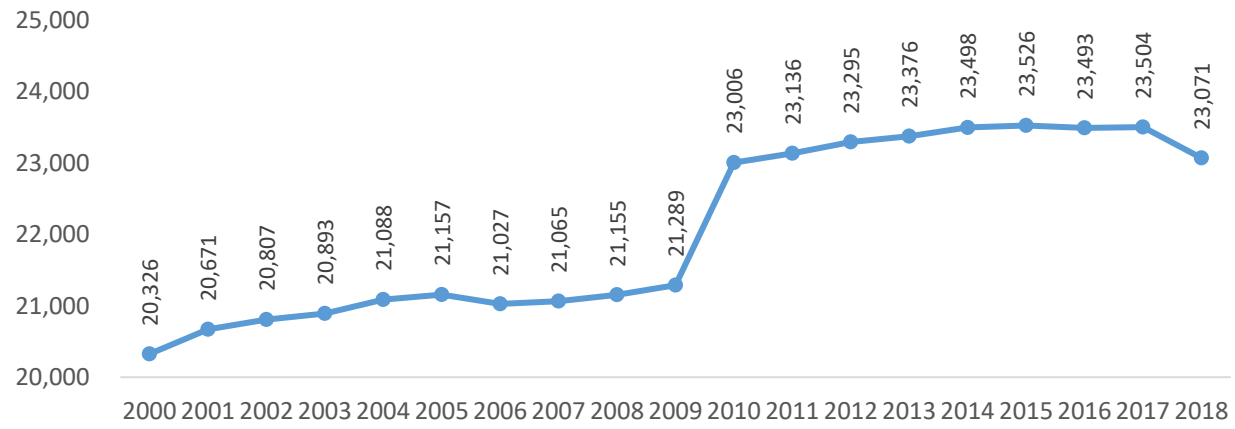
Source: Picus Associates, Inc.

3 Community Profile

3.1 Plainsboro Township

Plainsboro Township is a suburban community located in Middlesex County. According to the US Census Population Estimates, the total population was 23,071 as of 2018. The Township's population has grown at a moderate pace in the last two decades, exhibiting a 13.5% increase from 2000 to 2018 (Figure 1). Notably, there was a period of rapid growth beginning in 2009, but the growth has slowed and shown slight decline since 2015. In the last two decades, the average household size remained relatively stable, with slight increase from 2.3 persons to 2.48 persons.

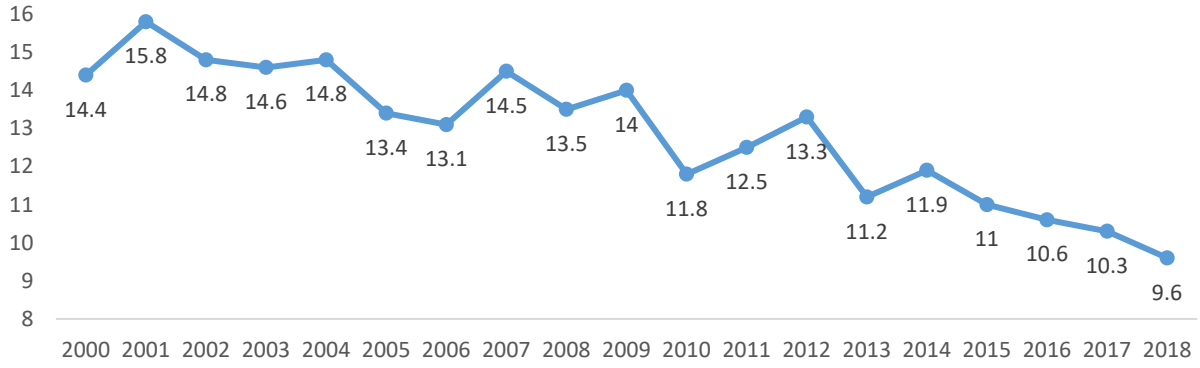
Figure 1: Total Population of Plainsboro Township, 2000-2018



Source: US Census Bureau, Population Estimates, 2000 to 2018

The population increase is attributed to the growth of older residents, as the median age increased from 32.9 to 37.3. In contrast, the population under the age of 18 years has stayed almost the same at approximately 25% of the total population. At the same time, the number of households with children under the age of 18 years increased from 34.2% to 40.1%, which indicates that there are fewer children in each household. This demographic trend is further compounded by the fact that birth rates in Plainsboro Township have been declining since 2000. As shown in Figure 2, the birth rate in Plainsboro is at its lowest point in 18 years (as of the most recent 2018 data).

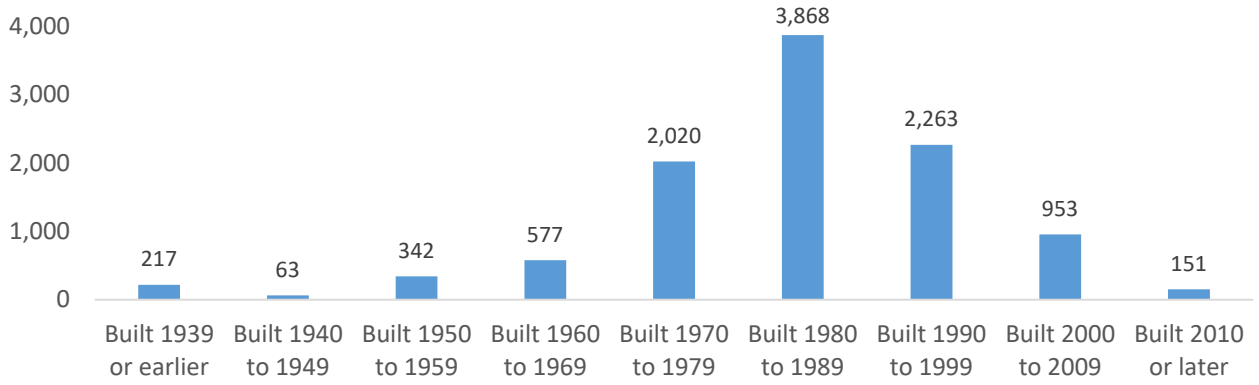
Figure 2: Birth Rate per 1,000 Persons, Plainsboro Township, 2000-2018



Source: New Jersey State Health Assessment Data, Birth Data 1990-2018 for Plainsboro Township

Housing stock in the Township is characterized predominantly by multifamily dwellings (62.3%), and the remainder is a mix of single-family detached dwellings (25%) and townhomes (12.7%). 50% of the multifamily housing stock are low-rise, low-density garden apartments, with at most 19 units in a structure. Additionally, the majority (77.9%) of the existing housing stock was built between 1970 and 1999, with approximately 37% of all housing within the Township built in the 1980s alone (see Figure 3). This reflects the rapid suburban growth the Township experienced during the same time period. In comparison, the pace of new housing construction has drastically slowed in the 2000s.

Figure 3: Housing Units Constructed by Decade in Plainsboro Township (as of 2018)

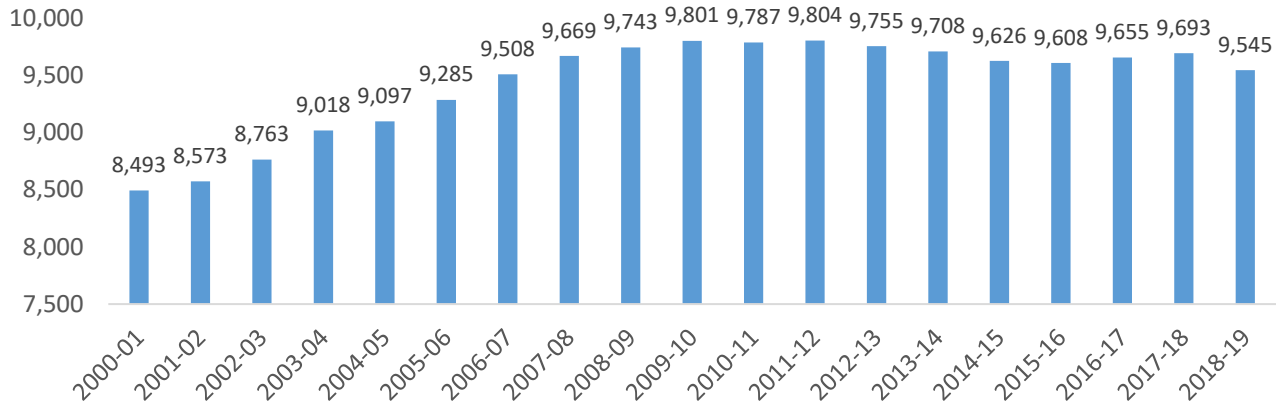


Source: US Census Bureau, American Community Survey, 2014-2018 Five-Year Estimates

3.2 West Windsor-Plainsboro Regional School District

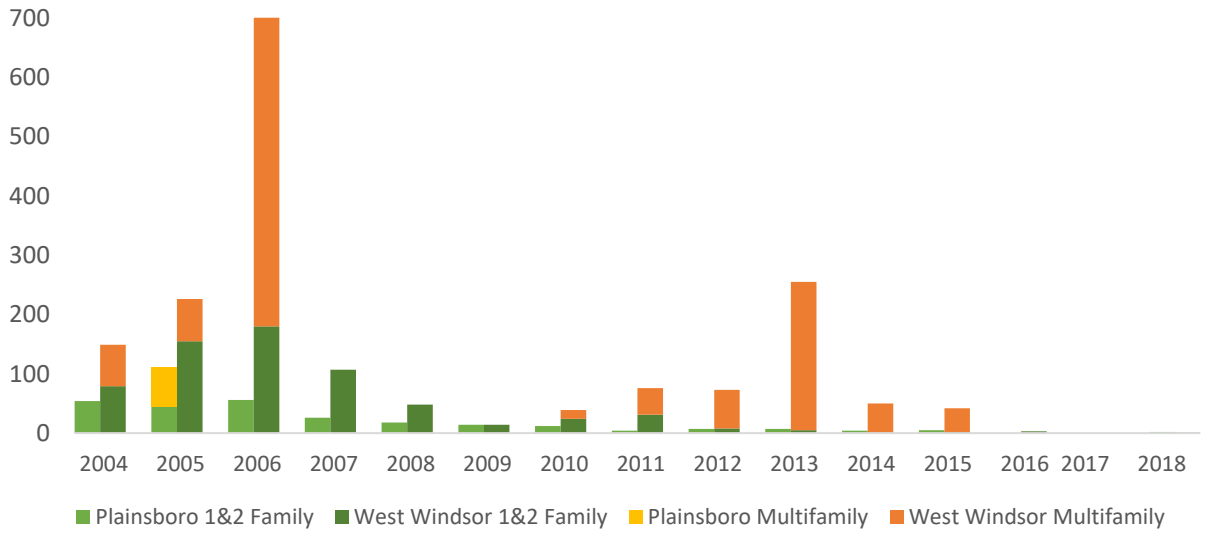
The West Windsor-Plainsboro Reginal School District provides K-12 education to students from West Windsor Township and Plainsboro Township. The district is consistently rated among the top school districts in New Jersey, and includes six schools serving students in kindergarten to Grade 5, two middle schools, and 2 high schools. As Figure 4 shows, enrollment in the school district steadily increased in the first decade of the millennium, reaching its peak in the 2009-10 to 2011-12 school years. The period of enrollment increase corresponds to the overall housing expansion in Plainsboro and West Windsor in the early 2000s, particularly in West Windsor (see Figure 5). However, since 2012-13, enrollment has been declining. As of the 2018-19 school year, the enrollment was 9,545, which represents a decrease of 259 students or 2.6% from the peak in 2011-12.

Figure 4: Total Enrollment in West Windsor-Plainsboro School District, 2000-01 to 2018-19



Source: NJ Department of Education, District Reported Enrollment Data, 2000-01 to 2018-19 School Years

Figure 5: Certificates of Occupancy Issued in Plainsboro and West Windsor, 2004-2018



Source: NJ Department of Community Affairs, Housing Units Certified by Municipality, 2004-2018

The enrollment decline despite continuous population growth and new housing construction indicate that existing households in Plainsboro and West Windsor are generating fewer public school students than in the previous decade. This is especially pertinent to new multifamily development, as most of the new housing units added during the period of enrollment decline were multifamily. This trend is also evidenced in the decrease of the ratio of public school students to the total population in Plainsboro and West Windsor over the past two decades (Figure 6).

Figure 6: Ratio of Public School Students to Total Population in West Windsor and Plainsboro

	Combined Population of West Windsor and Plainsboro	Total School Enrollment	Ratio of Students to Total Population
2000	42,122	8,493	0.202
2010	50,164	9,787	0.195
2018	51,116	9,545	0.187

Source: US Census Bureau, Population Estimate 2000-2018; NJ Department of Education, District Reported Enrollment Data, 2000-01 to 2018-19; Analysis by Phillips Preiss, LLC.

In summary, while the West Windsor-Plainsboro Regional School District remains a highly-regarded school district for young families, the generation of new public students is significantly lower than in the previous decade. This demographic trend towards fewer children and fewer public school students will persist if birth rates remain level or continue to fall. These characteristics and trends described provide a context for the evaluation of fiscal impacts which is outlined in the following chapters.

4 Fiscal Impact Analysis

4.1 Estimated Revenues Generated by Development

4.1.1 Estimated Market and Assessed Values

The market values of the market rate residential[1] and non-residential components were based on market data provided by the applicant. Market values for the affordable residential component[2] were estimated using affordable housing rental rate calculations based on 2020 income limits. The assumptions used to calculate the market value for each component are summarized in Table 3.

Table 3: Assumptions to Calculate Estimated Market Value

Residential For Sale	Value Per Unit
Single-family Detached	
3 BR	$864,000
Condo	
2 BR	$468,000
3 BR	$650,000
Age-Restricted Condo	
1 BR	$350,000
2 BR	$460,000
Townhouse	
2 BR	$450,000
3 BR	$525,000
Residential For Rent	**Average Monthly Rent**
Multifamily*	
Studio	$1,732
1 BR	$2,176
2 BR	$2,890
3 BR	$3,574
Affordable Multifamily	
Studio	$871
1 BR	$941
2 BR	$1,320
3 BR	$1,527
Non-Residential	**Value Per Square Foot**
Retail	$380
Office	$275
Hotel	$292

* Includes both age-restricted and non age-restricted multifamily units

Sources: Picus Associates, Inc; Affordable Housing Professionals of New Jersey, 2020 Income Limit General/Family Affordable Housing Unit Rental Rate Calculations for Pricing Newly Constructed Units Calculated with 2020 Income Limits and 2018 HUD Utility Allowance Updates; Analysis by Phillips Preiss, LLC.

Based on the above value assumptions, the proposed development program is estimated to have a total market value of approximately $579,493,961 at full build-out. As the current (2019) equalization ratio for Plainsboro Township is 98.82%, the total estimated assessed value of the

[1] Assumptions for rental units include a vacancy rate of 3%, operating costs of 35% of gross annual rents, and a cap rate of 5.25%.

[2] Assumptions include operating costs of 35% of gross annual rents and a cap rate of 6.5%.

proposed development is approximately $572,655,933. Table 4 summarizes the total estimated market and assessed values by program component in each phase.

Table 4: Total Estimated Assessed Value by Component of Proposed Development

Use	First Phase	Second Phase	Final Phase	Full Build-out
Residential	$112,059,190	$99,630,748	$167,604,023	$379,293,961
For Sale	$37,050,000	$68,109,000	$76,160,000	$181,319,000
Rental	$75,009,190	$31,521,748	$91,444,023	$197,974,961
Non-Residential	$34,850,000	$47,250,000	$118,100,000	$200,200,000
Retail	$26,600,000	$17,100,000	$74,100,000	$117,800,000
Office	$8,250,000	$8,250,000	$44,000,000	$60,500,000
Hotel	$0	$21,900,000	$0	$21,900,000
TOTAL MARKET VALUE	**$146,909,190**	**$146,880,748**	**$285,704,023**	**$579,493,961**
Equalization Ratio	98.82%	98.82%	98.82%	98.82%
TOTAL ASSESSED VALUE	**$145,175,662**	**$145,147,555**	**$282,332,716**	**$572,655,933**

Source: NJ Division of Taxation, Middlesex County Amended Table of Equalized Valuations 2019; Analysis by Phillips Preiss, LLC.

4.1.2 Total Estimated Revenues

The property taxes applicable to this project include the Township of Plainsboro's general municipal purpose property tax, municipal open space tax, and municipal library tax; the regional school district's property tax; and the County's general purpose property tax and open space tax. A breakdown of Plainsboro's 2019 tax rate is shown in Table 5. The total tax levy on real property is $2.298 per $100 of assessed value, out of which $0.39 goes to the municipality, $1.508 are apportioned for the school district, and $0.4 are attributed to Middlesex County.

Table 5: Breakdown of Tax Rate in the Township of Plainsboro, 2019

Source	Rate (per $100)
Municipality	0.390
General Purpose	0.347
Open Space	0.009
Library	0.034
School District	1.508
County	0.400
General Purpose	0.369
Open Space	0.031
TOTAL	**2.298**

Source: NJ Division of Taxation, 2019 Middlesex County Abstract of Ratables.

Based on the above tax rates and the estimated assessed values, the proposed development will generate approximately $13.2 million in total annual tax revenue at full build-out. Of the $13.2 million, approximately $2.2 million would be apportioned to the municipality and approximately $8.6 million would accrue to the school district, with the balance allocated to the county. Table 6 summarizes the tax revenues generated by the project during each construction phase.

Table 6: Breakdown of Annual Property Tax Revenues

	First Phase	Second Phase	Final Phase	Full Build-out
Municipality	$566,185	$566,075	$1,101,098	$2,233,358
School District	$2,189,249	$2,188,825	$4,257,577	$8,635,651
County	$580,703	$580,590	$1,129,331	$2,290,624
TOTAL	**$3,336,137**	**$3,335,490**	**$6,488,006**	**$13,159,633**

Source: Analysis by Phillips Preiss, LLC

4.2 Estimated Fiscal Costs of Development

4.2.1 Per Capita Service Costs

According to the most recent 2019 Abstract of Ratables, Plainsboro Township has a total real property tax base of approximately $4.5 billion. The tax base is largely attributable to residential development, which accounts for approximately 68.07% of the total tax levy. Non-residential development (i.e., commercial and industrial) comprises approximately 30.41% of the total property valuation. The balance of the tax base comprises vacant land and qualified farmland properties. Since residential parcels represent approximately 95.72% of the total number of real property parcels in the Township and non-residential parcels account for 2.09%, it is estimated that the residential tax base accounts for 81.9% of the total tax base, and the non-residential base accounts for 16.25%. These assumptions are based on the "proportional valuation" method, which assumes that the allocation of municipal services is roughly proportional to the share of the total tax base represented by residential and non-residential uses in the community.[3] Table 7 details the breakdown of the real property tax base by property type.

Table 7: Breakdown of Real Property Tax Base in Plainsboro Township, 2019

	# of Parcels	% of Total Parcels	Total Valuation	% of Total Valuation	% of Total Appropriation
Residential	5,506	95.72%	$3,091,472,300	68.07%	81.90%
Non-Residential	120	2.09%	$1,380,989,400	30.41%	16.25%
Vacant + Farm	126	2.19%	$69,159,700	1.52%	1.86%
Total	**5,752**		**$4,541,621,400**		

Source: NJ Division of Taxation, 2019 Middlesex County Abstract of Ratables; Analysis by Phillips Preiss, LLC.

According to Plainsboro Township's adopted 2019 municipal budget, the total appropriations funded by local property taxes was $17,338,844.50. The residential tax base represents approximately 81.9% of the total tax base, which translates to approximately $14,200,513.65 of appropriations. Meanwhile, since non-residential uses constitute approximately 16.25% of the tax base, it is assumed that approximately $2,307,583.47 of the total appropriations are allocated to services which support the non-residential tax base. According to the US Census, Plainsboro has a residential population of 23,071 and employee population of 20,229. Therefore, it is estimated that the Township currently spends approximately $616 per resident and $114 per employee from its budgetary appropriations raised by property taxes.

The State of New Jersey's Taxpayer's Guide to Education Spending for 2019 indicates that the "total spending per pupil" for the WWP school district is $19,502 as of the 2017-18 school year (most recent available). Of the total amount, 78.9% is supported by local property taxes. This translates to

[3] The proportional valuation method is described in the Development Impact Assessment Handbook, by Burchell, Listokin, Dolphin, et al. (Urban Land Institute, 1994), p. 129.

a local tax-supported per pupil cost of $15,387. It must be emphasized that "total spending per pupil" is considered by the NJ Department of Education as a "comprehensive representation of school district expenditures" that factors all students for which the district is financially responsible and includes all types of district spending, including transportation, pensions and social security costs, food services, special needs services, capital outlay budged in the general fund, debt service, etc.[4]

4.2.2 Population Multipliers

We derived resident population multipliers by each housing unit type using 2014-2018 American Community Survey's Public Use Microdata Sample ("PUMS") data for the Public Use Microdata Area ("PUMA") containing Plainsboro.[5] A PUMA is a collection of counties or tracts within counties with more than 100,000 people based on the decennial population counts.[6] PUMAs and PUMS data are commonly used for demographic multiplier analysis.[7] In comparison to ACS estimates or decennial census data, which are summary products that show aggregated data for specific geographic areas, PUMS data provides untabulated records about individual people or housing units. This allows for analysis of household and demographic characteristics at more granular levels, such as average household size by number of bedrooms, by tenure, or by type of structure (e.g., single-family detached, townhouse, multifamily), which are unavailable in ACS or decennial census data.

Because age-restricted units generally do not generate school age children and have smaller household sizes, they yield lower than average demographic multipliers. However, as PUMS data does not provide a specific indicator for household samples located within an age-restricted development, we have utilized average household sizes within age-restricted developments published in a 2011 study by the National Association of Home Builders and MetLife Mature Market Institute.[8] The resident multipliers we have utilized in this analysis are summarized in Table 8 below.

Table 8: Residential Population Multipliers

Type*	Multipliers
2 BR Townhouse	2.366
3 BR Townhouse	2.967
3 BR Single-family	2.746
2 BR Condo	1.600
3 BR Condo	2.723
Studio Multifamily	1.041
1 BR Multifamily	1.789
2 BR Multifamily	2.863
3 BR Multifamily	3.283
Age Restricted Rental	1.200
Age Restricted For Sale	1.600

* Multifamily includes both market rate and affordable units

[4] NJ Department of Education, *Taxpayer's Guide to Education Spending 2019: Introduction and Description.*
[5] This PUMA also includes Cranbury, South Brunswick, and portions of East and North Brunswick.
[6] US Census, *Public Use Microdata Areas (PUMAs).*
[7] For example, in the 2006 study by the Center for Urban Policy Research at Rutgers University that developed New Jersey state-wide and regional demographic multipliers that remain widely used for demographic projections.
[8] National Association of Home Builders & MetLife Mature Market Institute (Jan 2011), *Housing Trends Update for the 55+ Market: New Insights from the American Housing Survey.*

For estimating the total number of employees generated in the non-residential component of the development, standard industry multipliers were utilized, as summarized in Table 9.

Table 9: Employee Multipliers

Use	Square feet per employee
Retail: Restaurant	117
Retail: General	500
Office	200
Hotel	1,000

Sources: US General Services Administration (March 2012), Workplace Standards Benchmarking; US Green Building Council (May 2008), Building Area Per Employee by Business Type; Rutgers Center for Urban Policy Research (November 2006), Who Lives in New Jersey Housing.

4.2.3 Public School Children Multipliers

For estimating the public school children generated in the proposed development, we utilized multiplier sets provided by the School District. These multipliers are based on a 2018 demographic study of the number of public school children residing in existing developments within Plainsboro Township.[9] Because of the diversity of existing developments studied in the report, such as by age of structure, type of amenities in structure, or bedroom distribution within the structure, there is a great variation in current student yields. The student yields for each general residential unit type (i.e. single-family, condos/townhouses, apartments) are further summarized into "low," "average," and "high" ranges. The "average" range factors all housing units within the housing type, while the "low" and "high" ranges are based respectively on the lowest and highest student yields within each housing type.

For this fiscal impact analysis, the "high" range of multipliers was not considered because the existing developments that generated the "high" student yields are not reasonably comparable to the proposed Princeton Nurseries development. While the Princeton Nurseries development is proposing modest 3-bedroom single-family homes, the Woods at Plainsboro and other existing single-family developments with high student yields consist of large 5-bedroom homes on lots over 1 acre in size. Similarly, the Wyndhurst development that is the basis for the "high" multiplier for apartments is not comparable to the proposed market-rate multifamily products, as the Wyndhurst is a 100% affordable development in a suburban garden apartment setting. Further, unlike the proposed condos and townhomes in Princeton Nurseries, the Brittany and other condo/townhome developments with high student yields all provide many "child-friendly amenities" like private yards, swimming pools, clubhouses, and other recreational facilities.

It should also be noted that the "average" multipliers already provide a conservative estimate of the number of public school students that might be generated by the Princeton Nurseries development. According to Census data, 20% of owner-occupied units in Plainsboro are 4 bedrooms or larger. No 4-bedroom units are proposed for Princeton Nurseries. Thus, the average multipliers for single-family houses, condos and townhomes are based on larger units that tend to be occupied by larger households. Additionally, there is no comparable large mixed-use town center development within the community. This form of compact, walkable development tends to be particularly attractive to singles, young couples, and empty nesters, as opposed to large families that gravitate to larger units with yards and child-friendly amenities. As such, the actual number of public school children

[9]2016-17 Student Yield from the *Demographic Study Update for the West Windsor-Plainsboro Regional School District, March 2018.* Prepared by Richard S. Grip, Ed.D of Statistical Forecasting LLC.

generated by the Princeton Nurseries development may be most similar to the "low" range of multipliers.

Table 10 below summarizes the School District's "low" and "average" ranges of multipliers utilized for this analysis. As affordable units generally yield more school children than market rate units, affordable units are considered separately in our analysis. For affordable units, we utilized the student yield from the Wyndhurst development, which is 100% affordable.

Table 10: Multipliers for Estimating Public School Children

	"Low"	"Average"
Single-family	0.48	0.72
Condo/Townhome	0.33	0.56
Apartments	0.19	0.25
Affordable Apartments	0.52	0.52

Source: Statistical Forecasting LLC, Demographic Study Update for the West Windsor-Plainsboro Regional School District, March 2018.

4.2.4 Demographic Projections

Based on the population multipliers described above, the proposed development would be expected to generate approximately 2,041 new residents and 2,099 new employees at full build-out. Tables 11 and 12 summarize the demographic impacts to the Township during each construction phase.

Table 11: Total Residents Generated

Unit Type*	First Phase	Second Phase	Final Phase	Full Build-out
2 BR Townhouse	89.91	104.10	18.93	212.94
3 BR Townhouse	112.75	121.65	0.00	234.39
3 BR Single-family	0.00	85.13	0.00	85.13
2 BR Condo	0.00	0.00	128.00	128.00
3 BR Condo	0.00	0.00	54.46	54.46
Studio Multifamily	27.07	13.53	7.29	47.89
1 BR Multifamily	125.23	53.67	71.56	250.46
2 BR Multifamily	337.83	151.74	186.10	675.67
3 BR Multifamily	32.83	26.26	32.83	91.92
Age Restricted Rental	0.00	0.00	180.00	180.00
Age Restricted For Sale	0.00	0.00	80.00	80.00
TOTAL (ROUNDED)	**726**	**556**	**759**	**2,041**

* Multifamily includes both market rate and affordable units

Source: Analysis by Phillips Preiss, LLC.

Table 12: Total Employees Generated

Use	First Phase	Second Phase	Final Phase	Full Build-out
Retail	208.74	134.19	581.50	924.44
Restaurant	89.74	57.69	250.00	397.44
General	119.00	76.50	331.50	527.00
Office	150.00	150.00	800.00	1100.00
Hotel	0.00	75.00	0.00	75.00
TOTAL (ROUNDED)	**359**	**359**	**1,381**	**2,099**

Source: Analysis by Phillips Preiss, LLC.

Table 13 compares the total number of public school children generated by the development based on the "low" and "average" School District multipliers. In the scenario utilizing the "low" range of multipliers, the proposed development would generate approximately 221 public school children at full build-out. If the "average" multipliers are utilized, the proposed development is estimated to generate 311 public school children at full build-out.

Table 13: Total Public School Children Generated

Unit Type	"Low" Multipliers				"Average" Multipliers			
	First Phase	Second Phase	Final Phase	Full Build-out	First Phase	Second Phase	Final Phase	Full Build-out
Single-family	0.00	14.88	0.00	14.88	0.00	22.32	0.00	22.32
Condo/Townhome	25.08	28.05	35.64	88.77	42.56	47.60	60.48	150.64
Apartments	36.86	14.44	15.96	67.26	48.50	19.00	21.00	88.50
Age Restricted	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Affordable	15.60	14.56	19.76	49.92	15.60	14.56	19.76	49.92
TOTAL (ROUNDED)	**78**	**72**	**71**	**221**	**107**	**103**	**101**	**311**

Source: Analysis by Phillips Preiss, LLC.

4.2.5 Total Estimated Costs

Total costs to the Township and the School District were estimated based on the per capita costs and the demographic projections enumerated in previous sections. At full build-out, the estimated increase of 2,041 residents will result in approximately $1.3 million in municipal expenses and the estimated increase of 2,099 new employees will result in total costs of $239,286. Combined, the estimated annual costs for the Township to provide services for the proposed development is approximately $1.5 million. For the School District, total costs to support all new students generated by the project is approximately $3.4 million in the "low" student yield scenario and $4.8 million in the "average" student yield scenario. Table 14 details the municipal and school district costs as result of each phase of the development.

Table 14: Total Service Costs of the Proposed Development

	First Phase	Second Phase	Final Phase	Full Build-out
Municipality				
Residents	$447,216	$342,496	$467,544	$1,257,256
Employees	$40,926	$40,926	$157,434	$239,286
Total Municipal Costs	$488,142	$383,422	$624,978	$1,496,542
School District				
"Low" Multipliers	$1,200,186	$1,107,864	$1,092,477	$3,400,527
"Average" Multipliers	$1,646,409	$1,584,861	$1,554,087	$4,785,357

Source: Analysis by Phillips Preiss, LLC.

4.3 Net Fiscal Benefits

As illustrated in Table 15, the proposed development will generate significantly more in local revenues than in costs during each construction phase. At full build-out, Plainsboro Township will receive approximately $736,816 per year in surplus revenue as a result of the proposed development. Fiscal impacts are also positive for the School District in both the "low" student yield and "average" student yield scenarios – the annual fiscal benefit would likely be in the range of $3.9 to $5.2 million at full build-out.

Table 15: Net Fiscal Impact of the Proposed Development

	First Phase	Second Phase	Final Phase	Full Build-out
Plainsboro Township				
Annual Tax Revenues	$566,185	$566,075	$1,101,098	$2,233,358
Annual Costs	$488,142	$383,422	$624,978	$1,496,542
Annual Net Benefit	**$78,043**	**$182,653**	**$476,120**	**$736,816**
WWP ("Low" Multipliers)				
Annual Tax Revenues	$2,189,249	$2,188,825	$4,257,577	$8,635,651
Annual Costs	$1,200,186	$1,107,864	$1,092,477	$3,400,527
Annual Net Benefit	**$989,063**	**$1,080,961**	**$3,165,100**	**$5,235,124**
WWP ("Average" Multipliers)				
Annual Tax Revenues	$2,189,249	$2,188,825	$4,257,577	$8,635,651
Annual Costs	$1,646,409	$1,584,861	$1,554,087	$4,785,357
Annual Net Benefit	**$542,840**	**$603,964**	**$2,703,490**	**$3,850,294**

Source: Analysis by Phillips Preiss, LLC.

5 Conclusion

The foregoing report provided a fiscal impact analysis of the proposed Princeton Nurseries development in Plainsboro Township. Table 16 below summarizes the impacts on the budgetary finances of the Township and School District at completion of each construction phase.

Table 17: Summary of Fiscal Impact Analysis

	First Phase	Second Phase	Final Phase	Full Build-out
Net Annual Benefit to Township	$78,043	$182,653	$476,120	$736,816
Net Annual Benefit to School District				
"Low" Multipliers	$989,063	$1,080,961	$3,165,100	$5,235,124
"Average" Multipliers	$542,840	$603,964	$2,703,490	$3,850,294
Combined Net Annual Benefit				
"Low" Multipliers	$1,067,106	$1,263,614	$3,641,220	$5,971,940
"Average" Multipliers	$620,883	$786,617	$3,179,610	$4,587,110

Source: Analysis by Phillips Preiss, LLC.

The major findings of the fiscal impact analysis are as follows:

- The proposed development will add approximately $573 million to the Township's tax base at full build-out.
- The proposed 950 units will generate approximately 2,041 new residents and the 605,000 square feet of non-residential space will generate approximately 2,099 new jobs.
- Fiscal impacts to the Township will be positive during all phases of the development. At full-build-out, the cumulative net fiscal impact to Plainsboro would total $736,816.
- Approximately 221 new public school students will be generated under the "low" student yield assumptions, while a more conservative estimate utilizing the "average" range of student yield multipliers is 311 new public school students.
- The proposed development would result in net positive fiscal impacts to the school district, whether based on "low" or "average" student yield assumptions, during each phase of the project. At full build-out, the cumulative fiscal impact results to the school district would total $5.2 million under the "low" student yield scenario and $3.9 million under the "average" student yield scenario.
- At full build-out, the combined cumulative local net fiscal impact to the Township and the School District is $6 million based on "low" student yield and $4.6 million based on "average" student yield assumptions.

In conclusion, the proposed Princeton Nurseries development will provide a significant tax ratable for the Township of Plainsboro and the West Windsor-Plainsboro Regional School District.

SUPPLEMENTARY FISCAL IMPACT ANALYSIS OF THE PROPOSED PRINCETON NURSERIES DEVELOPMENT WITH AN ALTERNATIVE NON-RESIDENTIAL PROGRAM

PLAINSBORO TOWNSHIP, MIDDLESEX COUNTY, NJ

PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC

Planning & Real Estate Consultants

Hoboken, NJ | February 2020

Introduction

The following report was prepared on behalf of Picus Associates, Inc., to provide a supplementary analysis evaluating the fiscal impacts of a development scenario with an alternative non-residential program for the proposed Princeton Nurseries development in the Township of Plainsboro. Instead of 605,000 square feet of total non-residential space, the development program analyzed in this report considers an increase to 745,000 square feet of combined retail, office, and hotel space. There are no changes to the residential program of 950 dwelling units.

As part of the preparation of this report, we reviewed the 2019 municipal budget, property tax rates, equalization ratio and breakdown of the property tax base of the Township of Plainsboro. Anticipated rents and market values for the various project components were based on market studies commissioned by the applicant and research conducted by Phillips Preiss Grygiel Leheny Hughes LLC. Demographic multipliers were obtained through analysis of US Census PUMS data, the 2006 study by the Center for Urban Policy Research at Rutgers University, and other resources. In addition, the March 2018 Demographic Study Update for the West Windsor-Plainsboro Regional School District, prepared by Statistical Forecasting LLC, was utilized for the purposes of estimating the anticipated public school children population in the development.

The fiscal impact analysis is based on an average cost approach, also called the "per capita multiplier method," which attributes costs of new development according to the average cost per unit of existing services, multiplied by the number of units the development is estimated to create, based on multipliers derived from the Census and other similar sources. It assumes that current per capita service costs serve as a reasonable estimate of future costs. Per pupil costs were calculated using The State of New Jersey's Taxpayer's Guide to Education Spending for 2019. The estimates of the anticipated tax revenues as well as the per capita costs to serve the new residential, public school children and employee populations were developed in accordance with the methodology set forth in the Development Impact Assessment Handbook, by Burchell, Listokin, et al.

As described herein, if the non-residential program is increased to 745,000 square feet instead of 605,000 square feet, the proposed development would yield an even greater annual fiscal benefit to Plainsboro Township ("Township) and the West Windsor-Plainsboro School District ("School District").

Proposed Development with Alternative Non-Residential Program

This report considers the fiscal impacts of a mixed-use development consisting of 950 residential units and approximately 745,000 square feet of commercial space. Table 1 shows the detailed breakdown of the proposed residential program, and Table 2 shows the breakdown of the non-residential program.

Table 1: Proposed Residential Program

	Unit Type	Market Rate	Affordable	Total
FOR RENT	Multifamily			
	Studio	45	0	45
	1 BR	156	10	166
	2 BR	195	31	226
	3 BR	2	11	13
	Sub-total	*398*	*52*	*450*
	Age-Restricted Rental			
	Multifamily 1BR	100	0	100
	Multifamily 2BR	50	0	50
	Sub-total	*150*	*0*	*150*
	TOTAL RENTAL UNITS	**548**	**52**	**600**
FOR SALE	Single-family Detached			
	3 BR	31	0	31
	Townhouses			
	2 BR	90	0	90
	3 BR	79	0	79
	Sub-total	*169*	*0*	*169*
	Condo			
	2 BR	80	0	80
	3 BR	20	0	20
	Sub-total	*100*	*0*	*100*
	Age-Restricted Condo			
	1 BR	8	0	8
	2 BR	42	0	42
	Sub-total	*50*	*0*	*50*
	TOTAL FOR SALE UNITS	**350**	**0**	**350**
	TOTAL UNITS	**898**	**52**	**950**

Table 2: Proposed Alternative Non-Residential Program

Retail	370,000 square feet (15% Restaurant; 85% General Retail)
Office	300,000 square feet
Hotel	75,000 square feet (125 keys)
TOTAL	745,000 square feet

Fiscal Impacts with Alternative Non-Residential Program

Estimated Revenues

It is estimated that the new non-residential program will have a market value of $245,000,000. Combined with the residential program, the total market value of the proposed development if the non-residential program is maximized would be approximately $629,014,684. With equalization ratio at 98.82%, the total estimated assessed value is $621,592,311 (see Table 3).

Table 3: Total Assessed Value with Alternative Non-Residential Program

Use	Market Value	Equalization	Assessed Value
For Sale Residential	$181,319,000	98.82%	$179,179,436
For Rent Residential	$202,695,684	98.82%	$200,303,875
Retail	$140,600,000	98.82%	$138,940,920
Office	$82,500,000	98.82%	$81,526,500
Hotel	$21,900,000	98.82%	$21,641,580
TOTAL	**$629,014,684**	**98.82%**	**$621,592,311**

Table 4 summarizes the estimated annual tax revenues generated by the new development program. The proposed development would generate approximately $2.4 million for the municipality and $9.4 million for the school district.

Table 4: Annual Property Tax Revenues with Alternative Non-Residential Program

	Tax Rate (per $100)		Assessed Value		Annual Tax Revenues
Municipality	0.390	x	$621,592,311	=	$2,424,210
School District	1.508	x	$621,592,311	=	$9,373,612
County	0.400	x	$621,592,311	=	$2,486,369
TOTAL	**2.298**	**x**	**$621,592,311**	**=**	**$14,284,191**

Estimated Costs

As Table 5 below shows, the proposed 745,000 square feet of non-residential use will generate approximately 2,678 total employees. With a per capita cost of $114 per employee, the new employee population will result in approximately $305,292 in annual Township expenses. Combined with the approximately $1.2 million in annual costs to support the new residential population in the 950 dwelling units, the total annual Township costs as a result of the proposed development would be approximately $1.5 million (see Table 6).

Table 5: Total Employees Generated for Alternative Non-Residential Program

Use	Total Square Feet	Square Feet Per Employee	Total Employees
Retail: Restaurant	55,500	117	474
Retail: General	314,500	500	629
Office	300,000	200	1,500
Hotel	75,000	1,000	75
TOTAL	**745,000**		**2,678**

Table 6: Total Costs to the Municipality with Alternative Non-Residential Program

	Per Capita Cost	Population	Total Cost
Residents	$616	2,009	$1,237,544
Employees	$114	2,678	$305,292
TOTAL			**$1,542,836**

The costs to the School District are $3,185,109 in the "low" student yield scenario and $4,616,100 in the "average" student yield scenario (Table 7).

Table 7: Total Costs to the School District with Alternative Non-Residential Program

	Per Student Cost	Students	Total Cost
"Low" Multipliers	$15,387	207	$3,185,109
"Average" Multipliers	$15,387	300	$4,616,100

Net Fiscal Benefits

As illustrated in Table 8, if the non-residential portion was developed to its full potential at 745,000 square feet, the proposed Princeton Nurseries development would generate approximately $881,374 in annual fiscal benefits to the Township. For the School District, the development program is estimated to generate approximately $6.2 million in annual surplus revenue in the "low" student yield scenario and $4.8 million in the "average" student yield scenario.

Table 8: Net Fiscal Impact with Alternative Non-Residential Program

	Township	School District	
		"Low" Multipliers	"Average" Multipliers
Annual Tax Revenues	$2,424,210	$9,373,612	$9,373,612
Annual Costs	$1,542,836	$3,185,109	$4,616,100
Annual Net Benefit	**$881,374**	**$6,188,503**	**$4,757,512**

In comparison, the proposed development program with 605,000 square feet of non-residential space was estimated to yield $774,722 in annual net fiscal benefit to the municipality and $4.1-$5.5 million in annual net fiscal benefit to the school district. As such, the development of the non-residential program to 745,000 square feet would yield approximately $106,652 more in annual fiscal benefit to the Township and $667,612 more in annual fiscal benefit to the School District as compared to the previously analyzed program with 605,000 square feet of non-residential use.

Appendix D: Draft Developer's Agreement

2020 DEVELOPER'S AGREEMENT

Princeton Nurseries

THIS AGREEMENT dated the _____ day of _____, 2020 between:

THE TOWNSHIP OF PLAINSBORO, in Middlesex County, a Municipal Corporation of the State of New Jersey, with offices located at 641 Plainsboro Road, Plainsboro, New Jersey 08536 (hereinafter referred to as "Township");

And

THE TRUSTEES OF PRINCETON UNIVERSITY, a New Jersey Corporation, with offices located at 1 Nassau Hall, Princeton, New Jersey 08540 (hereinafter referred to as "University").

For the Project known as:

PRINCETON NURSERIES GENERAL DEVELOPMENT PLAN

RECITALS

WHEREAS, on May 27, 1975, the Planning Board granted to Princeton University and others what was then known as ''tentative approval" (and which is now known as general development plan approval) for a "Planned Multi-Use Development" ("PMUD") of a site then consisting of approximately 1,600 acres of land of Princeton Forrestal Center, which tentative approval was granted pursuant to the then existing PMUD Multi-Use Development Ordinance ("PMUD Ordinance") which was enacted by the Township pursuant to the former Municipal Planned Unit Development Act (1967) (former N.J.S.A. 40:55D-54 et seq.) and extended until December 31, 1999; and

WHEREAS, the University and the Township entered into the Princeton Forrestal Center Agreement dated December 21, 1994 (the "1994 Agreement") which was subsequently amended by the Amendment to Princeton Forrestal Center Agreement dated May 11, 1999 (the "1999 Amendment") (together, the "Developer's Agreement") and a Developer's Agreement dated April 13, 2016 for Intersection Improvements at College Road West Seminary Drive and Nursery Road, which was amended by the Amended Developer's Agreement, dated February 14, 2018 (together the "Intersection Developer's Agreement"); and

WHEREAS, the University and the Township entered into the 1999 Traffic Agreement dated December 8, 1999 (the "1999 Traffic Agreement") which was subsequently amended by the First Amendment to Princeton Forrestal Center Traffic Agreement dated January 2, 2002 (the "2002 Traffic Agreement Amendment")(together the "Traffic Agreement"); and

WHEREAS, by Resolution Number P99-12, the Plainsboro Planning Board granted General Development Plan ("GDP") Approval to the University for the undeveloped sites in Princeton Forrestal Center ("PFC") owned by the University (the "1999 GDP"). Subsequently, two (2) amendments were granted by: (i) Resolution P01-11, dated October 15, 2001; and (ii) Resolution P01-16, dated March 18, 2002, as well as a Variation granted by Resolution P16-08, dated July 18, 2016 (together the "GDP Approval"). The Development Plan, as amended, granted the University a vesting of zoning rights for a period of 20 years, including use and density standards within the zoning standards set forth in the PMUD Zone; and

WHEREAS, most of the GDP Approval sites have been approved and built, including the Hotel Site, a residential component in the Princeton Nurseries, offices at 750 College Road East, and offices at the South Campus. The other remaining undeveloped or partially developed tracts owned by the University, including the Princeton Nurseries, Princeton Forrestal Campus and a couple of undeveloped lots along College Road East and Research Way, had the following rights:

a. Princeton Nurseries. Up to 2,000,000 square feet of nonresidential uses, of which 100,000 square feet may be commercial with the balance devoted to office/research uses. By agreement, the combined maximum commercial development between Plainsboro and South Brunswick Township was limited to 2,900,000 square feet.

b. Forrestal Campus. 3,016,530 square feet of mixed office/research and educational research can occur in Forrestal Campus. It is determined from 277 acres @ .25 Floor Area Ratio ("FAR") = 3,016,530 sq. ft. By virtue of current land use allocation rules, the educational research ("E/R") must be no more than 1,927,530 square feet and no less than 1,150,815 square feet, leaving no less than 1,089,000 square feet and no more than 1,865,715 square feet respectively, of O/R remaining. The balance of the undeveloped and unallocated Forrestal Campus has remaining vested rights by virtue of the GDP Approval for 1,361,767 square feet plus 102,081 square feet of undeveloped and/or unallocated space, all as provided for in the 1999 GDP (and subsequent amendments) and the Traffic Agreement.

c. Undeveloped Lots Along College Road East and Research Way. Undeveloped lots along College Road East equal a total of 25.14 +/- Acres. These lots could be developed for the allowable uses under the GDP Approval within the required overall 0.25 FAR within the PMUD Ordinance zoning district east of U.S. Route 1; or, the FAR attributable to this acreage and other undeveloped parcels within PFC can be allocated to the Forrestal Campus in accordance with the GDP Approval so long as the 0.25 FAR overall average is maintained east of U.S. Route 1.

Within the Township, the terms of the GDP except for the Traffic Agreement obligations expired upon the termination of the GDP Approval in August of 2019.

WHEREAS, the GDP Approval expired on August 15, 2019; and

WHEREAS, the Princeton Nurseries is planned to be an Integrated Mixed-Use Neighborhood Development pursuant to §101-137.Q of the PMUD Ordinance as amended March 2020, and, as such, has been the subject of a General Development Plan application, separate from the balance

of Princeton Forrestal Center, which has been the subject of an independent GDP application for the Forrestal Campus which was approved by the Plainsboro Planning Board by Resolution P19-13 dated October 21, 2019. The Princeton Nurseries project therefore, will be governed by a separate Developer's Agreement between the University and the Township; and

WHEREAS, the Forrestal Campus is the subject of a separate General Development Plan approval, P19-13, dated October 21, 2019 (the "Campus GDP Approval") and is governed by a separate Developer's Agreement between the University and the Township; and

WHEREAS, the University applied for a new General Development Plan approval for the undeveloped lands in the Princeton Nurseries ("Princeton Nurseries GDP"), as specified in **Exhibit 1**, annexed hereto; and

WHEREAS, the Plainsboro Township Planning Board approved the Princeton Nurseries GDP by Resolution dated _____, 2020, which continues the area wide PMUD Ordinance land use regulations and standards for PFC and requires that any requirements from the Developer's Agreement and the Traffic Agreement that are to remain in effect are incorporated into this Developer's Agreement required by the approval or, by a separate developer's agreement related to the Forrestal Campus GDP Approval (the "Princeton Nurseries GDP Approval") ; and

NOW, THEREFORE, the parties hereto agree as follows:

1. **GDP Allocation of Uses.** Land use allocations (allowable uses) have been specified and included in the Princeton Nurseries GDP General Land Use Plan and will not be changed absent request from the University and approval of the Township Planning Board (either by amendment or variation as applicable). The University shall not modify the approved minimum ratios of the mix of uses or the designated areas of allowed uses and the phasing thereof, minimum and/or maximum densities and/or bulk standards of the PMUD Ordinance and the Princeton Nurseries GDP Approval, including, for example, residential and nonresidential densities, phasing and open space without the approval of the Township Planning Board.

2. **Density.**

A. The maximum residential density shall be 950 units of which no more than 750 units will be non-age-restricted, with up to 60% rental units and the balance for-sale units; any units in excess of the 750 non-age-restricted units shall be age restricted, with a maximum of 150 such age restricted-units being rentals and a minimum of 50 age-restricted units being for-sale units.

B. The maximum non-residential density shall be:

(i) 310,000 square feet of retail/restaurant/entertainment uses;

(ii) 220,000 square feet of office/research uses; and

(iii) 125 rooms of hotel use, with related amenities up to a maximum of 75,000 Square Feet (excluding ancillary commercial uses contained in the hotel building such as florist, hair salon, gift shop restaurant/bars, etc.

C. The permitted uses within the Project shall be allocated and limited to the designated area categories shown on the Land Use Plan included in the Princeton Nurseries GDP Approval in accordance with the Permitted Uses Table and Plan annexed hereto as **Exhibit 2**, unless modified by amendment or variation of the Nurseries GDP Approval by the Township Planning Board.

3. **Design Guidelines**. All improvements (including structures, roads, sidewalks and landscaping) within the Princeton Nurseries shall consider the Princeton Nurseries Design Guidelines (the "Design Guidelines"), dated _____, 2020, incorporated in the GDP Application and annexed hereto as **Exhibit 3**. The Design Guidelines are intended to provide guiding principles to a developer to achieve the vision goals and objectives of the PMUD Ordinance as amended March 11, 2020 and the Princeton Nurseries GDP Approval.

4. **Prior Agreements**. All prior University developer's agreements regarding Princeton Forrestal Center shall be replaced and supplanted by this Agreement such that, going forward, only this Agreement (and the Forrestal Campus Developer's Agreement as to the Forrestal Campus) as well as the Traffic Agreement shall control. Many of the roadway improvements identified in the GDP Approval and the prior Traffic Agreement and the Intersection Developer's Agreement intended to satisfy the demands anticipated from full build-out of Princeton Forrestal Center, including the U.S. Route 1 overpass along with College Road East and West and adjacent intersections have been constructed. The Parties have identified the following obligations that have not yet been met and are continued obligations under the Traffic Agreement:

i. College Road East and Research Way
ii. Nursery Road Intersection Improvements
iii. Campus Road Connector
iv. Merrill Lynch Driveway #1.
v. Merrill Lynch Driveway #2.
vi. Scudders Mill Road Free Flow Right Turn Lane to College Road East Northbound.

Of these continuing obligations, the following obligation has been allocated to and shall be the exclusive obligation of the Princeton Nurseries GDP:

(i) College Road East and Research Way (Traffic signal intersection improvement).

The University shall submit a Traffic Signal Warrant Analysis for this intersection upon the earlier of (1) submission of the first preliminary site plan application for nonresidential development in Princeton Nurseries; or (2) construction of the extension of Campus Road to College Road East opposite Research Way, which Analysis shall be reviewed by the Plainsboro Township Engineer in a timely manner. If generally accepted New Jersey Department of

Transportation ("NJDOT") warrants for signalization are met, a traffic signal shall be installed at this intersection within six (6) months of the date on which Plainsboro Township requests in writing that such traffic signal be installed. If the warrants are not met at that time, then a traffic signal shall be installed at this intersection within six (6) months of the date on which generally accepted NJDOT warrants for signalization are met. Upon completion the Township agrees to accept the dedication of the traffic signals and all associated improvements which shall become a part of the public road system operated and maintained by the Township.

(ii) Nursery Road Intersection Improvements

The developer(s) of the Princeton Nurseries Project (the "Developer") shall construct the following additional improvements as part of the Phase 3 Nursery Road Improvements to comply with the six (6) sheet plan set prepared by Burns Engineering Inc. (the "Burns Engineering Plan"):

- uncovering/unbagging of traffic signals;
- removal of traffic barriers;
- re-timing of traffic signals; and
- removal and installation of necessary traffic signage.

In addition, upon an application for development of a traffic generating use within the Princeton Nurseries property, the Township Engineer, at its sole discretion, shall determine and specify in reasonable professional judgement the extent and locations that striping, milling and paving of areas within the Intersection Improvement shall be required (the "Striping, Milling and Paving Obligation"), and such Striping, Milling and Paving Obligation shall be substantially completed prior to issuance of any type of certificate of occupancy for traffic generating use.

The aforesaid additional improvements are to be completed at no expense to the Township and prior to the issuance of the first Certificate of Occupancy for a traffic generating use within the Prrinceton Nurseries.

The remaining items (iii-vi, above) have been allocated to the Forrestal Campus GDP and are addressed in the Traffic Agreement for that project.

5. **Additional Road Infrastructure Obligations**. In addition to the prior obligations set forth in Paragraph 4, above, in accordance with the conditions set forth in the Princeton Nurseries GDP Approval, the Developer shall undertake the additional obligations at the times specified in the table annexed hereto as Exhibit 5. The Developer's obligations to construct the improvements, or, as the case may be, pay its pro rata fair share of the costs thereof, set forth in Paragraphs 4 and 5 are contingent upon and subject to the receipt of all applicable permits, warrants, approvals and/or licenses from governmental authorities having jurisdiction over the particular improvement as may be required to undertake the improvement and an agreement by the appropriate governmental authority to accept the particular improvement. The timing of the construction of any such improvement shall be adjusted to take into account any delay in the receipt of such approvals or permits or in the execution of such agreements. Any obligation to construct road improvements where Developer is entitled to fair share contributions from third parties is contingent upon the Township adopting such ordinances as may be required to collect

such third party fair share contributions and imposing the obligation on such third parties as a condition of its approvals.

6. **Parking; Shared Parking Standards**. Within the Mixed-Use Area and Flex Area as defined within the Princeton Nurseries GDP Land Use Plan, parking shall be considered district-wide rather than at the individual lot or building level. The use of shared parking is permitted by §101-143.D.(4) of the PMUD Ordinance and the shared parking requirements shall be evaluated by taking into account the methods recommended in "Shared Parking," published by the Urban Land Institute or other recognized standards acceptable to the Planning Board.

Applicants for any development that involves shared parking shall be required to provide a district-wide parking strategy (or updated strategy if one has already been submitted) applicable to the Mixed-Use Area and Flex Area that includes shared parking through the provision of surface, street, podium, below grade and/or structured parking to address the parking and circulation requirements of the uses and the full build-out within the Mixed-Use Area and Flex Area.

7. **Affordable Housing**.

A. The developer of residential units within the Princeton Forrestal Nurseries GDP shall set aside a number of affordable units equal to 12.7% of the non-age restricted component of the Project (e.g., 750 non-age restricted units X 12.7% = 96 units) as affordable to very low, low and moderate-income households as affordable units subject to the following:

i. The affordable units shall be administrated in accordance with N.J.A.C. 5:80-26.1 et seq. and shall comply with all Council on Affordable Housing ("COAH") barrier free accessibility requirements.

ii. Tenants shall be income qualified by the Township's COAH Administrative Agent ("AA").

iii. The units shall be interspersed among the market rate units among multiple buildings and shall contain the bedroom mix required under Section 5:80-26.3 of the Uniform Housing Affordability Controls ("UHAC").

iv. The units will be constructed in accordance with the phase-in requirements set forth in the COAH regulations in effect at the time of approval, or such other phase-in schedule as may be agreed to between Developer and the Township. Under the COAH regulations currently in effect, that phase-in schedule is as follows:

Percentage of market-rate units completed	Minimum percentage of low- and moderate-income units completed
25%	0
25% + 1 unit	10%
50%	50%
75%	75%
90%	100%

The number and mix of affordable units to be constructed in each building containing affordable units shall meet the COAH phase-in requirements.

v. The affordable units shall contain the following mix of low, very low, and moderate income units:

a. half of the units shall be affordable to moderate-income households (households earning between 50% and 80% of median income).

b. half of the units shall be affordable to low-income households (households earning less than 50% of median income).

c. Of those low-income units, at least 25% shall be affordable to very-low income households (households earning 30% or less of median income).

vi. The phase-in schedule referred to in subsection (iv) above shall ensure that each phase of the development contains a proportional mix of very low, low, and moderate-income units, which may include age-restricted units.

vii. Developer shall enter into a contract with Plainsboro's COAH AA and shall pay the AA's fee for affirmative marketing, advertising and income qualification services.

B. The developer of nonresidential development and mixed-use buildings shall pay the nonresidential affordable housing fee as applicable and as required by state law.

8. **Phasing**. The Princeton Nurseries development shall be developed in accordance with the phasing of uses, improvements and infrastructure as set forth in **Exhibit 4** annexed hereto as incorporated into the Princeton Nurseries GDP Approval Resolution, unless modified by the Township Planning Board. Due to the complex nature of an Integrated Mixed-Use Neighborhood Development, the Developer is exempt from the time requirements of § 85-70.9(C) of the GDP Ordinance, and shall be permitted to seek the first Preliminary Site Plan approval subsequent to the five (5) year period following the Princeton Nurseries GDP Approval.

9. **Transit Opportunities**. (a) Developer at no cost to the Municipality, agrees to manage and operate a weekday peak hour shuttle service for a twelve (12) month trial period. The shuttle will offer residents and employees of the Princeton Nurseries development, service between the Princeton Nurseries development and the Princeton Junction Station at West Windsor. The shuttle service can be expanded at the Developer's sole discretion to offer additional hours of service, service to additional potential customers and additional points of pick-up and drop-off. The shuttle service must commence service prior to the issuance of a Certificate of Occupancy for the four hundred and fiftieth (450) residential unit within the Princeton Nurseries development. At the end of the twelve (12) month trial period, the Developer at its sole discretion, will evaluate the sustainability of the shuttle service and determine whether or not it will continue operation. (b) Developer shall investigate the possibility of New Jersey Transit extending its service to the Princeton Nurseries.

10. **Site Plan Approval Required**. No development shall occur pursuant to the Princeton Nurseries GDP without first obtaining site plan approvals from the Board. It is expressly acknowledged that the offsite impacts of the full build-out of the Princeton Nurseries and the developer's obligations with respect to traffic, drainage and open space are addressed in the Princeton Nurseries GDP and this 2020 Developer's Agreement, and have been included in the PFC project-wide infrastructure previously constructed under the GDP Approval or to be constructed pursuant to the Princeton Nurseries GDP Approval, including, for example, the U.S. Route 1 Overpass and nearby intersections; regional storm water drainage and detention basins; and common open space areas. No additional obligations shall be imposed as part of any site plan approval.

11. **Notices**. All notices hereunder shall be in writing given by personal delivery or by certified mail, return receipt requested postage prepaid addressed as follows:

(1) As to the University, addressed to:

Curt Emmich, General Manager
Princeton Forrestal Center
105 College Road East
Princeton, New Jersey 08542

With a copy to:
Kristin Muenzen, Esq.
Office of the General Counsel
New South Building, Fourth Floor
Princeton, New Jersey 08544

With a copy to:
Richard Goldman, Esq.
Faegre Drinker Biddle & Reath LLP
105 College Road East, Suite 300
Princeton, New Jersey 08542

(2) As to the Township, addressed to:

Township Clerk:
Carol Torres
Municipal Building
641 Plainsboro Road Plainsboro,
New Jersey 08536

Township Attorney:
Michael W. Herbert, Esq.
Parker McCay P.A.
3840 Quakerbridge Road
Suite 200

Hamilton,NJ 08619

Township Planning Board Attorney:
Trishka W. Cecil, Esq.
Mason, Griffin & Pierson, P.C.
101 Poor Farm Road
Princeton, New Jersey 08540

With a copy to:

Township Director of Planning & Zoning:
Lester Varga, AICP/PP
Township of Plainsboro
641 Plainsboro Road
Plainsboro, New Jersey 08534

Township Planning Board Engineer:
Louis Ploskonka, PE,
CME Associates
3141 Bordentown Avenue
Parlin, New Jersey 08859

Or such other addresses and to the attention of such persons may be designated from time to time.

12. **Notice of Non-Compliance**.

i. Township shall issue a Notice of Non-Compliance upon any violation of this Agreement, which Notice shall specify the nature of the violation and the action required to eliminate said violation.

ii. Weather permitting, Developer shall eliminate any violation within seven (7) days of receipt of this Notice, or, such longer period as is reasonably required to eliminate such violation. If corrective measures to abate such violation are not taken within this time period, or within such time period as may be determined reasonable by the Township Planning Board Engineer's office, Developer may be subject to receipt of a Stop Work Order.

13. **Remedies**.

i. Township shall issue a Stop Work Order for all or a portion of the construction activities associated with this Project if Developer does not timely cure the violation set forth in the Notice of Non-Compliance. Developer shall not resume any construction activity on the Project, until written notice to proceed is received from an official Township representative. Developer may perform any construction activity necessary to cure any noticed violation.

ii. The parties also acknowledge that any dispute or breach of the terms of this Agreement may be resolved in the Superior Court, Chancery Division, Middlesex County. The

parties submit to the jurisdiction of said Court and agree that any aggrieved party shall, in addition to all other available remedies, be entitled to injunctive relief on short notice. The parties also waive any right for a jury trial. In addition, the parties specifically agree that the Township does not waive and specifically reserves its right to file any appropriate Complaints in the Municipal Court of Township in order to enforce its ordinance and the compliance thereof by Developer, its agents, contractors, subcontractors, or employees.

14. **Noise**. All noise generated by construction activities shall comply with applicable ordinances of Township and/or the rules and prevailing policies of the New Jersey Department of Environmental Protection.

15. **Site Access**. Township, its official representatives, consultants, authorized employees and agents, shall be given free access to observe construction of the improvements and all roads, sanitary sewers, water mains, storm sewers, buildings, landscaping, and appurtenances as shown on the approved plans or as required by Township ordinances.

16. **Entire Agreement**. This Agreement sets forth all of the promises, agreements, conditions and understandings between the parties hereto relative to the subject matter thereof. Except as herein otherwise specifically provided, no subsequent alterations, amendments, changes or additions to this Agreement shall be binding upon either party unless reduced to writing and signed by each party.

17. **No Waivers**. Nothing herein shall be construed as a waiver by Township of the requirements of the ordinances of Township, or any requirements or conditions of any memorializing resolution of the Township Planning Board relative to this Project, unless such waiver is specifically stated.

18. **Successors and Assigns Bound**. The University may assign this Agreement and the obligations herein, in whole or in part, to a Developer, which such assignment shall be in writing and specify the obligations assumed by such Developer. Upon acceptance and execution of such assignment by the Developer, the University shall notify the Township of the assignment providing the name and contact information of the assignee/Developer, whereupon the University shall be relieved of any and all of the Agreement or portion thereof and the obligations assigned to the Developer. The terms, covenants and conditions herein contained shall be for and shall inure to the benefit of and shall be binding upon the respective parties hereto and their successors and assigns.

19. **Governing Law**. This Agreement shall be construed according to the laws of the State of New Jersey.

20. **Term of Agreement**. This Agreement shall be effective upon the date of the Princeton Nurseries GDP Approval (and expiration of any appeal period or appeals) and shall continue in full force and effect until the earlier of: (i) Princeton Nurseries has been fully developed pursuant to the Princeton Nurseries GDP Approval and any future amendments or approvals granted pursuant thereto; or (ii) the expiration of the Princeton Nurseries GDP Approval. Notwithstanding the termination of this Agreement the Traffic Agreement shall continue in full force and effect pursuant to its terms.

21. **Cooperation**. The Township and the Township Planning Board agree to cooperate with the applicable owner or developer with respect to any applications to other governmental agencies in order to implement the development of the lands referred to in this Agreement. In addition, the parties hereto agree to cooperate with each other to uphold the validity and enforceability of this Agreement. This means that all parties will defend any action instituted by a third party or governmental entity or official that challenges the validity or enforceability of any provision of this Agreement. By execution of this Agreement, each party acknowledges its validity and enforceability and agrees to take no action which would directly or indirectly challenge or otherwise call in question its validity or enforceability.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the day and year first written above.

ATTEST: THE TRUSTEES OF PRINCETON UNIVERSITY

By: _____ By: _____

ATTEST: THE TOWNSHIP OF PLAINSBORO

_____ By: _____

EXHIBIT 1

List of properties included in Princeton Nurseries GDP

PRINCETON NURSERIES BLOCK & LOT			
Township	Block	Lot	Acres
Plainsboro	102	5	42.955
Plainsboro	102	6	3.745
Plainsboro	106	1	62.14
TOTAL			108.84

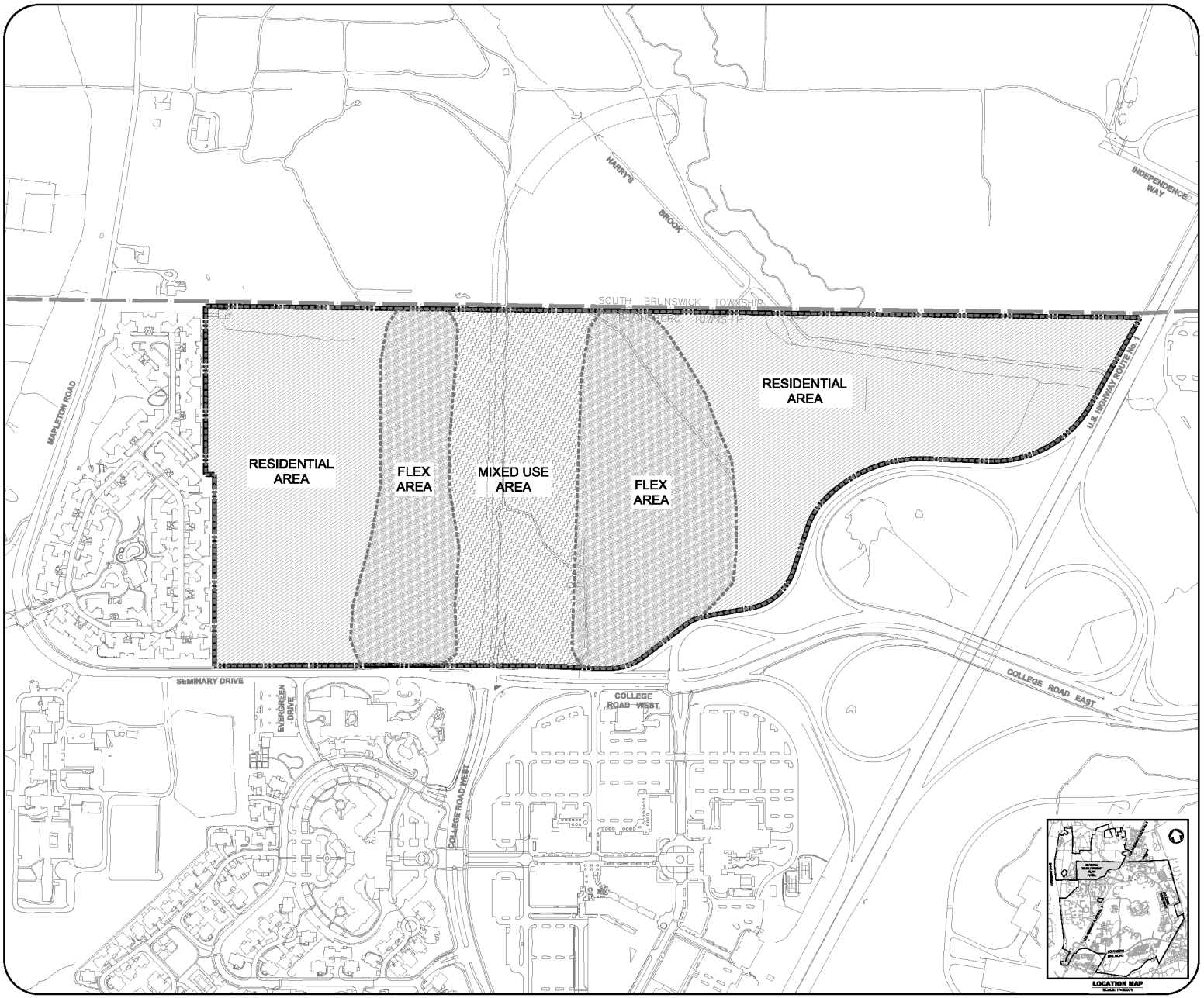
EXHIBIT 2

Permitted Uses Table and Plan

All of the uses listed in the table, below, are permitted within the Integrated Mixed-Use Neighborhood Development (§101-137Q)

Permitted Uses		Land Use Areas		
		Residential	Flex	Mixed-Use
Open space areas (incl. common open space, plazas or squares, and public areas)		√	√	√
Recreational uses (indoor and/or outdoor)		√	√	√
Retail sales and services			√	√
Residential uses	Single-family detached dwellings	√		
	Townhouse dwellings	√	√	√
	Manor homes	√	√	
	Multi-family dwellings	√	√	√
	Affordable housing units	√	√	√
	Age-restricted housing units	√	√	√
Mixed non-residential uses, including personal services, banks and financial service establishments, restaurants, eating and drinking establishments, theaters, performance and arts facilities, entertainment, hotels, offices, health and fitness facilities, educational and research uses, and other complementary business or commercial uses			√	√
Child-care centers pursuant to §101-65.F, §101-13.4, and §101-25F of the Plainsboro Township Ordinance		√	√	√
Family day-care homes		√	√	√
Home occupations and professional offices pursuant to §101-13.5 of the Plainsboro Township Ordinance		√	√	√
Accessory uses and buildings customary and incidental to any and all of the permitted principal uses referenced herein		√	√	√

Use of outdoor space(s) as places of:	Assembly	√	√	√
	Dining		√	√
	Shopping		√	√
	Special Events	√	√	√



Princeton Forrestal Center

Princeton University's Corporate Office and Research Complex

Princeton Nurseries-Plainsboro

General Development Plan Exhibit C

Land Use Plan

LEGEND

- GENERAL DEVELOPMENT PLAN BOUNDARY
- MUNICIPAL BOUNDARY
- MIXED USE AREA (SEE NOTE 1)
- FLEX AREA (SEE NOTE 1)
- RESIDENTIAL AREA (SEE NOTE 1)

NOTES:

1. WITHIN THE PRINCETON NURSERIES THERE ARE FOUR TYPES OF LAND USE "AREAS" EACH WITH SPECIFIC CHARACTER INTENT THAT TOGETHER ARE CALIBRATED TO CREATE THE ENVISIONED MIXED-USE URBAN-STYLE ENVIRONMENT SUITABLE FOR PEDESTRIAN ACTIVITY AND INCREASED BUSINESS OPPORTUNITIES. THERE SHALL BE TWO RESIDENTIAL AREAS, ONE ADJACENT TO THE PRINCETON NURSERIES WESTERN BOUNDARY AND ONE ADJACENT TO U.S. HIGHWAY ROUTE NO.1. THESE RESIDENTIAL AREAS DO NOT PERMIT NON-RESIDENTIAL USES SUCH AS RETAIL, OFFICE AND HOTEL. THERE SHALL BE A SINGLE MIXED USE AREA THAT IS CENTRALLY LOCATED AND PERMITS ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS OR MANOR HOMES. THERE SHALL BE TWO FLEX AREAS, EACH LOCATED BETWEEN THE MIXED USE AREA AND A RESIDENTIAL AREA. THE FLEX AREAS PERMIT ALL USES BUT DOES NOT PERMIT SINGLE-FAMILY DETACHED DWELLINGS. THESE FLEX AREAS ARE UNIQUE IN THAT THEY SHALL ALSO ADDRESS TRANSITIONS OF BUILDING MASS, BUILDING HEIGHT, DENSITY AND LAND USES BETWEEN THE RESIDENTIAL AREAS AND THE MIXED USE AREA. EXACT BOUNDARIES TO EACH OF THE AREAS WILL BE DETERMINED AT SITE PLAN.
2. REFER TO EXHIBIT I FOR A SET OF ILLUSTRATIVE EXAMPLES OF POSSIBLE LAND USE LAYOUTS.

APPLICANT:	THE TRUSTEES OF PRINCETON UNIVERSITY
PROJECT MANAGER:	PICUS ASSOCIATES, INC.
ATTORNEY:	FARRAR DRINKER BIDDLE & REATH, LLP
PLANNER:	PHILLIPS PREISS GRYGIEL LEHENY HUGHES LLC
ARCHITECT:	ELKUS MANFREDI ARCHITECTS
CIVIL ENGINEER:	VAN NOTE-HARVEY ASSOCIATES, INC.
TRAFFIC ENGINEER:	LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
DATE:	MAY 26, 2020

GRAPHIC SCALE

(IN FEET)

1 inch = 100 feet

EXHIBIT 3

Princeton Nurseries Design Guidelines

[Attached]

EXHIBIT 4

Princeton Nurseries

2020 General Development Plan

Phasing Schedule

The intent of the Princeton Nurseries development is the creation of a highly amenitized walkable neighborhood that is anchored by a commercial main-street destination retail environment inclusive of vertically and horizontally mixed-uses. This new neighborhood will support a diverse range of shopping opportunities, modern innovative-collaborative office spaces, dining and entertainment options, integrated and activated open space, new and varied housing choices, and vibrant gathering places for events. To achieve this environment, the following phasing will be followed after the initial site plan approval:

- **Initial Phase** – Forecasted build-out 1 to 3 years (following first Certificate of Occupancy).
  The project's intent will be met during the Initial Phase by development of a non-residential component consisting of a minimum of 100,000 square feet, of which a minimum of 70,000 square feet of retail shall adjoin the central civic square defined in §101-141.F.(3) of the Plainsboro Township Ordinance as amended March 11, 2020. The Initial Phase may also include a residential component consisting of a maximum of 300 units, of which a minimum of 30 units shall be set aside as affordable units in accordance with the provisions of Paragraph 7 of the 2020 Developer's Agreement for the Princeton Nurseries General Development Plan. The residential component may utilize any of the approved residential typologies. As part of the Initial Phase, no less than 60% of the linear street frontage of any development adjoining the central civic square shall consist of buildings with at least one upper floor of active uses whether residential and/or nonresidential uses. In addition, a minimum of 40% of the central civic square shall be constructed. Together, the non-residential component, residential component and partial construction of the central civic square represents the "Initial Phase Base Development Program". If during the forecasted build-out time period for the Initial Phase, the applicant pursues non-residential development (office, retail, hotel) in excess of the Initial Base Development Program, additional residential units would be permitted in a ratio to nonresidential development equivalent to the Initial Phase Base Development Program. Age-restricted residential units are exempt from the above Initial Phase development criteria and may occur at any time without restriction.

- **Second Phase** – Forecasted build-out 2 to 5 years following completion of the Initial Phase.
  The Second Phase shall include completion of construction of the central civic square and development of a non-residential component consisting of a minimum of 150,000 square feet. The Second Phase may also include a residential component consisting of a maximum of 220 units, of which a minimum of 28 units shall be set aside as affordable units in accordance with the provisions of Paragraph 7 of the 2020 Developer's Agreement for the Princeton Nurseries General Development Plan. The residential component may utilize any of the approved typologies. Together, the non-residential

component and residential component inclusive of the affordable units represents the "Second Phase Base Development Program". Construction can commence at any time. If during the forecasted build-out time period for the Second Phase, the applicant pursues non-residential development (office, retail, hotel) in excess of the Second Phase Base Development Program, additional residential units would be permitted in a ratio to nonresidential development equivalent to the Second Phase Base Development Program. Age-restricted residential units are exempt from the above Second Phase development criteria and may occur at any time without restriction.

- **Final Phase** – Forecasted build-out 5 to 16 years following completion of the Second Phase.
  The Final Phase of the project may include any mix of residential and non-residential development to complete the project as approved by the Princeton Nurseries General Development Plan and subsequent site plan approvals. Construction can commence at any time and shall include a set aside of affordable units in accordance with the provisions of Paragraph 7 of the 2020 Developer's Agreement for the Princeton Nurseries General Development Plan.

EXHIBIT 5

Traffic Improvements

EXHIBIT ___

Int. No.	Study Intersection	Fair Share Estimate	Princeton Nurseries Developers Agreement dated as of _____ ___, 2020 ~~Redevelopment Agreement Dated as of ____, 2020~~ Description Of Improvement	Construction Trigger or Milestone
1)	U.S. Route 1 NB Ramps and College Road East	-	None	None
2)	College Road West and Village Blvd / Jughandle	-	None	None
3)	College Road West and Seminary Drive and Nursery Road	100%	Signal Timing Changes consisting of: AM Peak Hour: Add 12 seconds to WB/EB Left Advance Phase, Subtract 6 seconds from NB College Road West ROW Phase, Subtract 6 seconds from EB/WB College Road West/Seminary Drive ROW Phase PM Peak Hour: Add 3 seconds to NB College Road West ROW Phase, EB/WB College Road West/Seminary Drive ROW Phase, Subtract 2 seconds from SB Nursery Road ROW Phase, Subtract 6 seconds from EB/WB Left Advance Phase Saturday Peak Hour: Add 8 seconds to SB Nursery Road ROW Phase, Subtract 2 seconds from NB College Road West ROW Phase, Subtract 6 seconds from EB/WB College Road West/Seminary Drive ROW Phase	Signal Timing Changes to be completed prior to issuance of the first certificate of occupancy for the development.
			Intersection Improvements consisting of: Southbound: Modify Left, Shared Left/Through, Shared Through/Right Lanes to Left, Left, Through, Right Lanes Northbound: Modify Left, Shared Through/Right Lanes to Left, Left, Through, Right Lanes Westbound: Modify Left, Through, Right Lanes to Left, Through, Through, Right Lanes Associated Traffic Signal improvements as necessary to implement above.	Design Improvements as part of initial site plan application. Intersection Capacity and Levels of Service Analyses to be submitted with each site plan application. Improvements to be completed prior to issuance of Certificate of Occupancy for any development in Plainsboro or South Brunswick projected to degrade the intersection capacity to an overall level of service D or worse.
4)	Seminary Drive and Mapleton Road / Barclay Blvd	100%	Construction of a southbound dedicated right turn lane and associated traffic signal improvements as necessary.	Intersection Capacity and Levels of Service Analyses to be submitted with each site plan application. Improvements to be completed prior to issuance of Certificate of Occupancy for any development in Plainsboro or South Brunswick projected to degrade the level of service of the southbound approach to an E or worse.
5)	Scudders Mill Road (CR 614) and College Road East / Crowne Plaza Driveway	100%(1)	Intersection Improvements consisting of: Westbound: ~~Installation of a third westbound thru lane and a channelized free flowing right turn lane~~ Modify to convert the existing right turn lane to an auxiliary through lane and add a channelized free flowing right turn lane Southbound: Extending the southbound left turn storage lane Timing Improvements: Increase Maximum cycle length to 120 seconds Associated traffic signal improvments as necessary to implement above.	When Princeton Nurseries Development in either Plainsboro, South Brunswick or both combined generates a projected 400 trips based on ITE (Institute of Transportation Engineers) Methodology in the AM or PM Peak Hour.
6)	College Road East and Research Way	100%	Intersection Improvements consisting of the installation of a traffic signal and associated improvements.	Submit a traffic signal warrant analysis for this intersection upon the earlier of the submission of the first preliminary site plan application for development in Princeton Nurseries; or construction of the extension of Campus Road to College Road East opposite of Research Way, which analysis shall be reviewed by the Plainsboro Township Engineer in a timely manner. If generally accepted MUTCD [Manual on Uniform Traffic Control Devices as published by the Federal Highway Administration] warrants for signalization are met, a traffic signal shall be installed within six (6) months of the date on which Plainsboro requests in writing that such traffic signal be installed. If the warrants are not met at that time, then a traffic signal shall be installed at this intersection within six (6) months of the date on which generally accepted MUTCD warrants for signalization are met.
7)	Seminary Drive and Evergreen Drive / proposed Western Drive	100%	Intersection Improvements consisting of: Eastbound: Left, Shared Through/Right Lanes Westbound: Left, Through, Right Lanes Northbound: Shared Left/Through/Right Lanes Southbound: Shared Left/Through, Right Lanes	Intersection improvements to be completed at the time that the proposed Western Drive is constructed.
			The installation of a traffic signal and associated improvements.	Submit a traffic signal warrant analysis for this intersection prior to construction and with each subsequent site plan application in Princeton Nurseries, which analysis shall be reviewed by the Plainsboro Township Engineer in a timely manner. If generally accepted MUTCD [Manual on Uniform Traffic Control Devices as published by the Federal Highway Administration] warrants for signalization are met, a traffic signal shall be installed within six (6) months of the date on which Plainsboro requrests in writing that such traffic signal be installed. If the warrants are not met at that time, then a traffic signal shall be installed at this intersection within six (6) months of the date on which generally accepted MUTCD warrants for signalization are met.

(1) ~~Re~~Developer shall construct the improvements and obtain reimbursement from others based on the Princeton Healthcare System Amended and Restated Redevelopment Agreement.

Appendix E: Princeton Nurseries Design Guidelines

Dated July 2020

PRINCETON NURSERIES DESIGN GUIDELINES

Plainsboro, NJ

July 2020

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1.0 VISION + GOALS

1.1 Intent

It is the intent of these Design Guidelines for the Princeton Nurseries neighborhood that the following do not serve as absolute rules, regulations, or standards, but rather:

- Provide a framework for the development of the Princeton Nurseries neighborhood as an integrated development in accordance with the Township of Plainsboro Zoning Ordinance, together with the project's vision, guiding core principles, goals and objectives described herein;
- Permit flexibility and creativity in the development of the Princeton Nurseries site, while maintaining the desired level of aesthetic and functional quality within the physical environment through the design, layout, and planning of the building typologies, architecture, circulation, open space & landscaping, and public art & signage as described herein; and
- Provide context to the owners and developers of the property, the Township of Plainsboro, community organizations, and regulatory agencies for the Princeton Nurseries neighborhood.

1.2 Purpose

The purpose of the development of the Princeton Nurseries site is to create a highly amenitized neighborhood that has a strong sense of place and vibrancy throughout an 18-hour day.

1.3 Vision

The Princeton Nurseries neighborhood will be a walkable and pedestrian friendly mixed-use development. It will be curated through thoughtful planning and design to create a high-quality environment that benefits site patrons, residents, and visitors from the surrounding area. The neighborhood will embody live, work, stay, and play elements that foster a sense of place including vibrant gathering places for events together with active open spaces and streetscapes that collectively are intertwined with dining and entertainment, destination shopping, modern offices supporting creative and collaborative work environments, and new and varied housing choices. Ultimately, Princeton Nurseries will further cultivate Princeton Forrestal Center's vibrancy and ongoing contribution to the Township's fiscal health.

1.4 Guiding Core Principles

In order to promote an innovative mixed-use environment, it is intended that the developers, architects, landscape architects, and design professionals commissioned to execute the buildings and landscape at the Princeton Nurseries neighborhood use the Guiding Core Principles below as a guideline to design:

- **Main Street:** The Mixed-Use Area of the development should have a distinct "Main Street" environment, promoting diverse, pedestrian- scale, and continuous ground-level active uses, and organizing back-of- house uses off the street or behind the buildings. Parking may include on-street as well as surface lots, or structured parking behind buildings.
- **Civic Space:** Within the Mixed-Use Area's "Main Street" environment should be a central civic space that functions as the heart of the community. It is important to adequately size this civic space to accommodate both informal gatherings and programmed events, as well as to promote the viability of an active downtown shopping and entertainment experience for families, shoppers, diners, workers, visitors, and residents.
- **Street Walls/Public Realm:** The "Street Wall" is a fundamental concept that describes a sense of enclosure in an urban environment. Using the "Street Typologies/ Frontage Guidelines" in these Design Guidelines provides a control mechanism to ensure buildings work together to reinforce streets, intersections, and define open spaces. Streets are the underlying circulation framework of the public realm, balancing the need for vehicular access and the

encouragement of pedestrian-oriented movement. Establishing "street walls" is important to create a hierarchy of experiences, define areas, reinforce signature spaces, frame views, and make gateways to the surrounding neighborhoods. Together, these experiences should establish a memorable public realm, a sense of place.

- **Residential Neighborhood Orientation:** The residential areas within the development should be oriented to take advantage of civic spaces, open spaces, and surrounding natural resources, and provide convenient and interesting pedestrian access to the Mixed-Use Area. Residences should reinforce and activate the streets and neighborhood parks and shield the backs of commercial buildings, alleys, garages, and parking fields to the extent possible. This will maximize quality of life, value, and a sense of community.
- **Strategic Open Spaces:** The development should provide a legible network of open spaces throughout the site in a meaningful and logical way that protects conservation areas, provides a sense of orientation, and maximizes the value to residents, workers, and visitors.
- **Parking Zones:** In addition to the on-street parking within Princeton Nurseries, Parking Zones should be established in a clear and logical manner to support the commercial environment and be buffered from adjacent residential neighborhoods. Parking should be planned to allow for future buildings and structured parking utilizing "liner" buildings and/or landscape elements to "screen" the parking, as practical.
- **Two Crossings:** It is essential that circulation in the development be planned around and make use of two existing routes across the Harry's Brook corridor, to make vital vehicular, bicycle, and pedestrian connections to future development in neighboring South Brunswick. Coordination of compatible uses must be pursued between Plainsboro and South Brunswick as the nature of the crossings evolve.

Figure 1. Illustrative Examples of the Vision for Princeton Nurseries

Example of quality public space, with landscaping, that has a strong relationship with surrounding residential development.

1.5 Goals and Objectives

To support the purpose and vision for the Princeton Nurseries neighborhood, the following goals and objectives are set forth to guide development throughout the site:

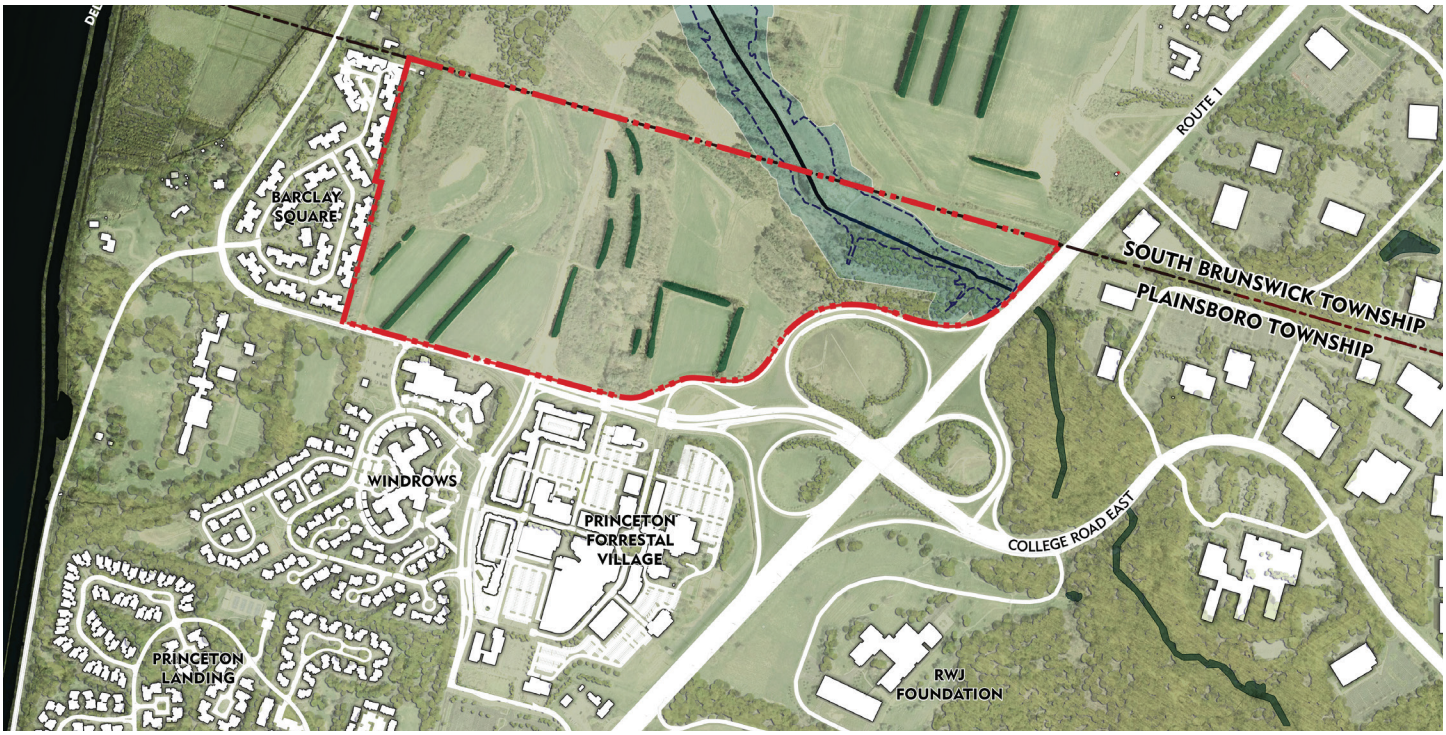
- Encourage new mixed-use commercial development and Traditional Neighborhood Development (TND) to occur in a manner that will promote economic development, placemaking, and community identity to support the vitality of Plainsboro for employment, shopping, and living.
- Promote well-integrated residential, commercial, office, and civic development in a walkable "Main Street"-scale development pattern.
- Support development that includes diverse, pedestrian-compatible, higher-density designs; expands economic development opportunities; and minimizes distances between destinations by providing linked sidewalks and pedestrian-oriented access.
- Encourage the creation of vertically- and horizontally-mixed uses, without bias to traditional or contemporary architectural styles, of a character and scale that will promote a broad mix of compatible uses and stimulating pedestrian activity.
- Promote the livability and identity of the Princeton Nurseries neighborhood by providing for dwellings, shops, and workplaces in close proximity to each other.
- Enhance the visual character and physical comfort of residents and visitors to the Princeton Nurseries neighborhood through the initial construction and the subsequent renovation of buildings and storefronts that provide direct connections to the street and sidewalk to provide a stimulating streetscape.
- Provide adequate light, air, and visual access to parks, designated open spaces, civic spaces, and the Harry's Brook corridor when designing and evaluating the height of buildings and other structures.
- Design safe, attractive, easy-to-maintain civic open spaces that serve all Plainsboro residents, and which

Figure 2. Illustrative Examples of the Vision for Princeton Nurseries

provide enjoyment and recreational opportunities for residents and visitors alike.

- Create a central civic space in the Mixed-Use Area that is recognizable as the heart of the community, provides year-round activity and programming, and serves as a comfortable meeting place for residents of and visitors to the Princeton Nurseries neighborhood. This central civic space will provide a sense of place, signaling to visitors that they have "arrived" and making residents feel at home.
- Consider the need to provide appropriate transitions in the height of adjacent buildings both within the Princeton Nurseries neighborhood, and between adjacent residential areas.
- Discourage dependence on automobile use, thereby reducing traffic congestion and promoting alternative modes of transportation.
- Encourage the development of shared parking and attractive, convenient parking facilities to reduce on-street congestion and facilitate vehicular and pedestrian circulation.
- Provide abundant opportunities for well-designed on-street parking that satisfies the need for easily accessible parking and provides a safety barrier between vehicles and pedestrians.
- Create efficient, integrated linkages for pedestrian, bicycle, and vehicular circulation within the Princeton Nurseries neighborhood and to adjoining properties and the site's environs that connect to existing and planned transit systems, with an emphasis on avoiding automobile-centric, sprawling commercial development.
- Provide entrances to the Princeton Nurseries neighborhood that are visually engaging, pedestrian-friendly, and which act as "gateways" to the development.
- Encourage neighborhood design and development supportive of green initiatives.

Figure 3. Context Map



2.0 SITE CONTEXT & EXAMPLES

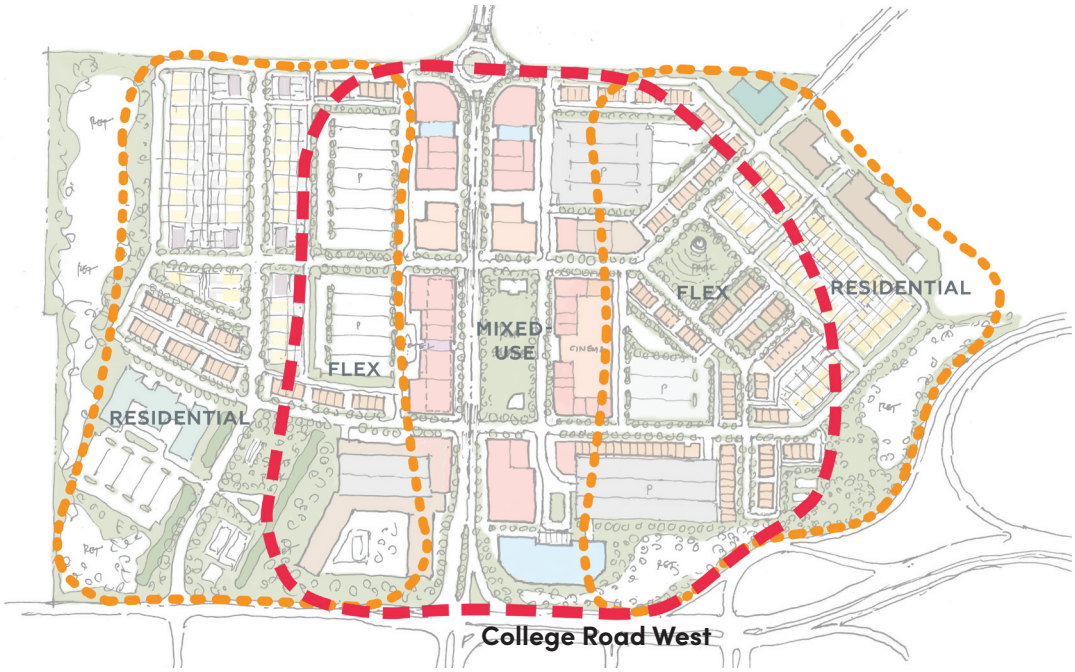
The Princeton Nurseries neighborhood, shown in its surrounding context in **Figure 3**, is proposed to be developed as a mixed-use concept in accordance with the Guiding Core Principles set forth in **Section 1.4**. **Figure 4** is an illustrative example that provides a conceptual depiction of locations of the three Land Use Areas (Mixed-Use, Flex, and Residential) to be developed on the site. Adjustments to the location of the boundaries of the three Land Use Areas are permitted, so long as the Guiding Core Principles are met.

The centrally-located "Mixed-Use Area" of the site should be where higher-density commercial and residential uses are primarily located. The "Residential Areas" delineate areas in which non-residential uses are not permitted to locate, and in which a variety of residential uses, including multi-family, single-family, manor, and townhome buildings are permitted. The "Flex Areas" are located between the Mixed-Use Area and the Residential Areas. Flex Areas are envisioned as transition areas between the purely Residential Areas and the Mixed-Use Area. The Flex Areas are intended to permit a variety of mixed-use, commercial, and residential structures and address transitions of building mass, height, density, and land uses between Mixed- Use Area and Residential Areas.

In accordance with the General Development Plan approval, the actual locations of the Land Use Areas will be determined at the time of site plan approval. Prior to the submission of the first development application (subdivision or site plan) for the Princeton Nurseries neighborhood, the applicant shall submit a concept master plan for the overall development of the tract demonstrating compliance with the Guiding Core Principles.

Figure 5, Figure 6, and Figure 7 provide alternative concepts for the development of the Princeton Nurseries neighborhood in accordance with the Township of Plainsboro Zoning Ordinance, the General Development Plan approval, and the Guiding Core Principles set forth in **Section 1.3**. These concepts are intended to be illustrative examples only and not final Master Plans. Other planning alternatives may consider different road hierarchies and alignments, placement and activation of open space, and the boundaries of each of the three Land Use Areas.

Figure 4. Princeton Nurseries Example Design with General Locations ("Areas") of Land Use Categories



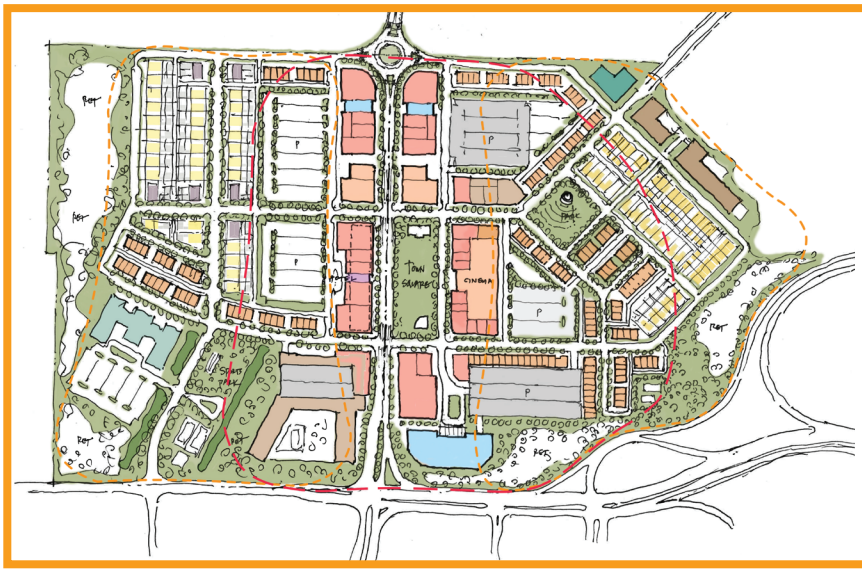
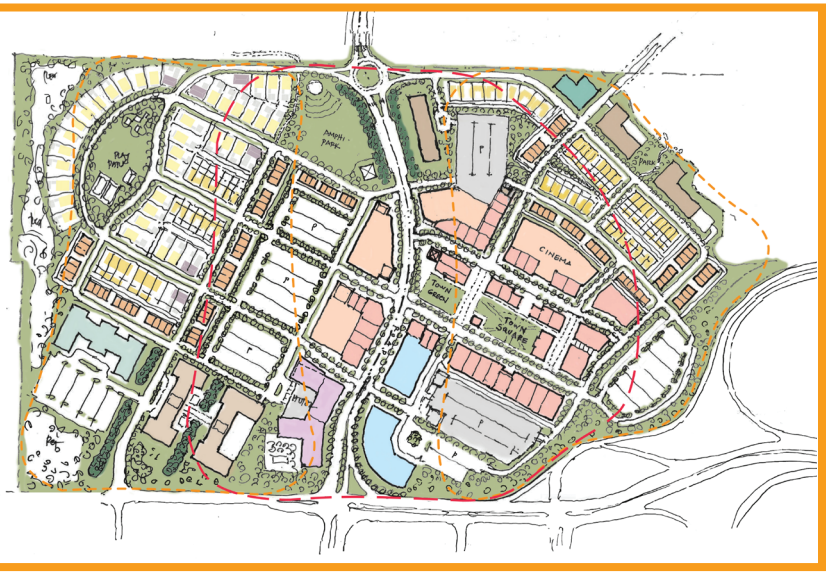


Figure 5.

- Straight Main Street through Mixed-Use Area
- Central civic space and mixed-use core with a north-south orientation
- Roughly one-acre Town Square
- Possible future connections to South Brunswick Township

Figure 6.

- Curved Main Street perpendicular to Mixed-Use Area
- Central civic space and mixed-use core with easterly orientation
- Separate Amphitheater Park
- Possible future connections to South Brunswick Township



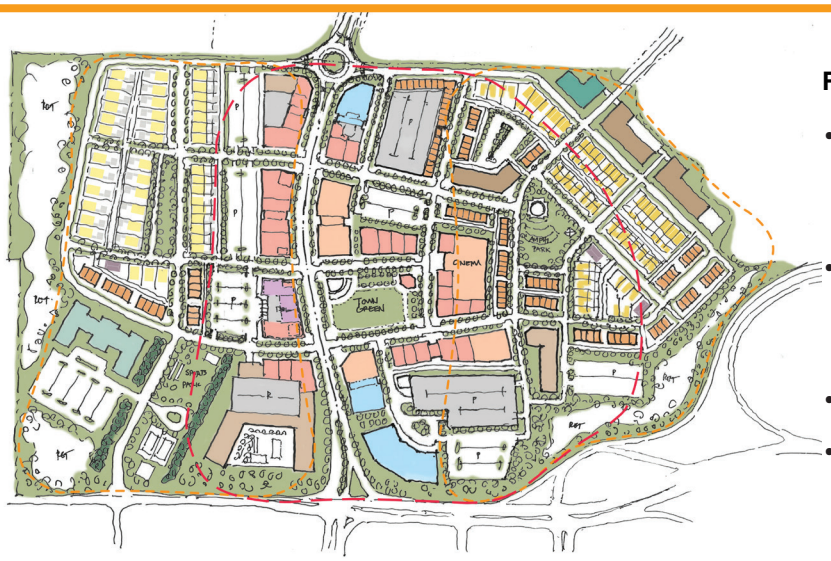


Figure 7.

- Commercial civic space perpendicular to slightly curved Main Street
- Central civic space and mixed-use core with east- west orientation
- Individual neighborhood parks
- Possible future connections to South Brunswick Township

The above example images were produced by Elkus | Manfredi Architects.

3.0 PERMITTED USES + BUILDING TYPOLOGIES

The following uses and building typologies are anticipated to be located within the three Land Use Areas shown in **Figure 4**.

3.1 Building Typologies

3.1.a. Non-Residential & Mixed-Use

1. Retail/Commercial

Retail/commercial buildings are single- or multi-story buildings devoted solely to commercial uses, including but not limited to retail sales and services, eating and drinking establishments, personal services, banks and financial establishments, entertainment uses, health and fitness facilities, theaters, and hotels. Multi-story buildings should be designed as elevator buildings as required by applicable laws or construction codes.

Retail/commercial buildings will have a primary entrance onto a street, civic space, or pedestrian way and provide secondary active entrances in accordance with **§101-140C(3)** of the Township Code. Other forms of ingress/egress may be provided for purposes of waste removal, loading, etc.

2. Mixed-Use

Mixed-use buildings combine two or more uses into one structure and may contain any combination of retail/commercial, hotel, office, and/or residential uses. The combination of users can be vertically or horizontally integrated. First floors are encouraged to be active uses such as retail or commercial uses along with common lobbies dedicated to access the upper level uses, while upper floors typically house office, hotel, and/or residential uses. Common lobby elevators should be provided as required by applicable laws or construction codes

3. Office

Office buildings are single or multi-story buildings devoted exclusively to office uses. Office uses include, but are not limited to general office and administrative, professional, research and development, start-up, flex, and incubator tenant space. Multi-story buildings should be designed as elevator buildings as required by applicable laws or construction codes. Common entrances and other spaces may be shared. Primary access should be provided from the primary street frontage, or secondary street frontage for corner buildings, with optional secondary access from courtyards or internal corridors.

4. Kiosk

A kiosk is a small structure prefabricated (or partially prefabricated) designed and intended to be used for the retail sales of food or merchandise ("retail kiosk:") or for the display of announcements or advertising of information ("informational kiosk").

5. **Parking Structure**

A parking structure is a multi-story building constructed for the purpose of short- or long-term storage of passenger vehicles. Parking structures may be above-grade, below-grade, or a combination of both. Parking structures may be freestanding or located below, within, or attached to a multi-story building and are generally screened or enclosed with ventilators.

3.1.b. Residential

1. **Single-Family Detached**

Single-Family Detached dwellings are residences for one family/one dwelling unit. It is encouraged that all such dwellings should provide direct entry and a sidewalk connected to a street, civic space, or pedestrian way.

2. **Townhouse**

Townhouses are attached dwelling units that consist of two or more connected units, located side by side, back to back, one over the other, or any combination thereof. Townhouse buildings should be no less than two stories and no taller than four stories. Townhouses can be used as liner buildings to shield the view of a parking lot/garage from the street or may be back-to-back units with a common back wall and one or more common side walls. All such dwelling units should allow direct entry to individual units or shared entry to multiple units through an internal foyer or corridor. Townhouses include Twins, which are simply two-unit Townhouses.

3. **Manor**

Manor homes are buildings measuring two to three stories that provide three to six dwelling units designed to appear as one residence from the exterior. Manor homes may offer dwelling units that share vertical walls and/or may be stacked above each other. All such buildings should provide direct entry to individual dwelling units or shared entry to multiple dwelling units through an internal foyer or corridor.

4. **Multi-Family**

Excluding manor homes as defined above, a multi-family building is an exclusively residential building designed to include three or more dwelling units. A common lobby and elevators should be provided as required by applicable laws or construction codes. Where a common lobby is not provided, direct entries from the sidewalk to first floor units are encouraged to promote street activity.

3.2 Permitted Uses

Permitted uses are specified in **§101-137Q** of the Township Code. Permitted uses should be located in the building types set forth in **Section 3.1.** Refer to **Section 3.3** for a breakdown of which building types are encouraged to be located in each land use area.

3.3 Permitted Building Types by Land Use Area

The following building types should be located in each of the land use areas as shown in **Figure 4**, as detailed in below in **Table 1**.

Table 1. Building Types by Land Use Area

TYPE	RESIDENTIAL AREAS	FLEX AREAS	MIXED-USE CORE AREA
SINGLE-FAMILY DETACHED	Yes	No	No
MULTI-FAMILY	Yes	Yes	Yes
MANOR	Yes	Yes	No
TOWNHOUSE	Yes	Yes	Yes
RETAIL/COMMERCIAL	No	Yes	Yes
MIXED-USE	No	Yes	Yes
OFFICE	No	Yes	Yes
KIOSK	No	No	Yes
PARKING STRUCTURE	No	Yes	Yes

Note 1: Only informational kiosks as defined in Section 3.1.a.4 are permitted in the Flex Areas.

Note 2: Parking structures (freestanding or in-building) in Residential Areas should be accessory only to residential uses.

3.4 Parking by Use

Parking requirements are set forth in **§85-44** and **§101-143** of the Township Code.

4.0 ARCHITECTURAL GUIDELINES

4.1 Purpose

The following architectural guidelines are intended to guide developers in the creation of high-quality buildings interspersed throughout a visually interesting pedestrian environment. These guidelines will ensure that all buildings within the Princeton Nurseries neighborhood will be contextually appropriate and properly scaled and will prevent the use of monotonous or unaesthetic architecture, resulting in the construction of generic buildings.

Beyond contributing to the creation of attractive buildings in a dynamic, exciting public realm, it is anticipated that these architectural guidelines will boost property values and result in structures in which residents will want to live, visitors will want to shop, and passers-by will want to return to.

4.2 General Guidelines for Non-Residential & Mixed-Use Buildings

The following general design guidelines are applicable across all non-residential and mixed-use building types as defined in Chapter 3.

4.2.a. Building Placement

Buildings should be arranged to maximize opportunities for shared circulation, parking, loading, pedestrian walks, walls, and plaza connections, and should be laid out and spaced to make walking from one use to another as easy as possible.

4.2.b. Massing & Rhythm

1. All building elevations facing streets, pedestrian ways, or civic spaces should be designed with attention to detail and utilize high-quality materials to enhance the effect of "primary" and "secondary" façades.
2. All elevations with frontage on a street, civic space, or pedestrian way should provide window features and/or façade offsets including but not limited to: dormers; bay windows; gables; recessed entries; decorative cornices; vertical windows in a recessed plane from the exterior wall; and horizontal bands of material offsets/changes. Other façades should be harmoniously connected with the overall building architecture palette and color scheme.

4.2.c. Yards & Setbacks

Whenever a building has frontages on multiple street types, the recommended setbacks for each street frontage type should apply.

4.2.d. Building Heights

Building heights shall be governed by the regulations set forth in **§101-142(S)** of the Township Code.

4.2.e. Building Entrances

1. Entrances are permitted on all four elevations. Buildings with multiple street frontages are encouraged to provide pedestrian entrances on both their primary (front) and secondary (side) frontages in accordance with **§101-140C(3)** of the Township Code. The front entrance should be the primary entrance.
2. Building fronts should be oriented to the primary street, civic space, or pedestrian way upon which the structure is sited, and the front entrance should serve as the primary active entry point. Primary entrances should be handicap accessible and at grade.
3. Building entrances should be well-lit and clearly defined by utilizing elements such as overhangs, awnings, lintels, pediments, pilasters, columns, or porticoes. Any such element should be architecturally compatible with the style, materials, colors, and details of the primary building.

Figure 8. Example Images Illustrating Vision for Commercial & Mixed-Use Development

Internal pedestrian area facing retail

Street median with seating area along a retail corridor

Seating area facing retail

Street and parking facing retail

Entrance way to pedestrian retail

Figure 9. Examples of Active Mixed-Use Spaces

Figure 10. Internally & Externally-Facing Facades

NOT APPROPRIATE STREET- OR PARKING-FACING FACADE

- A *Lack of differentiation between storefronts*
- B *Poor pedestrian realm*
- C *Low quality architectural detailing*

APPROPRIATE FACADE FRONTING ONTO PEDESTRIAN PROMENADE

- A *Storefronts*
- B *Awnings*
- C *Quality architectural details*

4.2.f. Windows

1. Tinted windows and mirrored/reflective glass are discouraged in any retail location.
2. Windows should be proportional to the overall structure. When in accordance with a building's architecture, the location of the windows on the upper stories should be vertically aligned with the location of windows and doors on the ground floor of the building.
3. Windows should be architecturally compatible with the style, materials, colors, and details of the primary building.
4. Where mullions are used in windows other than storefronts, mullions should be traditional in appearance rather than "falsely" styled.

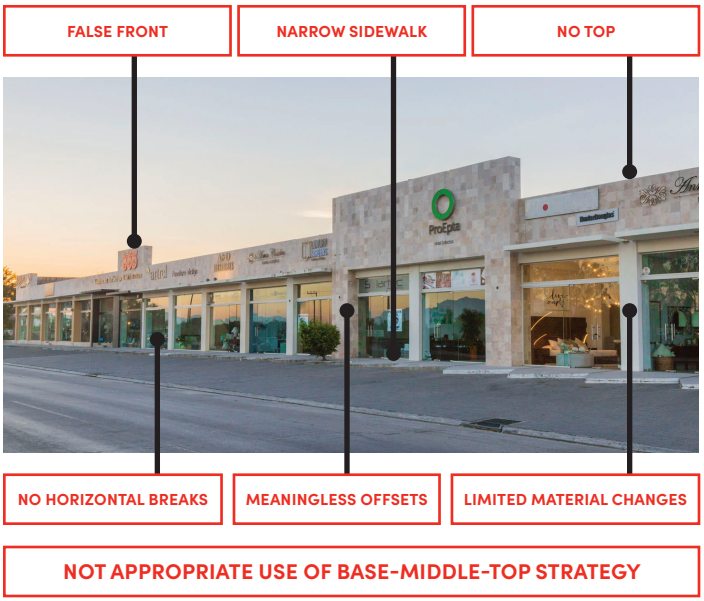
4.2.g. Building Colors & Materials

1. Building materials are encouraged to be chosen to create a recognizable identity and vibrant sense of place. Wherever appropriate, harmonization of colors is preferred.
2. All materials should be high quality and easy to maintain, including but not limited to: brick, stone, cast stone, and other forms of masonry; decorative masonry veneer; horizontal siding; finished woods, synthetic woods, or panel systems; metal panels; clear glass; composite-based materials, such as Azek; cementitious siding material; and steel.
3. Stucco, synthetic stucco, or EIFS should be utilized only as an accent treatment and limited to a maximum of 25% of any building elevation.
4. Vinyl siding should be utilized only if it is of sufficient thickness to be rigid and to mitigate against warping.
5. The following building materials are discouraged: Aluminum or textured plywood siding; highly reflective or mirrored glass; and steel panel systems.

4.2.h. Building Roofs

1. Roofs should be compatible with their associated structures and should be consistent with their architectural styles.
2. Variations of roof lines are encouraged for large buildings when issues of scale are a concern.
3. Green roofs are encouraged.
4. Rooftop mechanical and HVAC systems should be screened on all sides using an architecturally-appropriate roof screen system or mechanical penthouse enclosure.

Figure 11. Illustrative Use of Elevation (Base-Middle-Top) Strategy & Architecture to Reduce the Scale of Large Buildings



5. Active rooftop uses may be provided as recreation spaces accessory to a principal use within the building or as commercial space open to the public. Any rooftop structures (including terraces, gardens, decks, or enclosed structures) may measure up to 10 feet in height above the permitted building height, provided that such structures are set back from the roof edge by a distance equivalent to their height.

4.3 Guidelines Specific to Individual Non-Residential & Mixed-Use Building Types

In addition to the general guidelines described above, this section provides certain architectural guidelines that are only applicable to specific building types within this category.

4.3.a. Retail/Commercial

The requirements of this section are also applicable to mixed-use buildings with ground floor retail uses.

1. Public-facing ground floor facades, including those serving interior lobbies, should have a minimum transparency of 40%. Upper elevations are encouraged to have a minimum transparency of 25%.
2. Building fronts should be oriented to the primary street upon which the structure is sited. All building fronts should have a primary pedestrian access (i.e. a front door) and retail store fronts should be open and inviting to pedestrians.
3. Ground floor façades of retail, restaurant, and related uses facing a street should have expansive windows providing views of display areas and/or the building interior.
4. Display windows for ground floor storefronts should not be blocked by merchandise storage or interior merchandise display cabinets.
5. Active entrances should be provided in accordance with **§101-140C(3)** of the Township of Plainsboro Zoning Ordinance. All corner sites are encouraged to have more than one primary façade with active entrances.
6. Ground floor eating establishments should be encouraged to operate outdoor cafés while maintaining a minimum of 8 feet of pedestrian clearance for sidewalks and entrances to remain unimpaired. Pop-out café windows are encouraged.
7. Patios, balconies, terraces and/or decks are encouraged on all elevations and on building roofs and should be integrated into the architecture.
8. Permitted patio materials should be attractive and high quality, including but not limited to: stone; slate; bricks; concrete, poured with floated aggregate or patterned; decorative pavers; wood or Dura Deck; and fiberglass.
9. Porches and balconies may encroach up to 5 feet into front yard setbacks, provided that the frontage guidelines contained in this document are otherwise met.

4.3.b. Office

Public-facing ground floor facades, including those serving interior lobbies, should have a minimum transparency of 25%.

4.3.c. Kiosks

1. Kiosks may consist of either:
    a. Retail kiosk, defined as a counter or stand stocked with merchandise from which goods may be sold, large enough for an attendant to stand inside or adjacent to or,
    b. An Informational kiosk, which may be attended or unattended, and does not sell goods or merchandise.
2. Retail kiosks should measure no greater than 200 square feet. Open civic space should be replaced at a rate of 1:1 for land area devoted to kiosks in excess of four (4) kiosks per acre of civic space, or portion thereof.
3. Informational kiosks located in civic spaces or along streets or pedestrian ways should be pedestrian scale and designed in accordance with the guidelines of Chapter 7, Signage and Public Art, where appropriate.
4. All kiosks should be located as to not interfere with the frontage guidelines contained in Chapter 5, Circulation.

Figure 12. Retail Liner to Freestanding Parking Structure

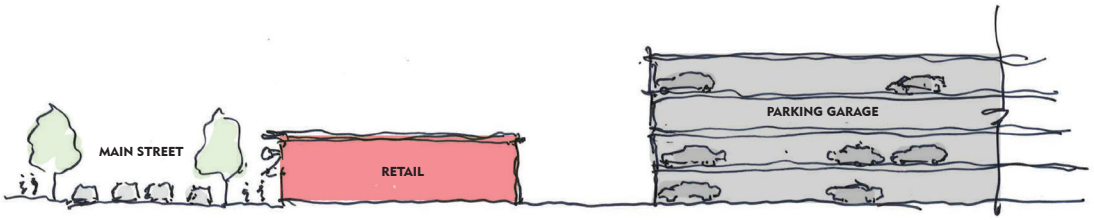


Figure 13. Mixed-Use Liner to Freestanding Parking Structure

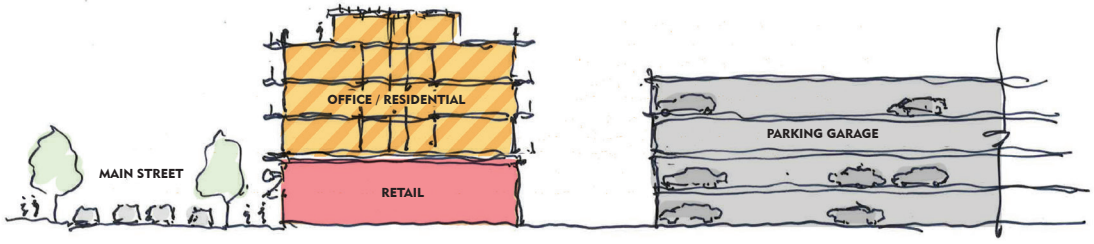


Figure 14. Office/Retail Liner with In-Building Parking Structure

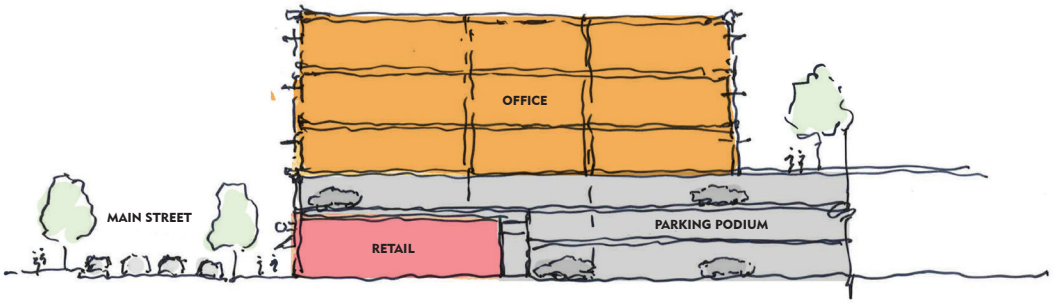


Figure 15. Residential/Retail Liner with In-Building Parking Structure

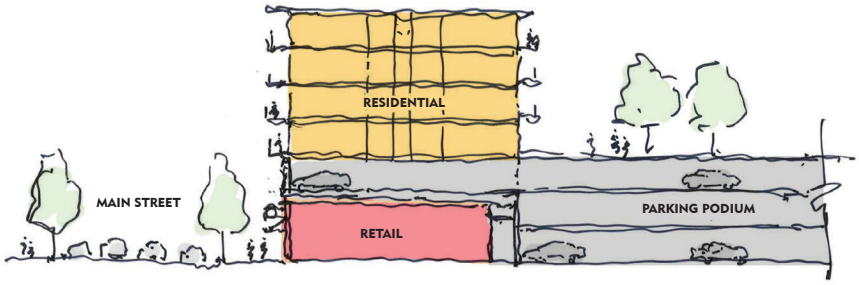
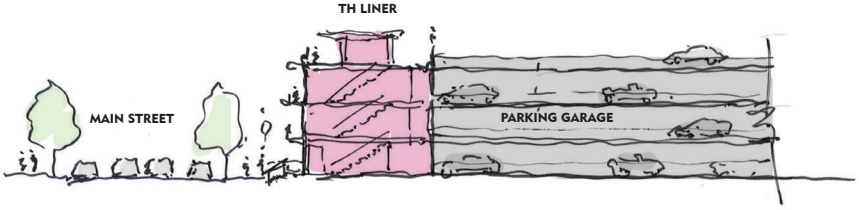


Figure 16. Townhouse Liner to Freestanding Parking Structure



4.3.d. Parking Structures

1. Parking structures that include at- or above-grade levels should be constructed to allow for liner buildings within a front setback area or inserted active ground floor uses within the structure itself to shield the ground floor parking activities from public view from Commercial Main Streets or Civic Spaces. Illustrative examples of parking structures with liner buildings and/or active ground floor uses are shown in **Figure 12** through **Figure 16**. Liner buildings should meet all applicable design guidelines within this document.
2. In cases where there is no liner building, a parking structure should have a sufficient front yard setback to allow for landscaping so as to shield ground floor parking activities from public view. Landscaping solutions should not be monotonous, but provide elements of interest that reinforce pedestrianism.
3. Vehicular access is encouraged to occur from secondary streets or alleyways.
4. Garages should meet all guidelines provided in this document for building colors, materials, and lighting.

4.4 General Guidelines for Residential Buildings

The following general design guidelines are applicable across all residential building types.

4.4.a. Building Placement

Buildings should be arranged to maximize opportunities for shared circulation, parking, loading, pedestrian walks, walls, and plaza connections, and should be laid out and spaced to make walking from one use to another as easy as possible.

4.4.b. Massing & Rhythm

1. All elevations should be designed with attention to detail and utilize high-quality materials, with emphasis on building frontages facing streets, civic spaces, and pedestrian ways.

Table 2. Front Yard Principal Building Setbacks from Street Types

STREET FRONTAGE TYPE	MINIMUM	MAXIMUM
COMMERCIAL MAIN STREET	0 feet	5 feet
MAIN STREET GATEWAY	0 feet	10 feet
COLLECTOR STREET	5 feet	15 feet
LOCAL STREET	10 feet	15 feet

Table 3. Front Yard Principal Building Setbacks from Other Frontage Types

FRONTAGE TYPE	MINIMUM	MAXIMUM
PEDESTRIAN WAY	5 feet	10 feet
CIVIC SPACE	0 feet	10 feet
ALLEY	0 feet	N/A

Table 4. Side Yard Principal Building Setbacks

STREET FRONTAGE TYPE	MINIMUM (ONE)	MAXIMUM (AGGREGATE)
COMMERCIAL MAIN STREET	None	None
MAIN STREET GATEWAY	None	None
COLLECTOR STREET	4 feet	12 feet
LOCAL STREET	4 feet	12 feet

2. All elevations should provide windows, façade offsets, or features including but not limited to: dormers; bay windows; gables; recessed entries; decorative cornices; vertical windows in a recessed plane from the exterior wall; or horizontal bands of material offsets/changes.

4.4.c. Yards & Setbacks

1. Building setbacks for residential buildings should be guided by their frontage type. The primary façade of all buildings should front onto and provide an entrance along this frontage.

Figure 17. Minimum Building Separation

2. Front yard setbacks along a block should provide continuity of setbacks, regardless of residential building type. Front yard setbacks are encouraged to provide space for landscaping between the public realm and the continuous streetwall.
3. Principal building setbacks should be provided in accordance with **Table 2, Table 3, and Table 4**. Where a building has multiple frontages, each of the adjacent frontage setbacks should apply.
4. Front yards should be measured from closest front wall of the structure to the front lot line.
5. As a supplement to setback requirements, minimum building separation (see **Figure 17**) should be 8 feet between sides and/or rears of principal buildings and 4 feet between the side or rear of a principal building and/or an accessory building.
6. All setbacks not defined in this section should be in accordance with the applicable zoning and building code regulations administered by Plainsboro Township.

4.4.d. Building Heights

Building heights shall be governed by the regulations set forth in **§101-142(S)** Township Code.

4.4.e. Building Entrances

1. Primary entrances to each unit or common lobby area should be located along the primary elevation.
2. Each entrance to a unit or building lobby should be clearly identifiable and architecturally articulated and integrated.
3. Entry porches and/or enlarged front stoops are encouraged.

4.4.f. Windows

1. Mirrored glass is highly discouraged.
2. Windows should comprise at least 20% of all street-facing elevations.
3. Windows casings and mullions should match window frame color.
4. Windows should be located on all four building elevations.

4.4.g. Building Colors & Materials

1. Consistency of materials is encouraged to create a recognizable and vibrant identity.
2. All materials should be high quality and easy to maintain, including but not limited to: brick, stone, cast stone, and other forms of masonry; stucco, synthetic stucco, or EIFS (as an accent treatment only); decorative masonry veneer; horizontal siding; finished woods, synthetic woods, or panel systems; metal panels; clear glass; composite-based materials, such as Azek; cementitious siding material; and steel.
3. Stucco, synthetic stucco, or EIFS should be utilized only as an accent treatment limited to a maximum of 25% of any building elevation.
4. Vinyl siding should be utilized only if it is of sufficient thickness to be rigid and to mitigate against warping.
5. Preferred roofing materials include but are not limited to: standing metal seams, copper, natural or artificial slate, and asphalt or fiberglass dimensional "architectural" shingles for sloped roofs, and rubber sheet roofing, and EPDM or other layered roof systems for flat roofs.

6. The following building materials are discouraged: Aluminum or textured plywood siding; highly reflective or mirrored glass; and steel panel systems.
7. The use of high intensity colors is discouraged but may be used as part of a design scheme to promote the recognizable and vibrant downtown vision.

4.4.h. Patios & Balconies

1. Patios, balconies, terraces, and decks are permitted on all elevations and on building roofs and should be integrated into the architecture.
2. Permitted patio materials should be attractive and high quality, including but not limited to: stone; slate; bricks; concrete, poured with floated aggregate or patterned; decorative pavers; wood or Dura Deck; and fiberglass.
3. Decks or balconies in rear yards may encroach up to 10 feet into rear building setback area; but should not encroach into side yard setbacks.
4. Porches and balconies are encouraged in front yards. For all frontage types, such appurtenances should encroach no more than 3 feet into the front yard setback area, provided all other frontage guidelines are met.

Figure 18. Illustrative Vision for Residential Development

4.5 Guidelines Specific to Individual Residential Building Types

In addition to the general guidelines described above, there are certain architectural guidelines that are only applicable to specific building types within this category.

4.5.a. Single-Family

1. Attached side garages are subject to the building setback guidelines for principal dwellings in Section 4.4.c.
2. The location of detached garages and accessory buildings should be in accordance with the applicable building setback Section 4.4.c.
3. Rear garages off laneways are encouraged. In instances where front garages are the only design alternative, they should not be the dominant design element.
4. Outdoor spaces and entry porches should be integral components of a residence.

4.5.b. Townhouse

1. Ground Floors
   a. Attached side garages are subject to the building setback guidelines for principal dwellings in Section 4.4.c.
   b. Rear garages off laneways are encouraged. In instances where front garages are the only design alternative, they should not be the dominant design element.
   c. Outdoor spaces and entry porches should be integral components of a residence.
   d. Each dwelling unit should have an individual entrance from the outside or shared entry to multiple units through an internal foyer or corridor. Entryways should be prominent features on the elevation.
2. Outdoor Space
   a. Dwelling units should each have a minimum of 150 square feet of private or semi-private outdoor space, which may include a lawn, deck, patio, or terrace, breezeway, or all-season room and may be located at ground level or on an upper floor. Such outdoor space may be incorporated into the architecture or otherwise enclosed for privacy as appropriate by a decorative fence or wall, evergreen hedge, trellis or arbor, or combination thereof.

Figure 19. Illustrative Manor Houses with Entry Porch and Fenestration

4.5.c. Manor

1. Garages + Accessory Structures
    a. Attached side garages and detached garages, including car ports, should be architecturally compatible with the principal building.
    b. Rear garages off laneways are encouraged. In instances where front garages are the only design alternative, they should not be the dominant design element.
2. General
    a. Outdoor spaces and entry porches should be integral components of a residence, and may include balconies, decks, and patios.

4.5.d. Multi-Family

1. Public-facing lobbies should have a minimum transparency of 40%.
2. Primary entrances should be handicap accessible and at grade.
3. Corner buildings are encouraged to have multiple entrances, with at least one entrance per street frontage.
4. Any exterior entrance to a unit should be clearly identifiable, architecturally articulated, and integrated into the architecture. Primary entrances to each building should be located facing a street.
5. Awnings, bay windows, upper floor balconies, and porches are encouraged on front, side, and rear façades.
    a. May encroach up to 5 feet into front yard setbacks only, provided all other frontage guidelines are met.
    b. Awnings should provide a minimum clearance of 8 feet from grade.
    c. Other appurtenances should provide a minimum clearance of ten feet from grade.
6. Accessory parking structures may be either free standing, attached, or in- or under-building, provided the entrance is not the dominant grade level design feature on the building's principal frontage. Any parking structure should be designed in accordance with Section 4.3.d.

Figure 21. Example of Appropriate and Not Appropriate Townhouse Design with Dominant Front Garages

APPROPRIATE

NOT APPROPRIATE

5.0 CIRCULATION

5.1 Purpose

This section addresses proposed circulation for the Princeton Nurseries neighborhood, including an integrated network of streets, green linkages, pedestrian and bicycle paths, and sidewalks to assure that transportation and open space work together to provide interconnected mobility throughout the neighborhood.

The development's circulation and mobility system should be designed with connectivity in mind, in accordance with the "Connected Street Grid" plan illustrated in **Figure 22**. There should be easy access within/between commercial/retail and residential areas. All streets and commercial parking areas should be accessible to the public. Residential parking areas may be restricted to owners, tenants, or guests, but there should be no gated groups of residences. Residential garages to be shared with the public should have appropriate signage and controlled access for different parking user groups.

5.2 Vehicular Mobility & Entrances

a. Adjacent commercial/retail and residential areas should be interconnected through a system of parking areas, roadways, and pedestrian walks.

b. Mass transit systems should be accommodated with signage, stops, shelters, and pull-offs.

c. The use of dead-end streets and culs-de-sac are discouraged.

5.3 Pedestrian/Bicycle Circulation & Facilities

a. There should be user-friendly design solutions that accommodate pedestrians, cyclists, and those with disabilities.

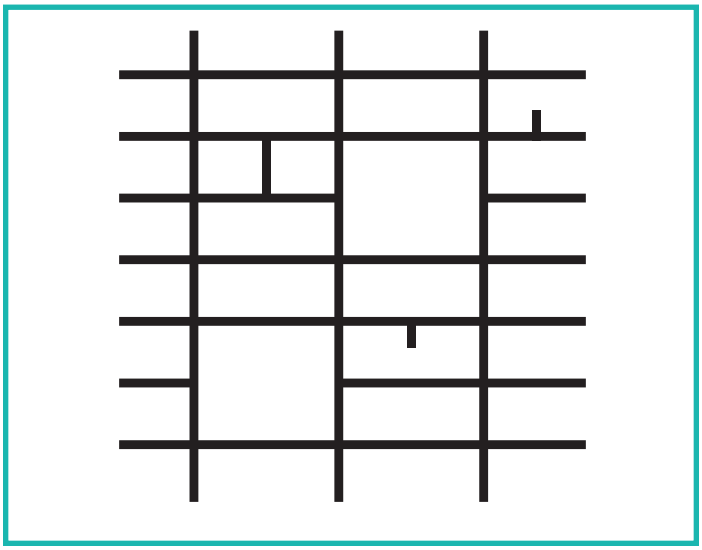
b. All solutions should be highly visible to vehicles.

c. Sidewalks, crosswalks, curb cuts, parking areas, and plaza amenities shall be accessible to those with

Figure 22. Example of Connected and Non-Connected Street Systems

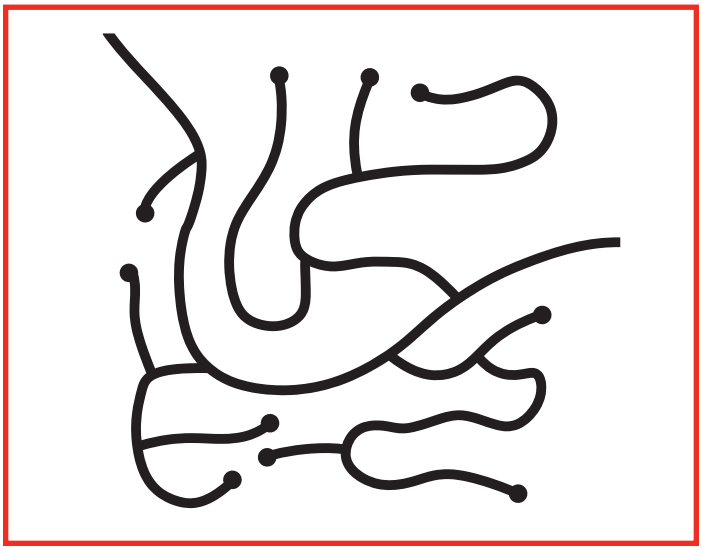
APPROPRIATE

CONNECTED STREET GRID



NOT APPROPRIATE

"LOOPS AND LOLLIPOPS"



disabilities in accordance with the Americans with Disabilities Act (ADA).

d. All crosswalks should be clearly delineated by a material different from the surrounding road surface by the use of durable, low maintenance surface materials. Materials such as pavers and scored concrete are encouraged.

e. Sidewalks and plazas should be made comfortable for use by pedestrians through the use of landscaping overhangs, and canopies for shade and non-heat absorbing materials. Pedestrian circulation layout on any development site should be designed according to the guidelines in Section 6.1.a.

f. All, sidewalks, walkways, and multi-use pathways should be designed in accordance with the requirements set forth in **§85-22(B)** of the Township Code.

g. Shared facilities should be accessible from all buildings and connected both internally and externally by a comprehensive on-site pedestrian / bicycle circulation system. A combination of on-road bike lanes, sharrows, and off-road multi-purpose paths should be provided. Internal and perimeter intersections should be designed for safe use by pedestrians and bicyclists.

h. A system of clearly defined bump-outs, refuge islands, and interconnected sidewalk paths should be incorporated in all commercial and/or non-residential developments to provide safe pedestrian and bicycle access through and within parking lots and internal roadways. Raised sidewalks and speed tables may be used to reduce potential auto/pedestrian/bicycle conflicts. All pedestrian/bicycle systems should be designed incorporating trees, shrubs, benches, flower- beds, ground covers, and lighting. Highly visible signals, signage, and striping as applicable in accordance with MUTCD shall be provided.

5.4 Street Typologies & Frontage Guidelines

5.4.a. Streets

Construction of new roads and improvements to existing roads will be determined by traffic volumes at the time each phase of development takes place. The types of new roads to be constructed within the Princeton Nurseries neighborhood, and their general locations, are shown illustratively in **Figure 24**. New roads should be designed, to the extent possible, per the general conceptual street character as shown in **Figure 25** through **Figure 27**.

Figure 23. Commercial Area Pedestrian Elements

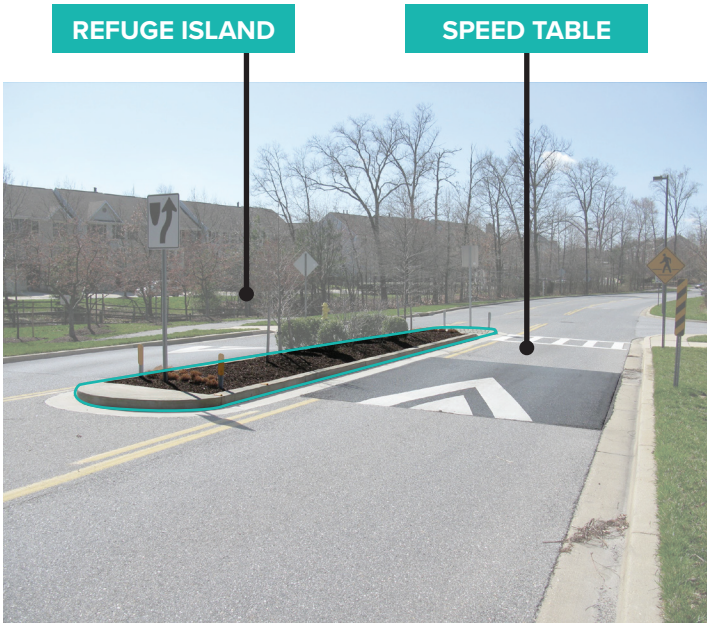
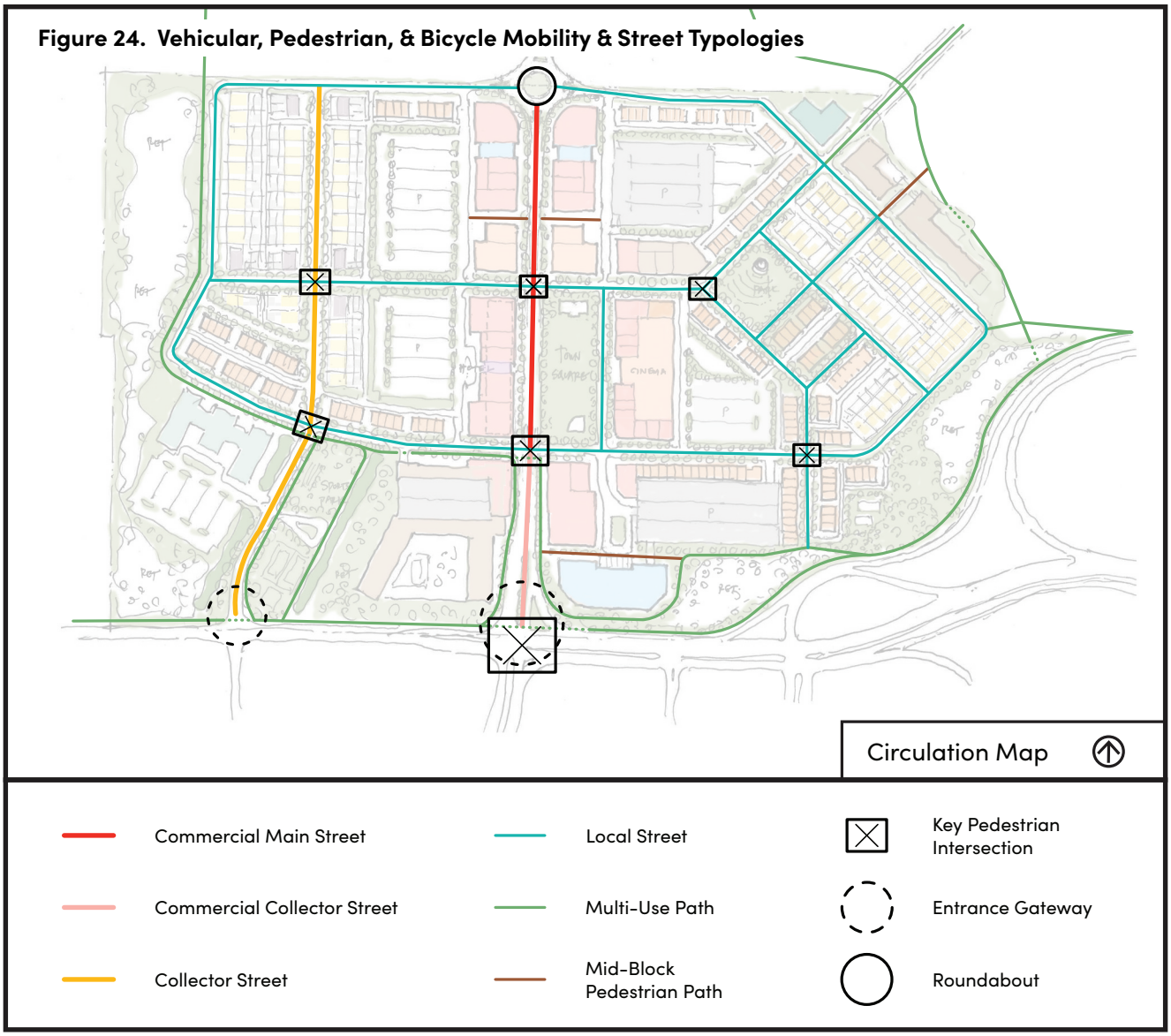


Figure 24. Vehicular, Pedestrian, & Bicycle Mobility & Street Typologies



**This diagram is based on one potential alternative for the layout of the Princeton Nurseries neighborhood. Note that, while other alternatives will include the street types and other circulation elements identified above, their exact locations are TBD.*

Street design should allow for the provision of streets that will support the activities of the Mixed-Use Area and the other conceptual design areas Street types and cross-sections should be provided at the time of the submission of the concept master plan per Section 2.0 of this document.

5.4.b. Frontage Guidelines

1. Purpose

Frontages, or the area that extends from the curb face to the façade of the building, are integral in creating the appropriate nexus between the public and private realms within a street or block.

Frontage guidelines - and associated setbacks- regulate how the private realm relates to the public realm to ensure that both work in harmony. Building placement (the private realm) should work in tandem with site circulation (the public realm)– including vehicular travel ways, pedestrian facilities, and open spaces – to create visual and experiential environment in accordance with the Vision for the Princeton Nurseries neighborhood.

2. **Illustrative Street Design**

Figure 25, Figure 26, and Figure 27 provide illustrative mixed-use examples of how the frontage and street design guidelines can be used to create an active and safe mixed-use space for the area consisting of a "cartway zone" and a "sidewalk zone."

Frontage guidelines for buildings within Princeton Nurseries have been developed in accordance with the proposed street typology of their primary frontage, as shown in **Figure 28 through Figure 33** — Illustrative Street Sections.

The purpose of this is to ensure that development is consistent with the defining characteristics and primary uses of the street onto which it fronts. Whenever a building has frontages on more than one street type, the front yard setback guidelines for each street should apply.

The **cartway zone** consists of vehicle travel lanes, on-street parking, on-street bicycle lanes. A design speed of 25 mph should be used for all roadways within the Princeton Nurseries neighborhood. Travel lane widths should be designed to promote the proposed walkable, urban-style setting, in accordance with the illustrative examples contained herein.

The **sidewalk zone** is comprised of the area between the front of a building and the curb, which includes the building's façade, pedestrian throughways (shown in yellow in **Figure 25 through Figure 27**), and street furniture and curbing. As public spaces, the sidewalk zone serves as the front steps to the neighborhood, activating streets socially and economically. Sidewalk widths should be provided in accordance with **§85-22B** of the Township Code and the illustrative examples contained herein.

3. **Illustrative Street Frontage Types**

The Illustrative Street Frontage Types shown in **Figure 28 through Figure 33** below provide diagrams of the general character of typical frontage types and the front yard setbacks appropriate for each of these typologies.

However, a number of variations to these typical Street Frontage Types are acceptable, in that elements of each

Figure 25. Illustrative Mixed-Use Streetscape with Outdoor Frontage Seating

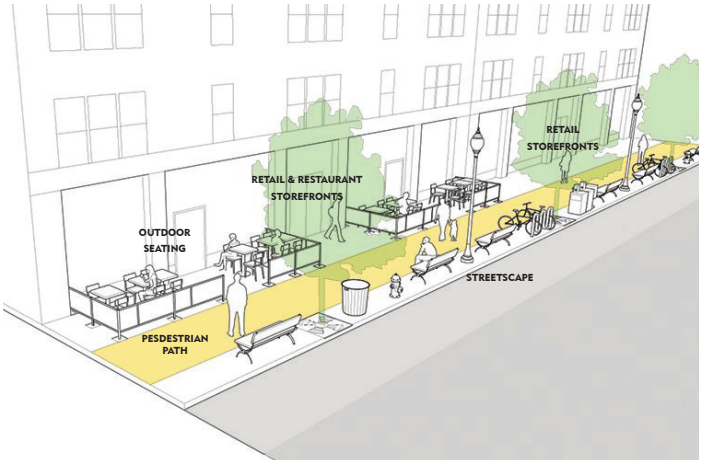


Figure 26. Illustrative Mixed-Use Streetscape with Outdoor Curbside Seating

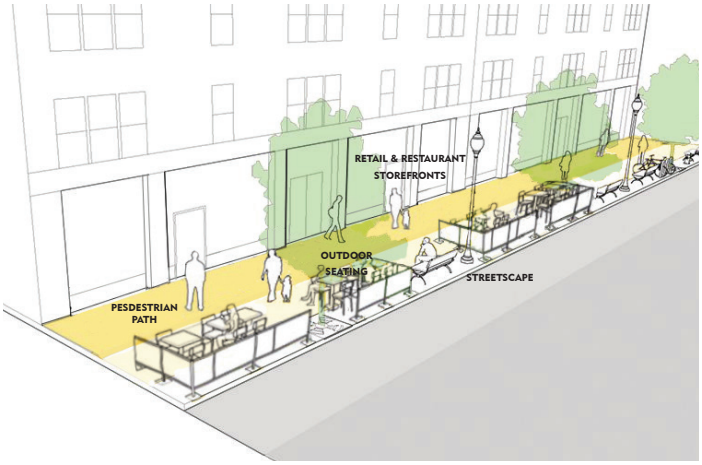


Figure 27. Illustrative Urban-Style Residential Frontage

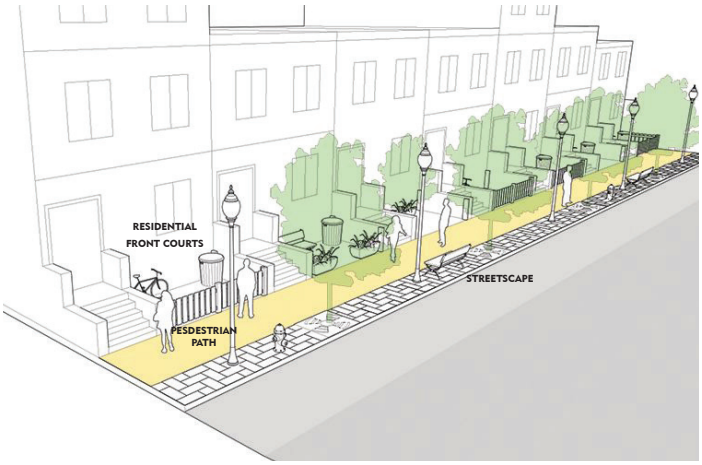


Figure 28. Illustrative Collector Street

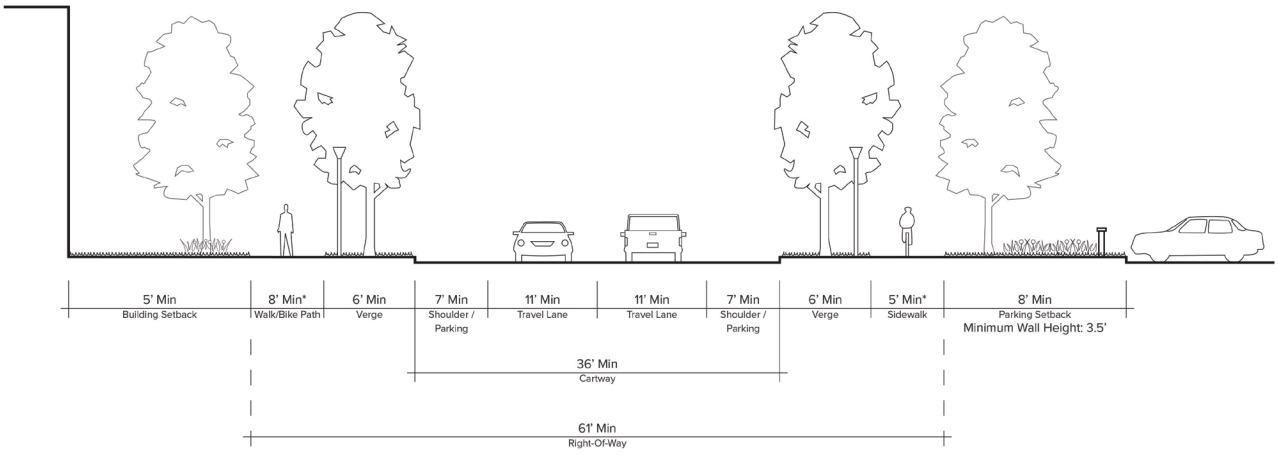


Figure 29. Illustrative Commercial Main Street

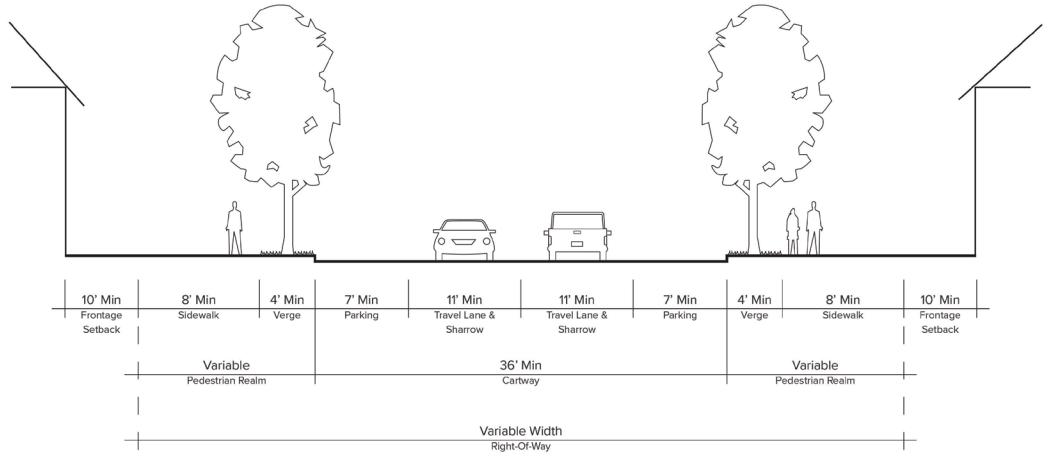


Figure 30. Illustrative Local Street

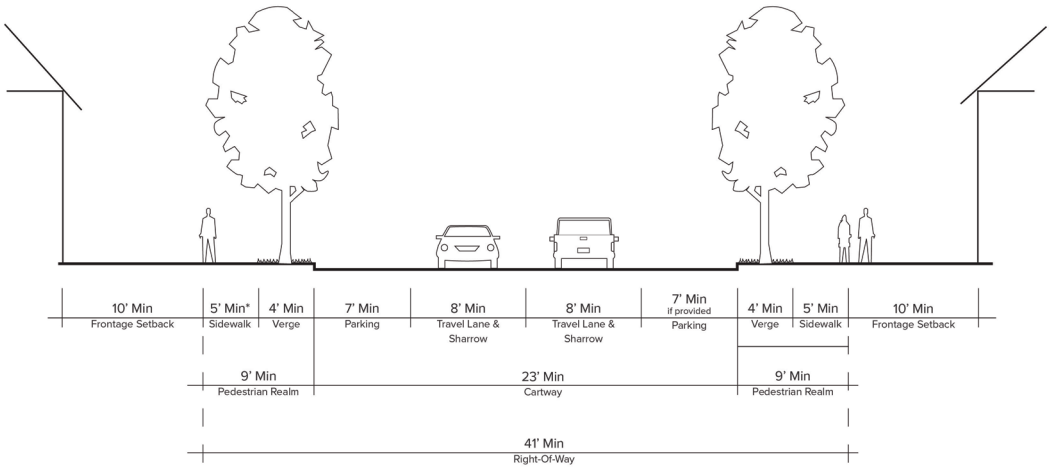


Figure 31. Illustrative Main Street Gateway

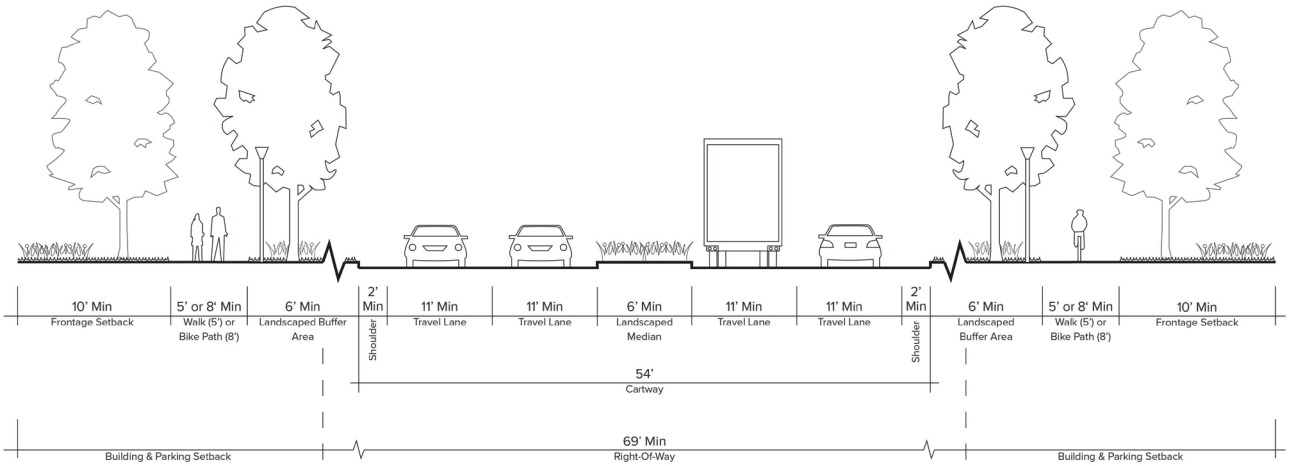


Figure 32. Illustrative Roundabout

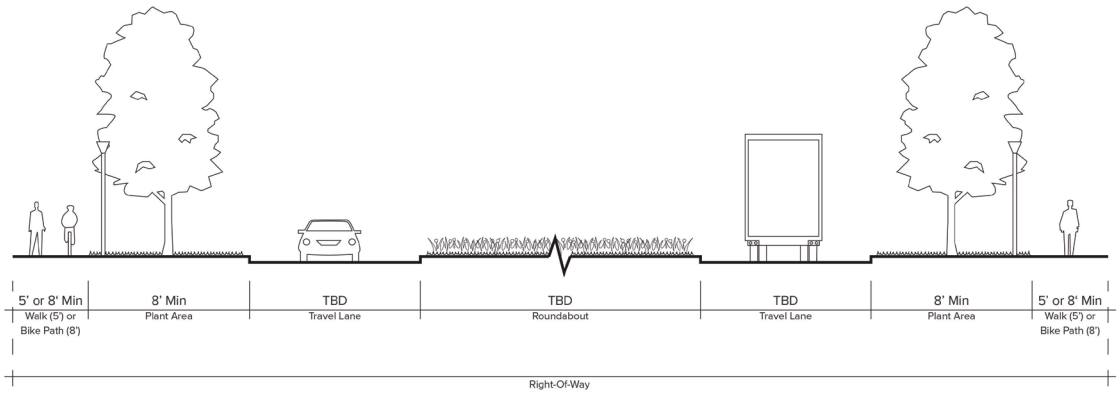
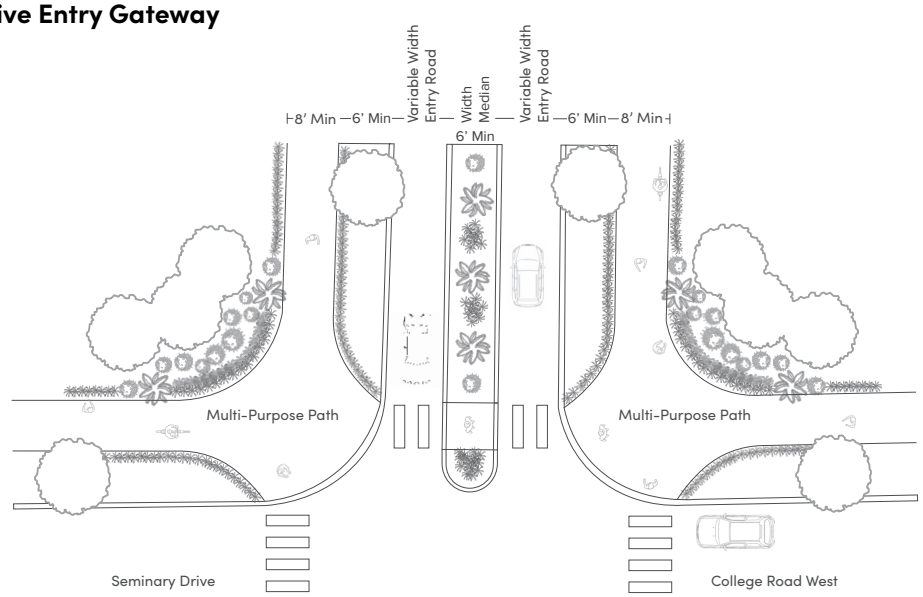


Figure 33. Illustrative Entry Gateway



may vary in dimension and specific features from those depicted below, except where otherwise expressed herein or regulated by the Township Code. All sidewalks, walkways, and multi-use paths are subject to the requirements set forth in **§85-22B** of the Township Code.

Similar acceptable street types include, but are not limited to, streets with one-way travel; streets with fewer travel lanes or on-street parking lanes; and the location of pedestrian ways, alleys, and landscape features. In these cases, the front yard minimums and maximums should follow the Street Frontage Type that most closely matches the proposed type. All streets should be designed in accordance with the Guiding Core Principle articulating Street Walls/Public Realm, as set forth in Section 1.4 herein.

5.5 Parking Design and Location

a. For non-residential mixed-use, townhouse, and multi-family buildings, parking areas should be substantially limited to parallel or angled on-street parking, the rear of buildings and within or underneath buildings.

b. Access to parking off rear laneways is encouraged. In instances where front access is the only design alternative, the access should not be the dominate design element.

c. No off-street parking should encroach into an adjoining sidewalk or the street.

d. A minimum of 3% percent of the required parking spaces for non- residential buildings and multi-family residential buildings are encouraged to provide charging stations for electric vehicles.

Figure 34. Permitted Bicycle & Pedestrian Street Features

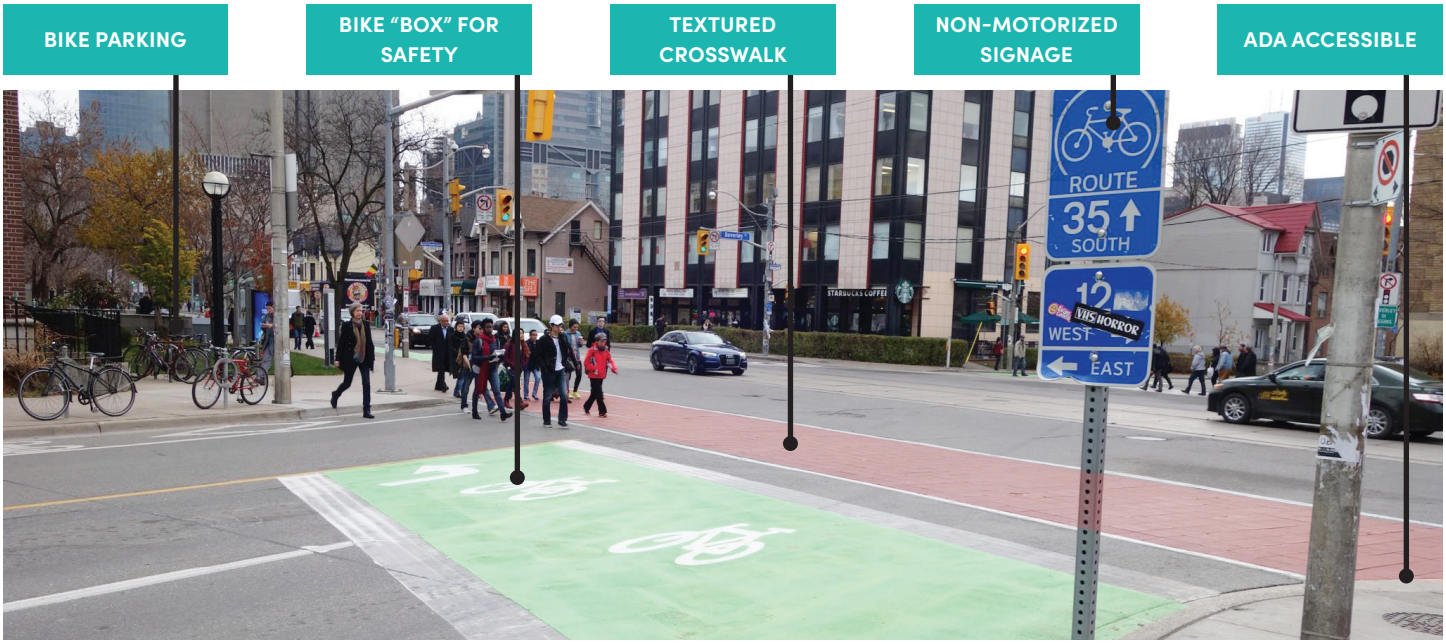


Figure 35. Permitted Bicycle & Pedestrian Street Features

6.0 OPEN SPACE & LANDSCAPING

6.1 Open Space Guidelines

6.1.a. Pedestrian Realm

Sidewalks and plazas should be made comfortable for use by pedestrians through the use of landscaping, overhangs and canopies for shade, and non-heat absorbing materials. Pedestrian circulation layout on any development site should take into account off-site generators of pedestrian movement, such as open spaces, transit stops, and existing/proposed residential areas. For example, there is already mixed-use development in the neighboring Princeton Forrestal Village, and it is conceivable that future residents of the Princeton Nurseries neighborhood would walk to and from some of these places. Further, it is the intent of these design guidelines to promote walkability.

Opportunities should be offered for sitting on benches, chairs, ledges, low walls, or other comfortable surfaces. Movable chairs are encouraged where feasible. Sitting locations should relate with shade tree plantings and areas that provide shielding from the winds and trap sun in the winter. The use of fountains and other water features is encouraged.

Comfortable and attractive street furniture that is accessible to all, including the physically challenged, should be provided in public spaces for public enjoyment and comfort. Street furniture should include park benches, seating and tables, trash receptacles, information kiosks and directories, bicycle racks, bollards, playground equipment, shade structures, gazebos, and civic art. Where the development is located on to-be-established bus routes, bus turnouts and shelters should be incorporated into the plan for future installation.

Similarly, street furniture should be provided in spaces accessible to the public to unify the pedestrian realm and the streetscape where feasible. Food and beverage should be provided in these semi-public spaces through cafes and restaurants, which may be allowed to expand to satisfy market demand. Often, courtyards can be very simple: a solid brick paver treatment, large trees, and benches. Designs of semi-public spaces should include sitting walls, trash receptacles, planters, tree grates, bicycle racks, bollards, bus shelters, and the like. Details should be provided in association with project site plans.

6.1.b. Common Open Spaces

A planned common open space system should be integrated into the development of the Princeton Nurseries neighborhood. The common open space should be located and designed as follows:

1. All common open space should meet the regulations laid out in **§101-141** of the Township Code.
2. Areas considered "Active Open Space" should adhere to **§101-141(F)** of Plainsboro's Zoning Code, and should include the following:
    a. **Central Civic Space:** A minimum of one Central Civic Space should be provided in the Mixed-Use Area of the project to create a sense of context within the central retail area, in accordance with **§101-141F(3)** of the Township Code. The Civic Space should be a minimum of one acre, with no central rectangular edge dimension measuring less than 100 feet long. The Central Civic Space should function as a place where both residents and visitors feel comfortable, and should be recognizable as the heart of the community. It should provide both programmable space and a meeting place for residents of and visitors to the Mixed-Use Area. Activities supported by the Central Civic Space may include:
        - Passive and active recreation such as lawn and table games, walking, and individual and group workouts.
        - Events such as festivals, concerts, movie nights, and community meetings.
        - Amenities, structures and/or uses that foster active use and the "main street" environment.
        - Opportunities to enjoy and learn about nature,

such as through native trees, flowerbeds and gardens, and/or stormwater catchment facilities and bioswales.

- Identity signage and other area branding elements to both welcome visitors to Princeton Nurseries and create a sense of place for residents.

b. **Neighborhood Park – Active**: At least one Neighborhood Park - Active should be provided that creates space for active recreation for the residents of the Princeton Nurseries neighborhood. The minimum aggregate area of neighborhood parks (both Active and Passive) should be two acres.

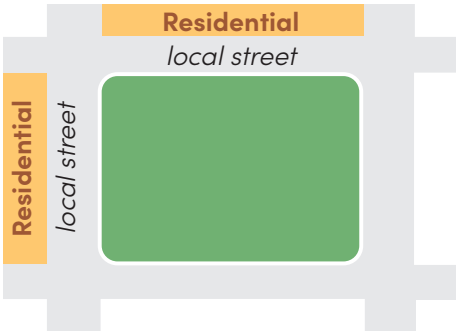
c. **Neighborhood Park – Passive:** Neighborhood Parks - Passive should be provided as gathering places at the immediate neighborhood level. These spaces should generally be small and intimate, and provide amenities such as seating areas, dog runs, tot lots, and small lawn parcels for exercise. The minimum aggregate area of neighborhood parks (both Active and Passive) should be two acres.

d. **Passage Park:** Passage Parks are intended as narrow spaces that serve as green fingers between and among the different areas within the Princeton Nurseries neighborhood. Passage Parks should also serve as pocket parks throughout the Princeton Nurseries neighborhood. Passage Parks should have a minimum dimension of 20 feet.

6.1.c. Common Open Recreational Space

1. Recreational space should be provided with each phase of development that involves residential units and confirmed through an approved phasing plan.
2. Recreational space includes recreational activities such as community centers, pocket parks, and playgrounds, ice skating rinks, as well as playing fields for organized or unorganized athletic events (This is not meant to be an all-inclusive list of recreation facilities.)
3. Recreational space should not include any environmental features such as wetlands or man- made non-usable space such as stormwater management facilities unless such stormwater management facilities

Figure 36. Residential Open Space



Morristown, NJ Green

are serving the proposed recreational activity (such as the parking lot for a community center).

4. Recreational space should not exceed 4% grade once constructed.
5. Recreational space should be provided within 1,000 feet from all proposed residential units and should be accessible to all residents of the Princeton Nurseries neighborhood. Additional private recreational space such as pools for multi-family buildings is permitted but should be limited.

6.1.d. Size, Location, and Design

1. All open space should meet the requirements of §101-141 of the Township of Plainsboro Zoning Ordinance in order to be credited toward the minimum common open space requirement. (See Section 6.1.b. for additional guidelines.)
2. To the greatest extent possible, open spaces should be conveniently located within and serve as an anchor to each area (e.g., Mixed-Use Area, Flex Areas, and Residential Areas).
3. Parks and recreational space located within the residential neighborhoods should be designed to have new Local Streets on at least one side or 25%of the edge condition. Similarly, two sides or 50% of the park should have residential uses facing the park.
4. Plazas, pedestrian pathways, and other public open spaces should include amenities such as water features, public art, gazebos, shade trees, shade structures, trash receptacles, benches, lights, trellises, or other similar features to the satisfaction of the Planning Board.
5. Open spaces should be designed to provide adequate shade and/or sheltered seating.

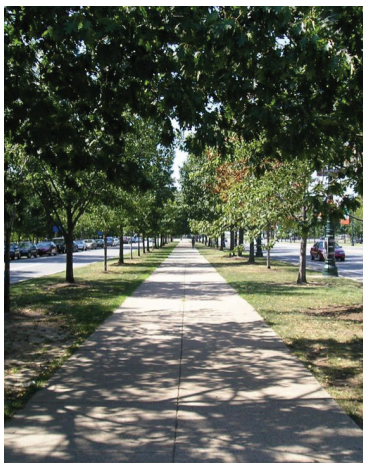
6.1.e. Materials and Design

1. Open space areas should be planted with a combination of shrubs, grasses, ornamental trees, and/or hardscape. Open spaces should be designed with an appropriate balance of greenery and hardscape, consistent with the intended use of the area and the accessibility of green space in the vicinity. Within active recreation areas (e.g. tennis or basketball courts), no more than +/- 40% should be hardscape exclusive of perimeter sidewalk.
2. The central Civic Space should consist of balanced hardscape and landscape features to provide a comfortable, vibrant setting that complements the surrounding mixed-use neighborhood, including

Figure 37. Illustrative Examples for Sidewalk Design

APPROPRIATE

SIDEWALKS AND OPEN SPACE WITH LANDSCAPED SHADING



NOT APPROPRIATE

NO OR INFREQUENTLY PLANTED TREES THAT PROVIDE NO SHADE

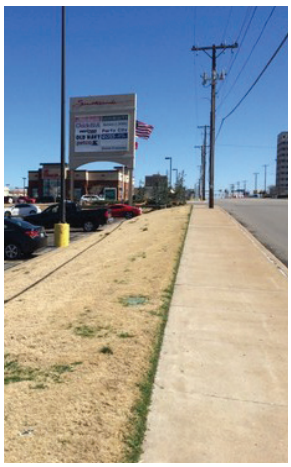


Figure 38. Illustrative Pedestrian Realm Elements

EXAMPLE IMAGERY

- **A** Benches
- **B** Trash/Recycling/Compost Receptacles
- **C** Proximity to Shade Trees
- **D** Low Wall Seating
- **E** Pedestrian Lighting
- **F** Functional seating
- **G** Bike Racks
- **H** Playground
- **I** Public Art

These images are examples. Final site furnishings should be provided at site plan approval.

a variety of passive and programmed amenities, welcoming pedestrian features, and the ability to adapt to changes in use over the course of the day, week, and year.

3. All park and recreation spaces should be designed to:
    - Promote human interaction and social activities.
    - Be safe, welcoming, and accommodating for all users.
    - Have design features that are visually interesting.
    - Relate to bordering uses.
    - Consist of quality materials.
    - Be easy to maintain.

6.2 Buffers & Screening

6.2.a. General Guidelines

1. The primary purposes of buffers described below are to filter and/or screen views of structures in question beyond a lot line.
2. Buffers and/or screening are required and should be provided in the following locations to filter visibility of structures from neighboring properties and/or rights-of-way:
    - Along adjoining developed property (e.g., Barclay Square at Princeton Forrestal).
    - To screen above-ground utility equipment.
    - Along edges where parking lots share property lines with public streets or parcels outside the development area.

Figure 39. Illustrative Open Space Design & Activity

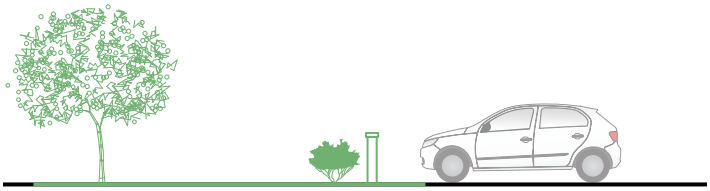
3. A 25-foot buffer should generally be provided along College Road West and U.S. Route 1, the location of which may need to be adjusted to allow for signage, infrastructure and site visibility. Any perimeter buffering of the project should provide for attractive viewsheds into the project from the U.S. Route 1, College Road West, and interchange roadways.

6.2.b. Parking Lots

1. Landscaping, buffering, and screening should be provided to filter and minimize the direct view of parked vehicles from streets and sidewalks, avoid spillover light, glare, noise, or exhaust fumes onto adjacent residential properties, and provide the parking area with a reasonable measure of summer shade.
2. Parking lot perimeter landscape buffers should be a minimum of 8 feet in width where lots are adjacent to a street.
3. Planting, fences, walls, berms (or a combination thereof) not greater than 4 feet in height should be provided between an off-street parking lot and any public right-of- way except where a building intervenes.

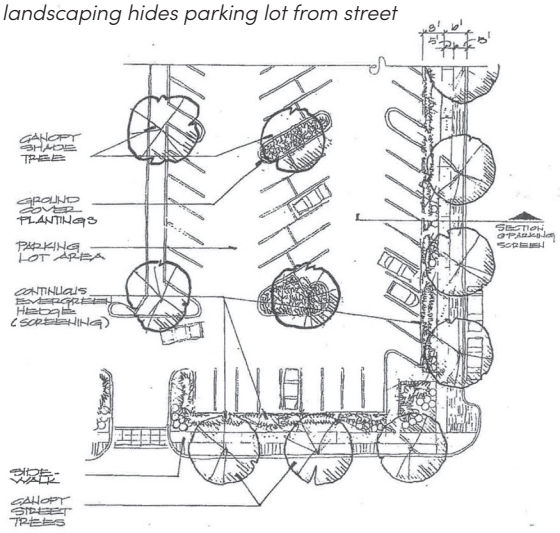
Figure 40. Illustrative Parking Area Screening

APPROPRIATE



Landscaping and wall effectively hides car bumper/grill.

Dense landscaping hides parking lot from street



Effective integration of landscaping

APPROPRIATE

Low plantings, cars partially-screened from the street. Appropriate in some commercial locations.

NOT APPROPRIATE

Inadequate use of plantings

4. Interior parking lot landscaping offers shade and improves the appearance of off-street parking areas. Off-street areas with more than 30 spaces should include landscaped island areas equivalent to 5% or more of the parking area's impervious coverage. Landscaped island areas should include shade trees and should be located as to break up rows of 20 or more parking spaces.

6.2.c. Electrical and Mechanical Equipment

1. All exterior electrical and mechanical equipment at ground level should be located at the side or rear of a building and away from entrances and screened.
2. Loading, Refuse Collection, and Service Utility Area Buffers
    a. Screening is encouraged to consist of 6 to 8-foot tall brick or decorative masonry walls and decorative metal gates compatible in color and texture with building walls. A buffered landscape strip should be provided. The strip should have a minimum width of 3 feet and should be located on all sides that do not include an entry access or abut a windowless façade. Buffers should be planted to sufficiently obscure the view of the installation from public view throughout the year.
    b. All refuse containers should be visually screened with a durable, noncombustible enclosure, so as not to be visible from adjacent lots or sites, neighboring properties, or streets. Enclosure materials, including bollards and metal framing elements should feature a neutral, harmonious palette of finishes and colors for the overall building.
    c. Any off-street loading and unloading space should be screened from public view by building walls fencing, and/or landscaping.
    d. Any loading, refuse, or other service area that is visible from a public street should be the subject of special design treatment to obscure its visibility from such areas.

6.2.d. Stormwater Management Facilities

All stormwater management facilities should be planted or screened so as to blend into the surrounding landscape. Stormwater management facilities are encouraged to be designed in accordance with **§101- 141F(2)** of the Township Code to contribute to the public use and enjoyment of overall open space areas (i.e. vegetated basins, grass swales, retention ponds). The use of rain gardens is encouraged.

7.0 SIGNAGE & PUBLIC ART

7.1 Purpose & Vision for Signage

Signs are an important design element that can improve the visual quality of the Princeton Nurseries neighborhood; bring human scale and legibility to the street environment and public realm; and create a sense of interest, activity, and vibrancy. The intent of the sign guidelines is to accomplish the following:

- Promote and fulfill the intent of the development of the Princeton Nurseries neighborhood to create a unique, dynamic, attractive place to live, work, and shop.
- Promote economic vitality and enhance property values in Plainsboro.
- Promote the desired character of the Mixed-Use Area through appropriate sign design.
- Encourage interactive, creative, and innovative signs that distinguish the Princeton Nurseries neighborhood as a distinct and individual place. This may include signs for the purposes of placemaking - such as gateway signage, directional signage, coordinated lighting, etc. - as well as public art. Wayfinding signs should conform to a consistent graphic design scheme and include a hierarchy/notational system to increase the legibility and character of the Princeton Nurseries neighborhood.
- Consider signage in an imaginative way through the use of traditional signage as well as public art and identity signage that will contribute to branding the distinct identity of Princeton Nurseries, and that will contribute to placemaking efforts, such as those listed below.
    - Traditional types of signage
    - Public murals
    - Garbage/recycling can and utility box decoration/painting/wrapping
    - Pavement decoration/painting
    - Street furniture and landscape architectural features

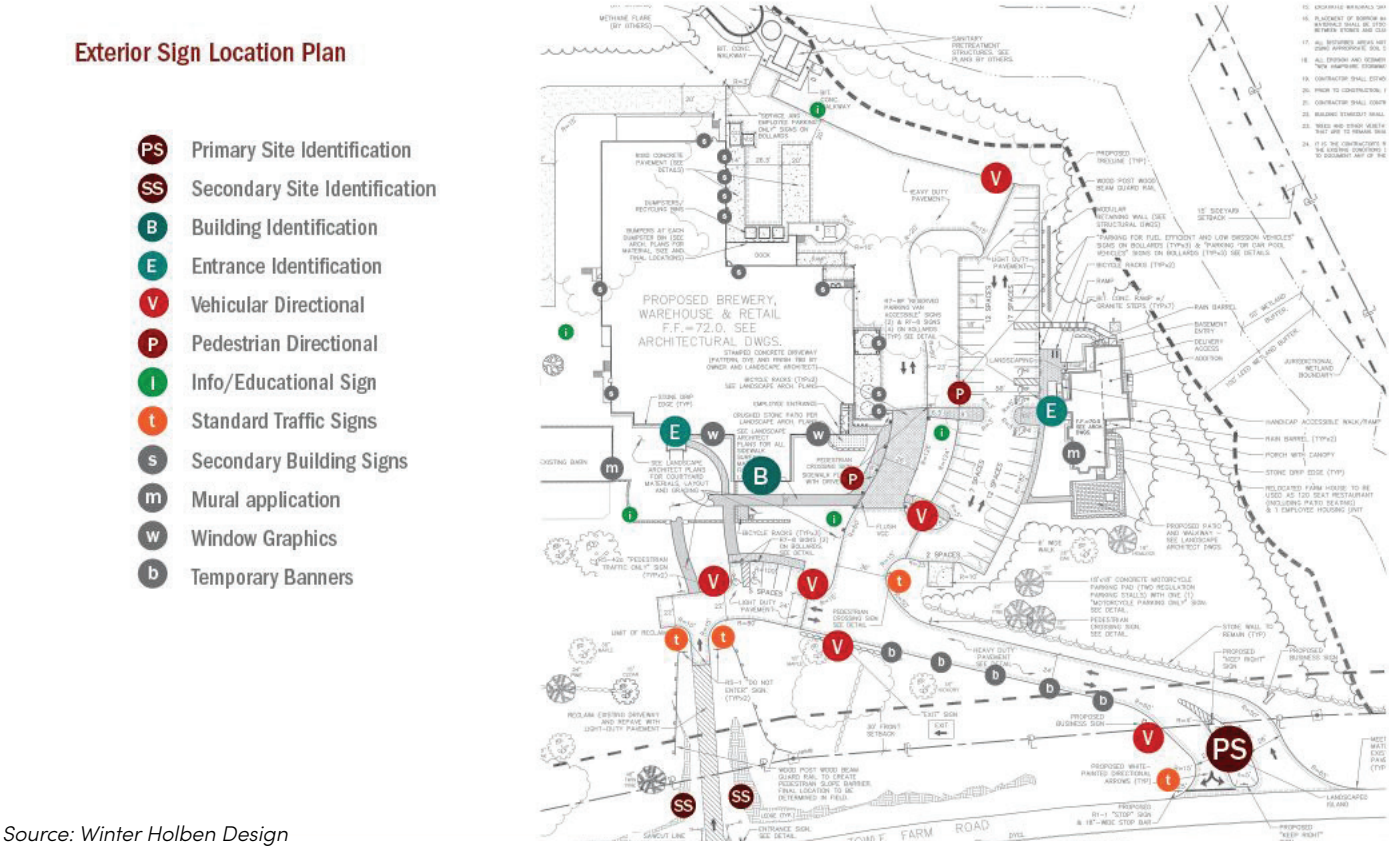
    - Public realm/corridor lighting
    - Statues/Sculpture
    - Informational kiosks
    - Gateway murals/sculpture/signage
    - Wayfinding signage

A complete list - including descriptions, minimum criteria, and design guidelines - is included under Section 7.1and is described in further detail in Section 7.3 and Section 7.4.

7.2 Overall Signage & Public Art Strategy

In order to accomplish the Purpose and Vision outlined in Section 7.1, an overall Signage and Public Art Plan should be provided as part of the site plan submission. This plan will serve as a strategy to delineate the hierarchy of art and signage opportunities that make up the range of experiential graphics in the overall project. This Plan should display - in a color coded and easily legible manner - permitted and encouraged locations throughout the Princeton Nurseries neighborhood for the sign types described in these regulations. This will start with large scale public gateway signage, open space experiences, and

Figure 42. Public Art & Signage Map Example



Source: Winter Holben Design

view corridors and continue to individual building and storefront signage in the Mixed-Use Area. An illustrative example of a plan map is shown in Figure 45. Traditional Signage and Public/Art Identity Signage - including descriptions, minimum criteria, and design guidelines - are described in the subsections that follow, and are further detailed in Section 7.3 and Section 7.4.

7.2.a. Traditional Signage

Traditional signage advertises a specific business and is generally located on the site of the business it is advertising. Retail tenant signage is envisioned as an integral part of the brand success of the development of the Princeton Nurseries neighborhood. Retail tenants will be expected to design, fabricate, and install signs of high quality. The intent of these guidelines insofar as they govern Traditional Signage is to expand the bounds of what is typically considered "traditional signage," and encourage tenants to experiment with unique, creative, and innovative forms of signage. This will result in a better and more aesthetically pleasing public realm and set Princeton Nurseries the neighborhood apart as "a place to be," drawing a diverse set of residents and ensuring that visitors will be excited to return again and again. The guidelines that follow (see Section 7.3) have been developed to establish a consistently high level of design and quality. The guidelines address the following traditional signage categories:

- 3D / Art Sign
- Fascia/Wall Sign
- Awning/Canopy Sign
- Blade/Projecting Sign
- Window Signs

- Wall-Mounted Directory/Menu Box Signs
- Portable Signs

All tenant signage should be creative and integrated into coordinated storefront design, reflecting a comprehensive brand strategy throughout the site that includes well-designed graphics, colors, merchandising, lighting, and materials Any signage that will be visible from outside the Princeton Nurseries neighborhood should be appropriately scaled to the site context and surrounding uses within the Township of Plainsboro.

7.2.b. Public Art/Identity Signage, & District Branding

Public Art & Identity signage expands beyond the realm of what is typically considered "signage" to include public space improvements such as:

- Public art,
- Wayfinding systems, and
- District/corridor branding.

Installation of art, wayfinding, and branding elements should be coordinated within the public realm of parks and streetscapes to complement the commercial, retail and residential activities and enhance and enrich the experience of the Princeton Nurseries neighborhood. This type of signage is not intended to serve advertising purposes, but rather to contribute to the public realm, as well as to the area's identity and sense of place. Public Art & Identity Signage may be sponsored by private entities, provided the sponsoring is done discretely and is limited in size. Section 7.4 provides guidelines for this type of signage.

7.2.c. Prohibited Sign Types and Materials

The following sign types should not be utilized:

- Box signs.
- Cabinet signs.
- Simulated materials (wood-grained plastic laminates, wall covering, etc.) and non-durable materials.
- Flashing, variable lit, animated, or otherwise moving or audible signs.Internally illuminated awnings and box-type signs with translucent panel backgrounds.
- Wind, balloon, or other inflatable displays.
- Promotional signs on parked vehicles.
- Signs encroaching upon a public right-of-way (ROW), or attached to any element within a public ROW (e.g., lighting fixtures), except as allowed in these guidelines.

7.3 Traditional Signage

7.3.a. General Guidelines

1. Creative, innovative, and unique signage and environmental graphics are encouraged. The signage throughout the site should effectively communicate the identity for visitors and occupants. The sign messages should be lively, simple, and clear.
2. Interesting and creative lighting is encouraged, including direct lit and indirect lit signs. Sign illumination should be integrated into the sign design and shall not create objectionable glare to pedestrians, motorists, and adjoining residents.
3. Signage should be limited to trade name and logo/logotype only. A listing of products and/or services is discouraged.
4. All signs should be fabricated and installed by a qualified, experienced sign manufacturer. Sign construction should be in accordance with all applicable state and local codes.
5. No manufacturer's labels, or other such labels, should be visible on the exposed surfaces of signs. If required by code, such labels must be in an inconspicuous location.

Table 5. Signage Guidelines by Type

SIGN TYPE	NUMBER PERMITTED	HEIGHT REQUIREMENTS	AREA REQUIREMENTS	PROJECTION FROM BUILDING WALL	PREFERRED LOCATION
FASCIA/WALL	1 per tenant street frontage or active entrance.	Above storefront, but below second-floor windows (for first floor tenants).	Maximum 10% of tenant storefront façade area (each).	Maximum 6 inches, if less than 8 feet above grade; 15 inches, if greater than 8 feet above grade.	Upper portion of ground level storefront.
AWNING/ CANOPY	1 canopy sign per tenant frontage or active entrance; multiple awning signs per tenant permitted in the same design.	Top may not extend higher than storefront. Sign cannot be less than 8 feet above finished grade.	Graphics on the sloped surface of an awning may not exceed 20% of the area of the sloped surface.	Maximum 4 feet.	Top edge of storefront or over windows.
BLADE/ PROJECTING	1 per building elevation or street frontage.	Minimum clearance of 8 feet, maximum of 13 feet.	Maximum 15 square feet.	Minimum 18 inches, maximum 4 feet.	Right angle perpendicular to building façade.
WINDOW	N/A	Maximum 8 feet above grade.	Maximum 30% of total storefront glass area.	N/A	Inside of a tenant's window or located inside the building within 5 feet of the storefront.
WALL-MOUNTED DIRECTORY	1 per building entrance served.	Maximum 8 feet above grade.	Maximum 8 square feet.	Maximum 4 inches.	Near entrance served.
WALL-MOUNTED MENU BOX	1 per restaurant tenant.	Maximum 6 feet above grade.	Maximum 8 square feet.	Maximum 4 inches.	Near entrance served.
PORTABLE	1 per tenant.	Maximum height of 5 feet.	Maximum 12 square feet (no more than 4 feet high by 3 feet wide).	N/A	Should not obstruct circulation and must be placed directly adjacent to the building or entrance served.
3D/ART*	1 per tenant, subject to Planning Board Approval.	Minimum 8 feet above a sidewalk.	Scaled to storefront facade.	Maximum 4 feet unless intergated with entry canopy.	Below upper tenant space or building cornice, whichever is lower.

**Separate design approval from the Planning Board is needed.*

6. Fasteners and connections for all signage should be concealed. All fasteners and materials should be appropriate for exterior conditions without rust, corrosion, etc.
7. Tenant signage should be attached to and supported by the tenant storefront.
8. Light levels on storefront signage should be consistent with the project's overall lighting plan.
9. Equipment such as conduits, raceways, transformers and other equipment should not be exposed. Access panels should be located at the backside of the interior fascia or other inconspicuous location.
10. The storefront street address should be installed at the entry door.
11. To provide interest and dynamics to the street, signs should not be flat, two dimensional surfaces with messages and graphics, but are encouraged to have, at the very least, sign surfaces composed of modest texture and surface changes.

7.3.b. Allowable Signs

1. The following types of traditional signage are allowed. Sections 7.3.c through 7.3.h provide further details for each sign type.
    - 3D / Art Sign
    - Fascia/Wall Sign
    - Awning/Canopy Sign
    - Blade/Projecting Sign
    - Window Signs
    - Wall-Mounted Directory/Menu Box Signs
    - Portable Signs
2. Multiple signs are allowed provided they avoid visual clutter and they enhance the experience of the Princeton Nurseries neighborhood. These may include any of the sign types considered in this Section. The number of signs should be subordinate to the overall presentation of the image of the Mixed-Use Area, provided the size guidelines for each type of allowable sign are adhered to in accordance with **Table 5**.

7.3.c. Fascia/Wall Signs

1. Design Framework

A Fascia/Wall sign should serve as the primary storefront sign for ground floor tenants. At least one Fascia/Wall sign should be provided for each active storefront entrance and/or street frontage, subject to the minimum criteria and design guidelines below. If a Fascia/Wall sign is to be mounted to a building's wall, it should be mounted flush and attached securely to that building's wall. Fascia/Wall signs may also be painted, engraved, or otherwise affixed to the building's exterior. Fascia/Wall signs should be aesthetically compatible with the Tenant's storefront design and the architecture of the building.

2. Target Criteria

- Each ground floor tenant should provide one Fascia/Wall sign along each street frontage or building elevation. A corner storefront should have two Fascia/Wall signs, with one sign provided on each street frontage. If a ground floor tenant has more than one active storefront on a street frontage, a Fascia/Wall should be provided for each active storefront.
- Individual Fascia/Wall signs should be limited in size to 10% of the area (in square feet) of the façade on which it is located.
- The height of a Fascia/Wall sign should be scaled appropriate to the storefront's height.
- Fascia/Wall signs should be designed to be parallel to the line of the storefront and integrated into the overall storefront design.
- Fascia/Wall signs should be located on the upper portion of the ground level storefront, just above the storefront opening, when possible. For tenants on the second floor, a fascia / wall sign location may be added or adjusted as appropriate to the design of the tenant façade, as long as the total area of signage meets the design guidelines for the tenant storefront area.
- Fascia/Wall signs should project no further than 6 inches from the face of a building wall if the bottom of the sign is less than 8 feet above grade. Fascia/Wall signs should project no further than 15 inches if the bottom of the sign is greater than 8 feet above grade. Projections from the building wall should be the least possible dimension for the type of sign proposed. In all cases, sign projections from the building wall should be as small as possible for each sign type proposed.

7.3.d. Awning/Canopy Signs

1. Design Framework

Each ground floor commercial tenant may install Awning or Canopy signs attached to the street front facade of their leased space, subject to the minimum criteria and design guidelines described below. If an Awning or Canopy sign is designed as an integral component of the tenant's storefront architecture, it may replace a Fascia/Wall sign as the primary identification. This type of sign may include letters, emblems/logos, and/or other identifying features printed, sewn, bolted, or otherwise attached to the apron portion of a building's awning or canopy, usually above a tenant's door or window.

2. Target Criteria

- A Canopy sign may be attached to a canopy or marquee, to serve as the primary sign in lieu of a wall sign. One Canopy sign is allowed per building elevation/street frontage. If a ground floor tenant has more than one active storefront on a street frontage, a Canopy sign may be provided for each active storefront. A corner storefront is allowed a total of 2 Canopy signs, one per street frontage.
- Signs on the top edge of a horizontal canopy are encouraged. The top of a canopy sign should not extend above the height of the storefront. The bottom of canopy sign should be a minimum of 8 feet above grade.
- For Awning Signs, lettering and/or logos at a maximum of 9 inches in height may be silk-screened, or otherwise printed, on the sloped surface or valance of an awning. Graphics and logos printed on the sloped surface of an awning should not exceed 20% of the area of the sloped portion of the awning.
- For tenants on the second floor, awnings may be provided with a minimum height of 7 feet above the second floor level and a maximum projection of 4 feet.
- A tenant may have multiple awning signs, provided they are of the same design, branding style, and color scheme.
- The bottom of the awning should be a minimum of 8 feet above ground level and should not project more than 4 feet.
- Awnings should be constructed of marine grade woven acrylic canvas with decorative brackets. Canopies should be matte or satin finish metal or painted finish with glass or metal panel infill. Plastic, acrylic, or similar coverings are prohibited.
- Painting cloth awnings or other patching in order to change sign copy is prohibited.

7.3.e. Blade/Projecting Signs

1. Design Framework

Tenants are encouraged to utilize dynamic, well-designed Blade/Projecting signs to advertise their business, subject to the minimum criteria and design guidelines below. Each Blade/ Projecting sign should display the unique character of each individual tenant, and tenants are encouraged to be creative in the materials, designs, and color palettes they use to bring that unique character to life.

2. Target Criteria

- Each tenant may install one Blade/Projecting sign per building elevation or street frontage.
- The area of a Blade/Projecting Sign should not exceed 15 square feet.
- Blade/Projecting signs should be mounted at a right angle perpendicular to the building facade.
- The maximum projection for a Blade/Projecting signs should be 4 feet. The minimum projection should be 18 inches.
- All Blade/Projecting signs should maintain a minimum clearance of 8 feet above the sidewalk, and a maximum height of 13 feet above the sidewalk and should not extend above the building roof.
- For tenants on the second floor, a projecting sign height may be extended to 7 feet above the second-floor level.

7.3.f. Window Signs

1. Design Framework

A Window sign is attached to the inside of a tenant's window or located inside the building within 5 feet of the storefront. Tenants are encouraged to be creative in their use of Window signs to highlight the unique character of their business and to contribute to the public realm by creating dynamic, engaging storefronts. Window signs are subject to the minimum criteria and design guidelines below.

2. Target Criteria

- Window signs should comprise no more than 30% of the total glass area of a tenant's window space and should not make seeing into or out of the tenant's business unreasonably difficult.
- Opaque window signs should be located a maximum of 8 feet above grade.
- Permanent window signage should be applied directly to the interior surface of storefront glazing in one of the following ways: etched, sandblasted, computer-cut vinyl, silk screened, painted or metal leaf.
- Temporary windows signs for sales and special promotions should not be taped or otherwise affixed to the storefront glazing. Temporary signs should be part of an integrated window display, suspended from the ceiling, or mounted within display fixtures.
- Hours-of-operation information should be posted on the entrance door or on adjacent storefront glass, with individual numbers/letters with a maximum height of 1 inch, in a typeface appropriate to the tenant's storefront and signage design.

7.3.g. Wall-Mounted Directory/Menu Box Signs

1. Design Framework

Each building owner and/or each ground floor commercial tenant may have a Wall-Mounted Directory sign and/or may have a Menu Box sign to attach to any public entrance. This type of sign may be printed, engraved, painted, or otherwise attached or affixed to a surface and may be made of wood, metal, or high quality/weather-resistant plastic. Wall-mounted directory signs should be securely affixed to the exterior wall of a tenant's property and may not be freestanding. Tenants are encouraged to employ creatively displayed directory signs, as long as they are legible and meet the minimum criteria & design guidelines outlined below.

2. Target Criteria

- Wall-Mounted Directory/Menu Box signs should be a maximum of 8 square feet in area.
- Wall-Mounted Directory/Menu Box signs should be made of durable, weather-resistant, high quality materials.
- Wall-Mounted Directory/Menu Box signs should be securely affixed to tenants' building exterior and may not be freestanding.
- Wall-Mounted Directory/Menu Box signs should not be internally illuminated, except for LED screens.
- Wall-Mounted Directory should be a maximum of 8 feet above grade and a Wall-Mounted Menu Box should be a maximum of 6 feet above ground.
- Wall-Mounted Directory/Menu Box signs should project a maximum of 4 inches from the building wall.

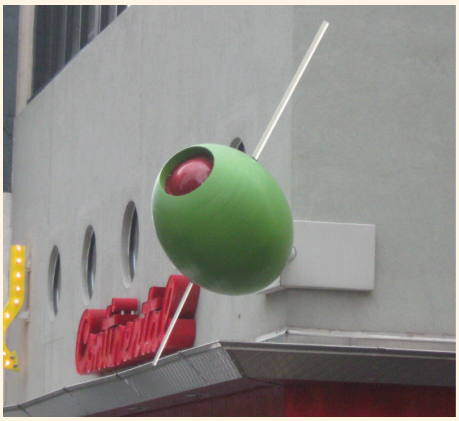
7.3.h. Portable Signs

1. Design Framework

Each tenant may utilize Portable signs on the condition that they meet the minimum criteria and design guidelines below. Portable signs are intended for temporary use to indicate store openings/closings, upcoming events, and other such matters. However, despite the ephemeral nature and intent of Portable/Temporary signs, tenants are still expected to achieve a reasonable level of design quality when employing their use. Portable/Temporary signs should be well-designed, made of sturdy, weather-proof materials.

2. Target Criteria

- Portable signs should be no larger than 12 square feet (4 feet high by three feet wide), and should be easily movable, removable, and replaceable.
- Portable signs should have a maximum height of 5 feet.
- Portable signs should be made of high-quality, weather-proof metal, plastic, slate or wooden materials.
- Portable signs should be taken in every night.
- Portable signs should not obstruct pedestrian or vehicular circulation and are only permitted to be placed directly adjacent to the building or building entrance that they serve.



7.3.i. 3D/Art Sign

1. Design Framework

Each ground floor tenant may install one 3D/Art sign on the condition that it meets the minimum criteria and design guidelines below. Tenants are encouraged to utilize 3D/Art signs such as those depicted above, as they will not only help distinguish commercial tenants from one another, but also contribute a high level of artistic quality, creativity, and interest to the public realm. 3D/Art signs are intended to be creatively crafted and representative of the unique character of each tenant, as well as worthy pieces of art in their own right. Separate design approval by the Planning Board is required for a 3D/Art Sign. Projects can be evaluated on their safety and quality, relevance, and neighborhood fit.

2. Target Criteria

- 3D/Art signs should be appropriately scaled to their respective façade and the surrounding building architectural features.
- Art should be properly affixed to a building's surface by professionals and may not be so delicate or flimsy as to pose a risk of falling - in whole or in pieces - off of a building and injuring pedestrians or motorists.
- 3D/Art signs should not project more than 4 feet from a building. If the 3D/Art sign is integrated with the tenant entry canopy, it may project further than 4 feet.
- If a 3D/Art sign projects off of a building's surface, the lowest portion of it must hang no lower than 8 feet above the sidewalk. 3D/Art signs may only be attached to a building's wall.
- 3D/Art signs should be a durable material and meet a high-quality of design and artistic excellence.
- Signs using artistic graphics and/or crafted symbols are encouraged.
- Tenants are encouraged to solicit the help of local artists or design professionals to craft unique, locally sourced 3D/Art signs.
- Signs should be representative of the business or tenant (e.g.,a shoe for a shoe store, or a bicycle wheel for a bicycle shop).
- Signs should enrich the community's experience in the public realm and the design should integrate into the larger civic context.

7.4 Public Art/Identity Signage, & District Branding

7.4.a. Intent of Non-Traditional Signage

The intent of "Public Art/Identity" signage is two-fold:

1. Identify an appropriate number and types of public art and identity signage - such as project identification signage - at key locations throughout Princeton Nurseries, as specified in **Figure 42**.
2. Utilize public art and identity signage as a means of solidifying Princeton Nurseries' unique sense of place and artistic character

Part of the intent of this section is to encourage a coordinated and graphically organized wayfinding system, which will both aid in residents' and visitors' ability to navigate and contribute to an overall sense of place. Public art will aid this effort by creating a system of landmarks that will help make the Princeton Nurseries neighborhood more aesthetically pleasing. It is encouraged that a conceptual Master Public Art and Signage Plan be provided at the time of the initial development application. This Public Art and Signage Plan should display - in a color coded and easily legible manner - permitted and encouraged locations for the sign types described in these regulations.

This section will allow for the opportunity to provide both public art and identity signage through:

- corporate sponsors;
- loaned or donated art pieces;
- art competitions;
- permitting pieces of art as part of the development; and
- infrastructure and other aspects of the development (e.g., utility boxes, trash cans, etc.)

Illustrative examples of public art and identity signage are provided in **Figure 43.**

7.4.b. Permitted & Encouraged Signs

1. Public Art
    - Public Murals
    - Street furniture/public realm improvements
    - Landscape/Architectural features
    - Public realm/Corridor lighting
    - Statues/Sculpture
    - Temporary, changeable or seasonal exhibits or structures
    - Trash/Recycling can decoration/painting/wrapping
    - Utility Box decoration/painting/wrapping
    - Pavement decoration/painting
    - Light Pole Banners
2. Identity Signage
    - Informational unattended kiosks
    - Gateway murals/sculpture/signage
    - Wayfinding signage

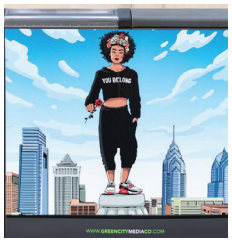
Figure 43. Public Art, Branding, and Identity Signage

Public Art & Branding

Murals




Trash/ Recycling Cans



Utility Boxes

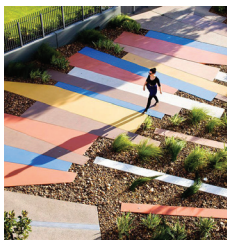
Pavement Decorations

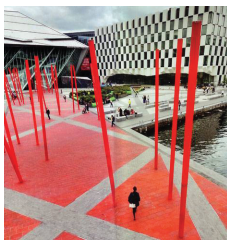
All pavement decorations should be MUTCD-compliant.

Street Furniture



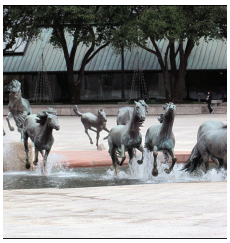
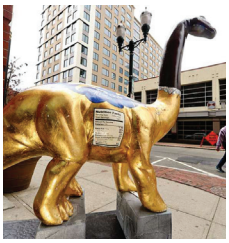
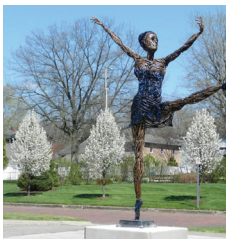

Landscape Architecture



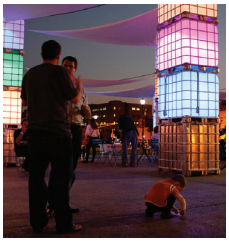



Public Art & Branding

Statues & Sculpture

Lighting

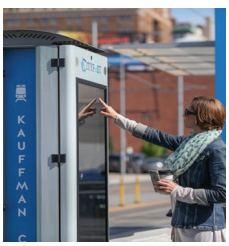

Light Pole Banners

Identity & Wayfinding

Wayfinding Signage


Gateway Art & Signage

Informational Kiosks




8.0 GENERAL PROVISIONS

8.1 Lighting

Outdoor Lighting throughout Princeton Nurseries should be designed as part of the overall Vision for the site and in accordance with contextual uses, specifically to provide adequate illumination within the Mixed-Use Area and other commercial areas, and to eliminate excessive lighting abutting residential uses, while maintaining a safe and walkable neighborhood during the non-daylight hours. An overall Lighting Plan should be provided at the time of site plan applications, to include details as to height, fixture design, and illumination levels for all outdoor lighting, including façade lighting, streetlights, landscape lighting, and special lighting of public spaces for events.

8.2 Solid Waste

A solid waste and litter management plan for Princeton Nurseries should be provided at the time of site plan approval to address the disposal, collection, and removal of waste and recycling throughout the site. All refuse containers should be designed in accordance with Section 6.2.c of these Design Guidelines.

8.3 Utilities

a. All utilities, except as stated below, should be installed underground and all uses should be connected to approved and functioning public water and sanitary sewer systems. Prior to approval, an applicant must obtain a certificate from the appropriate agency allocating capacity in the system to the development.

b. Above-ground utility boxes, including transformers, should be screened from view by use of landscaping.

c. See "Utility Boxes" in Section 7.4.

8.4 PMUD Evaluation Standards + Criteria

As applicable, see **§101-141S** of the Township of Plainsboro Zoning Ordinance for site evaluation standards and criteria applicable to the PMUD Zone.

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Appendix F: Phasing Schedule

Amended September 21, 2020

Princeton Nurseries

2020 General Development Plan

Phasing Schedule

The intent of the Princeton Nurseries development is the creation of a highly amenitized walkable neighborhood that is anchored by a commercial main-street destination retail environment inclusive of vertically and horizontally mixed-uses. This new neighborhood will support a diverse range of shopping opportunities, modern innovative-collaborative office spaces, dining and entertainment options, integrated and activated open space, new and varied housing choices, including affordable housing, and vibrant gathering places for events. To achieve this environment, the following phasing will be followed after the initial site plan approval:

- **Initial Phase** – Forecasted build-out 1 to 3 years (following first Certificate of Occupancy).
  The project's intent will be met during the Initial Phase by development of both residential and non-residential components which shall include: (i) a non-residential component consisting of a minimum of 100,000 square feet, of which a minimum of 50,000 square feet of retail shall adjoin the central civic square defined in §101-141.F.(3) of the Plainsboro Township Ordinance as amended March 11, 2020; and (ii) a residential component consisting of a minimum of 250 and a maximum of 450 non-age restricted units, which shall include 30 affordable units. The affordable units shall be provided in accordance with the provisions of Paragraph 7 of this 2020 Developer's Agreement for the Princeton Nurseries General Development Plan. The residential component may utilize any of the approved residential typologies. As part of the Initial Phase, no less than 60% of the linear street frontage of any development adjoining the central civic square shall consist of buildings with at least one upper floor of active uses whether residential and/or nonresidential uses. In addition, a minimum of 40% of the central civic square shall be constructed. Together, the non-residential component, residential component and partial construction of the central civic square represents the "Initial Phase Base Development Program". If during the forecasted build-out time period for the Initial Phase, the applicant pursues non-residential development (office, retail, hotel) in excess of the Initial Base Development Program, additional residential units would be permitted in a ratio to nonresidential development equivalent to the Initial Phase Base Development Program. Age-restricted residential units are exempt from the above Initial Phase development criteria and may occur at any time without restriction.

- **Second Phase** – Forecasted build-out 5 to 8 years following initial site plan approval.
  The Second Phase shall include completion of construction of the central civic square and development of residential and non-residential components, including: (i) a minimum of 150,000 square feet; and, (ii) a residential component consisting of a minimum of 200 and a maximum of 275 non-age restricted units, which shall include 28 affordable units, which shall be set aside as affordable units in accordance with the provisions of Paragraph 7 of this 2020 Developer's Agreement for the Princeton Nurseries General Development Plan. The residential component may utilize any of the approved

typologies. Together, the non-residential component and residential component inclusive of the affordable units represents the "Second Phase Base Development Program". Construction can commence at any time. If during the forecasted build-out time period for the Second Phase, the applicant pursues non-residential development (office, retail, hotel) in excess of the Second Phase Base Development Program, additional residential units would be permitted in a ratio to nonresidential development equivalent to the Second Phase Base Development Program. Age-restricted residential units are exempt from the above Second Phase development criteria and may occur at any time without restriction.

- **Final Phase** – Forecasted build-out 8 to 19 years following the initial site plan approval. The Final Phase of the project shall include any mix of residential and non-residential development to complete the project as approved by the Princeton Nurseries General Development Plan and subsequent site plan approvals, including a sufficient number of affordable units such that the total number of affordable units in the Project (all three phases) equals 12.7 percent of the total number of non-age restricted residential units in the Project in accordance with the provisions of Paragraph 7 of this 2020 Developer's Agreement for the Princeton Nurseries General Development Plan. Construction can commence at any time.